



Tutorial

World Cup Schedule with Excel Do it yourself



Automatic group tables

**Consideration of all FIFA rules
including fair play and drawing lots**

Automatic assignment of teams in the knockout phase

Choice of national language

Choice of time zone

Direct comparison tables

Warning display if the order in a group is not clear

Table of contents

Goal setting	2
1 Structure of the schedule	3
2 Choice of the language	4
3 Choice of the time zone	8
4 Grouping and entry of the matches	10
4.1 Grouping	10
4.2 Matches	11
4.3 Kick-off times	11
4.4 Venues	13
5 Matches of the group stage	14
5.1 Formulas for the matches	14
5.2 Conditional formatting	15
6 Fair play and lot	17
7 Calculation of the group tables	18
7.1 Transfer of the match results	18
7.2 Ranking list – part 1	20
7.3 The Factors sheet	21
7.4 Ranking list – part 2	22
7.5 Direct comparison of three teams	23
7.6 Direct comparison of two teams	27
7.7 Ranking list – part 3	29
7.8 Group table on the schedule	30
8 Knockout phase	31
8.1 Round of 16	31
8.2 Quater-finals, semi-finals and finals	33
8.3 Notice when entering an invalid match result	35
9 Optional: The thing with the red dot	36
9.1 The red dot	36
9.2 The message	37
10 Optional: Additional overview of the direct comparisons	39
10.1 Visible area – part 1	40
10.2 Hidden area	43
10.3 Visible area – part 2	46
11 Adjusting the schedule after the group draw	48
Schedule for the next World Cup tournament in 2026	49
Source	50

Goal setting

The Excel schedule should have the following skills:

1. Automatic update of the group table

After each entry of a match result the group table is automatically updated.

All FIFA rules are taken into account, including fair play and drawing lots

2. Automatic assignment of teams in the knockout phase

The FIFA regulations for the knockout phase will be incorporated.

3. Multilingualism

The team names and all small and large headings are displayed in English, Spanish, Italian, French and German.

In addition, translations in your native language can be added.

4. Choice of time zone

All time zones of the earth can be selected in a selection field, so that the date and time of the matches are displayed in your own local time.

5. Colored highlighting of the current day's matches

The date of the matches that take place today is highlighted in color.

6. Colored highlighting of missing entries

If matches have already taken place in the past few days and no results have been entered, the input fields are highlighted in color.

7. Notice if an invalid tie was entered in the knockout phase

The matches in the knock-out phase will be decided by a penalty shoot-out at the latest. If a draw is entered for both the match result and the penalty shoot-out, a corresponding note will appear below the entry fields.

8. Display of all cases of direct comparison in the group stage

If at the end of the group stage two or three teams are tied in points, goal difference and goals scored, a direct comparison takes place in which only the matches of these teams against each other are taken into account.

These evaluations are shown on a separate worksheet.

9. Easier adaptation to future world championships

The formulas are kept flexible enough to save a lot of work when adapting them for the next World Cup. At the next World Cup in 2026 in USA/Canada/Mexico there will be 16 groups of three instead of 8 groups of four and an additional sixteenth final.

The **programming language VBA** (Visual Basic for Applications) is not used, because then the schedule can only be called up with Microsoft Excel. In addition, the majority of Excel fans are probably more familiar with formulas than with VBA.

The so-called **matrix formulas**, which are difficult to understand, are avoided. Only in the last (optional) chapter 10 there are used two matrix formulas, but they are easy to understand and are explained in detail.

1 Structure of the schedule

In the first step we create the template for the schedule. All fields remain empty at first because they later contain a formula that inserts the language-dependent content depending on the language selected. We call this first worksheet “World Cup”. It looks like this:

The screenshot shows an Excel spreadsheet titled "World Cup 2022" with columns A through Y and rows 1 through 92. The spreadsheet is structured as follows:

- Columns:** Columns A through V are visible, with columns Z and Y hidden. The title "World Cup 2022" is centered across columns K through S.
- Group A (Rows 9-10):** A header row for Group A matches.
- Match Details (Rows 11-14):** A detailed view of a match, including the stadium "Al Bayt", date "Mo, 21.11.2022", time "11:00", and teams "Uruguay" and "Nigeria".
- Final table (Rows 41-45):** A grid for the final table, with columns labeled 1A through 4A and rows labeled 1B through 4B.
- Round of 16 (Rows 47-56):** A grid for the Round of 16, with columns labeled "Round of 16 - 1" and "Round of 16 - 2".
- Quarter final (Rows 57-63):** A grid for the Quarter final stage.
- Final (Rows 67-73):** A grid for the final stage.
- Penalty shoot-out (Row 52):** A row for the penalty shoot-out.

The entries that can already be seen here are for illustration purposes only. They will be replaced by formulas later.

The columns from column Z and the rows from row 98 are hidden.

If you want to skip this step, you will find the finished result in the file named „WCup_Tut_1.xlsx“.

2 Choice of language

Before entries can be made anywhere, we need a worksheet with the translations of all team names and all labels into the various national languages. We are therefore creating a new worksheet with the name "**Language**". The illustration on the next two pages shows what this worksheet looks like.

It contains the first 80 nations in the FIFA World Ranking (as of March 2022).

For a particular group (e.g. Group A), we later select four nations by entering four of the consecutive numbers in the group table, e.g. 51 for Qatar, 1 for Brazil, 16 for Croatia and 30 for Nigeria (see chapter 4.1).

This gives us maximum flexibility for future schedules as well.

In the "my language" column, users can enter all translations in their own native language and then have a schedule entirely in their native language.

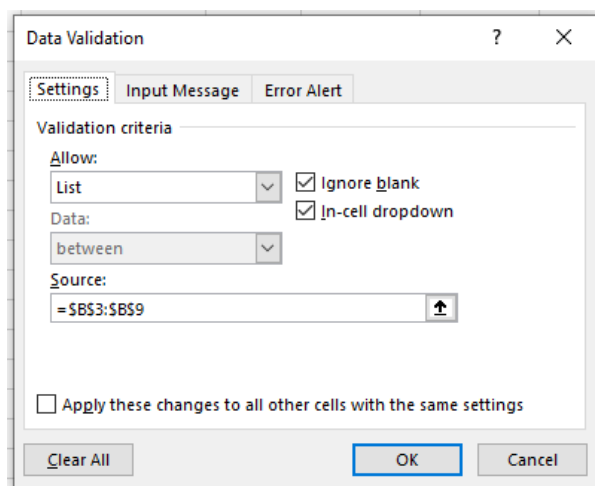
If you want to save yourself the work of creating this worksheet, you will find the finished result in the file named „**WCup_Tut_2.xlsx**“.

The following describes how this Excel sheet is created and how it works.

First, all texts must be entered in columns B, D, F, G, H, I, J and K.

Column D will play an important role - see chapter 4.

A selection field is setup in cell **N1**: Menu „Data → Data Tools → Data Validation“.



We choose the option „List“. We specify the range **\$B\$3:\$B\$9** as the source for the list elements. In this range we enter the languages: „english, spanish, italian, ...“.

Now we start with the first formulas. In cell **C3** we enter the formula **=IF(\$N\$1=B3;1;0)**. This means: if the language "english" was selected in cell **N1**, a „1“ appears in **C3**, otherwise a „0“. We now copy this formula down to cell **C9** (move the mouse to the lower right corner until the mouse pointer turns into a small black cross, then drag it down with the left mouse button pressed).

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1			Last update:		Choose language							Click here and choose language:	english	←
2			31.03.2022											
3	english	1	FIFA rank		english	spanish	italian	french	german	dutch	my language			
4	spanish	0												
5	italian	0	1	Brazil	Brazil	Brasil	Brasile	Brésil	Brasilien	Brazilië				
6	french	0	2	Belgium	Belgium	Belgio	Belgio	Belgique	Belgien	België				
7	german	0	3	France	France	Francia	Francia	France	Frankreich	Frankrijk				
8	dutch	0	4	Argentina	Argentina	Argentina	Argentina	Argentine	Argentiniën	Argentinië				
9	my language	0	5	England	England	Inglaterra	Inghilterra	Angleterre	England	Engeland				
10			6	Italy	Italy	Italia	Italia	Italie	Italien	Italië				
11			7	Spain	Spain	España	Spagna	Espagne	Spanien	Spanje				
12			8	Portugal	Portugal	Portugal	Portogallo	Portugal	Portugal	Portugal				
13			9	Mexico	Mexico	México	Messico	Mexique	Mexico	Mexico				
14			10	Netherlands	Netherlands	Paises Bajos	Paesi Bassi	Pays-Bas	Niederlande	Nederland				
15			11	Denmark	Denmark	Dinamarca	Danimarca	Danemark	Dänemark	Denemarken				
16			12	Germany	Germany	Alemania	Germania	Allemagne	Deutschland	Duitsland				
17			13	Uruguay	Uruguay	Uruguay	Uruguay	Uruguay	Uruguay	Uruguay				
18			14	Switzerland	Switzerland	Suiza	Svizzera	Suisse	Schweiz	Zwitserland				
19			15	USA	USA	EE.UU.	USA	USA	USA	USA				
20			16	Croatia	Croatia	Croacia	Croazia	Croatie	Kroatien	Kroatië				
21			17	Colombia	Colombia	Colombia	Colombia	Colombie	Kolumbiën	Colombia				
22			18	Wales	Wales	Galles	Galles	Pays de Galles	Wales	Wales				
23			19	Sweden	Sweden	Suecia	Svezia	Suède	Schweden	Zweden				
24			20	Senegal	Senegal	Senegal	Senegal	Sénégal	Senegal	Senegal				
25			21	IR Iran	IR Iran	Iran	Iran	L'Iran	Iran	Iran				
26			22	Peru	Peru	Perú	Perù	Pérou	Peru	Peru				
27			23	Japan	Japan	Japón	Giappone	Japon	Japan	Japan				
28			24	Morocco	Morocco	Marruecos	Marocco	Maroc	Marokko	Marokko				
29			25	Serbia	Serbia	Serbia	Serbia	Serbie	Serbien	Servië				
30			26	Poland	Poland	Polonia	Polonia	Pologne	Polen	Polen				
31			27	Ukraine	Ukraine	Ucrania	Ucraina	Ukraine	Ukraine	Oekraïne				
32			28	Chile	Chile	Chile	Cile	Chili	Chile	Chile				
33			29	South Korea	South Korea	Corea del Sur	Corea del Sud	Corée du Sud	Südkorea	Zuid-Korea				
34			30	Nigeria	Nigeria	Nigeria	Nigeria	Nigeria	Nigeria	Nigeria				
35			31	Costa Rica	Costa Rica	Costa Rica	Costa Rica	Costa Rica	Costa Rica	Costa Rica				
36			32	Egypt	Egypt	Egipto	Egitto	Egypte	Ägypten	Egypte				
37			33	Czechia	Czechia	Rep. Checa	Rep. Ceca	Rép. tchèque	Tschechien	Tsjechië				
38			34	Austria	Austria	Austria	Austria	Autriche	Oostenrijk	Oostenrijk				
39			35	Tunisia	Tunisia	Tuniez	Tunisia	Tunisie	Tunesien	Tunesië				
40			36	Russia	Russia	Rusia	Russia	Russie	Rusland	Rusland				
41			37	Cameroon	Cameroon	Camerún	Camerun	Cameroun	Kamerun	Kameroen				
42			38	Canada	Canada	Canadá	Canada	Canada	Kanada	Canada				
43			39	Scotland	Scotland	Escocia	Scozia	Écosse	Schotland	Schotland				
44			40	Hungary	Hungary	Hungria	Ungheria	Hongrie	Ungarn	Hongarije				
45			41	Norway	Norway	Noruega	Norvegia	Norvège	Norwegen	Noorwegen				
46			42	Australia	Australia	Australia	Australia	Australie	Australien	Australië				
47			43	Turkey	Turkey	Türquia	Turchia	Turquie	Turkije	Turkije				
48			44	Algeria	Algeria	Argelia	Algeria	Algérie	Algerien	Algerije				
49			45	Slovakia	Slovakia	Eslovaquia	Slovacchia	Slovaquie	Slowakei	Slovakije				
50			46	Ecuador	Ecuador	Ecuador	Ecuador	Équateur	Ecuador	Ecuador				
51			47	Ireland	Ireland	Irlanda	Irlanda	Irlande	Ierland	Ierland				
52			48	Romania	Romania	Rumania	Romania	Roumanie	Rumänien	Roemenië				
53			49	Saudi Arabia	Saudi Arabia	Arabia Saudita	Arabia Saudita	Arabie Saoudite	Saudi-Arabien	Saudi-Arabie				
54			50	Paraguay	Paraguay	Paraguay	Paraguay	Paraguay	Paraguay	Paraguay				
55			51	Qatar	Qatar	Qatar	Qatar	Qatar	Qatar	Qatar				
56			52	Mali	Mali	Mali	Mali	Mali	Mali	Mali				
57			53	Ivory Coast	Ivory Coast	Costa de Marfil	Costa d'Avorio	Côte d'Ivoire	Elfenbeinküste	Ivoorkust				
58			54	Northern Ireland	Northern Ireland	Irlanda del Norte	Irlanda del Nord	Irlande du Nord	Nordirland	Noord-Ierland				
59			55	Greece	Greece	Grecia	Grecia	Grèce	Griekenland	Griekenland				
60			56	Burkina Faso	Burkina Faso	Burkina Faso	Burkina Faso	Burkina Faso	Burkina Faso	Burkina Faso				
61			57	Finland	Finland	Finlandia	Finlandia	Finlande	Finland	Finland				
62			58	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela	Venezuela				
63			59	Bosnia a. Herzeg.	Bosnia a. Herzeg.	Bosnia y Herzeg.	Bosnia ed Erzeg.	Bosnie-Herzég.	Bosnien/Herzeg.	Bosnië/Herzegow.				
64			60	Ghana	Ghana	Ghana	Ghana	Ghana	Ghana	Ghana				
65			61	Panama	Panama	Panamá	Panama	Panama	Panama	Panama				
66			62	North Macedonia	North Macedonia	Macedonia Norte	Nord Macedonia	Macédoine Nord	Nordmazedoniën	Noord-Macedonië				
67			63	Iceland	Iceland	Islandia	Islandia	Islande	Island	Island				
68			64	Jamaica	Jamaica	Jamaica	Giamaica	Jamaïque	Jamaika	Jamaica				
69			65	Slovenia	Slovenia	Slovenia	Slovenia	Slovénie	Sloveniën	Slovenië				
70			66	Albania	Albania	Albania	Albania	Albanie	Albanien	Albanië				
71			67	Congo	Congo	Congo	Congo	Congo	Kongo	Congo				
72			68	Un. Ar. Emirates	Un. Ar. Emirates	Emiratos Ár. Un.	Emirati Ar. Un.	Emirats Ar. Un.	Ver. Arab. Emirate	Ver. Arab. Emirate				
73			69	South Africa	South Africa	Sudáfrica	Sudáfrica	Afrique du Sud	Zuid-Afrika	Zuid-Afrika				
74			70	Montenegro	Montenegro	Montenegro	Montenegro	Monténégro	Montenegro	Montenegro				
75			72	Iraq	Iraq	Iraq	Iraq	Irak	Irak	Irak				
76			73	Bulgaria	Bulgaria	Bulgaria	Bulgaria	Bulgarie	Bulgariën	Bulgarije				
77			76	Israel	Israel	Israel	Israël	Israël	Israel	Israel				
78			77	China	China	China	Cina	Chine	China	China				
79			78	Bolivia	Bolivia	Bolivia	Bolivia	Bolivië	Boliviën	Bolivië				
80			82	Honduras	Honduras	Honduras	Honduras	Honduras	Honduras	Honduras				
81			89	Bahrain	Bahrain	Bahrein	Bahrein	Bahrein	Bahrain	Bahrain				
82			92	Armenia	Armenia	Armenia	Armenia	Arménie	Armenien	Armenië				
83			93	Belarus	Belarus	Bielorrusia	Bielorussia	Bélarus	Weißrussland	Wit-Rusland				
84				Uzbekistan	Uzbekistan	Uzbekistán	Uzbekistan	Ouzbékistan	Uzbekistan	Oezbekistan				
85				Haiti	Haiti	Haiti	Haiti	Haiti	Haiti	Haiti				
86				El Salvador	El Salvador	El Salvador	El Salvador	El Salvador	El Salvador	El Salvador				
87				Oman	Oman	Omán	Oman	Oman	Oman	Oman				
88				Kosovo	Kosovo	Kosovo	Kosovo	Kosovo	Kosovo	Kosovo				
89				Georgia	Georgia	Georgia	Georgia	Georgie	Georgien	Georgië				
90			99	New Zealand	New Zealand	Nueva Zelanda	Nuova Zelanda	Nouvelle-Zélande	Neuseeland	Nieuw-Zeeland				
91			101	Playoff UEFA	Playoff UEFA	Playoff UEFA	Playoff UEFA	Playoff UEFA	Playoff UEFA	Playoff UEFA				
92			102	Playoff Int. 1	Playoff Int. 1	Playoff Int. 1	Playoff Int. 1	Playoff Int. 1	Playoff Int. 1	Playoff Int. 1				
93			103	Playoff Int. 2	Playoff Int. 2	Playoff Int. 2	Playoff Int. 2	Playoff Int. 2	Playoff Int. 2	Playoff Int. 2				
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114														
115				World Cup 2022 in Qatar	World Cup 2022 in Qatar	Copa del Mundo 2022 en Qatar	Mondiali 2022 in Qatar	Coupe du monde 2022 au Qatar	WM					

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
123					Captions									
124				Group	Group	Grupo	Gruppo	Groupe	Gruppe	Groep				
125				Pts.	Pts.	Pt.	Pt.	Pt.	Pkt.	Ptn.				
126				GD	GD	Dif.	Diff.	Diff.	TD	DS				
127				Goals	Goals	Goles	Gol	Buts	Tore	Doelpunten				
128				Pts. Goals	Pts. Goals	Pt. Goles	Pt. Gol	Pt. Buts	Pkt. Tore	Ptn. Doelp.				
129				Total	Total	Total	Totale	Total	Totaal	Total				
130				Fair Play/Lot	Fair Play/Lot	Fair Play/Sort.	Fair Play/Sort.	Fair-Play/Sort	Fair-Play/Los	Fair Play/Loting				
131				Not clear	Not clear	No es claro	Non chiaro	Pas clair	Nicht klar	Niet duidelijk				
132				Dir. Comp.(2)	Dir. Comp.(2)	Comp. dir.(2)	Confr. dir.(2)	Comp. dir.(2)	Dir. Vergl.(2)	Dir. Vergl.(2)				
133				Dir. Comp.(3)	Dir. Comp.(3)	Comp. dir.(3)	Confr. dir.(3)	Comp. dir.(3)	Dir. Vergl.(3)	Dir. Vergl.(3)				
134				Final table	Final table	Mesa final	Tavolo finale	Tableau final	Schlusstabelle	Eindstand groep				
135				World Champion 2022:	World Champion 2022:	Campeón del Mundo 20	Campione del mondo 20	Champion du monde 20	Weltmeister 2022:	Wereldkampioen 2022:				
136				1 Round of 16 - 1	Round of 16 - 1	Octavos de final 1	Ottavi di finale 1	huitièmes de finale 1	Achtelfinale 1	Achtste finale 1				
137				2 Round of 16 - 2	Round of 16 - 2	Octavos de final 2	Ottavi di finale 2	huitièmes de finale 2	Achtelfinale 2	Achtste finale 2				
138				3 Round of 16 - 3	Round of 16 - 3	Octavos de final 3	Ottavi di finale 3	huitièmes de finale 3	Achtelfinale 3	Achtste finale 3				
139				4 Round of 16 - 4	Round of 16 - 4	Octavos de final 4	Ottavi di finale 4	huitièmes de finale 4	Achtelfinale 4	Achtste finale 4				
140				5 Round of 16 - 5	Round of 16 - 5	Octavos de final 5	Ottavi di finale 5	huitièmes de finale 5	Achtelfinale 5	Achtste finale 5				
141				6 Round of 16 - 6	Round of 16 - 6	Octavos de final 6	Ottavi di finale 6	huitièmes de finale 6	Achtelfinale 6	Achtste finale 6				
142				7 Round of 16 - 7	Round of 16 - 7	Octavos de final 7	Ottavi di finale 7	huitièmes de finale 7	Achtelfinale 7	Achtste finale 7				
143				8 Round of 16 - 8	Round of 16 - 8	Octavos de final 8	Ottavi di finale 8	huitièmes de finale 8	Achtelfinale 8	Achtste finale 8				
144				1 Quarter final 1	Quarter final 1	Cuartos de final 1	Quarti di finale 1	Quarts de finale 1	Viertelfinale 1	Kwart finale 1				
145				2 Quarter final 2	Quarter final 2	Cuartos de final 2	Quarti di finale 2	Quarts de finale 2	Viertelfinale 2	Kwart finale 2				
146				3 Quarter final 3	Quarter final 3	Cuartos de final 3	Quarti di finale 3	Quarts de finale 3	Viertelfinale 3	Kwart finale 3				
147				4 Quarter final 4	Quarter final 4	Cuartos de final 4	Quarti di finale 4	Quarts de finale 4	Viertelfinale 4	Kwart finale 4				
148				Semi-Final 1	Semi-Final 1	Semifinales 1	Semifinali 1	Demi-finales 1	Halbfinale 1	Halve finale 1				
149				Semi-Final 2	Semi-Final 2	Semifinales 2	Semifinali 2	Demi-finales 2	Halbfinale 2	Halve finale 2				
150				Third place	Third place	Tercer lugar	Terzo posto	Troisième place	Dritter Platz	Derde plaats				
151				Final	Final	Final	Finale	Finale	Finale	Finale				
152				Bonus	Bonus	Prima	Prime	Prime	Bonus	Bonus				
153				Penalty shoot-out:	Penalty shoot-out:	Tiro de penalti:	Tiro di rigore:	Tirs au but :	Elfmeterschießen:	Penalties:				
154														
155					Message									
156				Groups with fair play valuation or drawing lots:	Groups with fair play valuation or drawing lots:	Grupos con valoración de fair play o sorteo:	Gruppi con valutazione fair play o sorteggio:	Groupes avec valorisation fair-play ou tirage au sort :	Gruppen mit Fair-Play-Wertung oder Losentscheid:	Groepen met Fair-Play score of geloot:				
157				The placement has been clarified in all groups.	The placement has been clarified in all groups.	La ubicación se ha aclarado en todos los grupos.	Il posizionamento è stato chiarito in tutti i gruppi.	Le placement a été clarifié dans tous les groupes.	Die Platzierung ist in allen Gruppen geklärt.	De rangschikking is verduidelijkt in alle groepen.				
158				and	and	y	e	et	und	en				
159				Invalid result!	Invalid result!	¡Resultado no válido!	Risultato non valido	Résultat invalide !	Unzulässiges Ergebnis!	Ongeldig resultaat!				
160				In the case of two teams, if the fair play evaluation or the lottery decides on the better placement in the group, a "1" is entered here for the better team.	In the case of two teams, if the fair play evaluation or the lottery decides on the better placement in the group, a "1" is entered here for the better team.	En el caso de dos equipos, si la clasificación de juego limpio o la lotería deciden la mejor ubicación en el grupo, aquí se ingresa un "1" para el mejor equipo.	Nel caso di due squadre, se la valutazione del fair play o la lotteria decidono il miglior piazzamento nel girone, qui viene inserito un "1" per la squadra migliore.	Dans le cas de deux équipes, si le classement du fair-play ou la loterie décide du meilleur placement dans le groupe, un "1" est inscrit ici pour la meilleure équipe.	Entscheidet bei zwei Mannschaften die Fair-Play-Wertung oder das Los über die bessere Platzierung in der Gruppe, so wird hier für die bessere Mannschaft eine "1" eingetragen.	In het geval van twee teams, als door toepassing van Fair-Play of loting bepaald wordt voor de betere kwalificatie in de groep, wordt hier een '1' geplaatst voor het betere team.				
161				Click here and choose time zone:	Click here and choose time zone:	Seleccione la zona horaria:	Seleziona il fuso orario:	Sélectionnez le fuseau horaire :	Hier klicken und Zeitzone wählen:	Klik hier en kies de tijdzone:				
162				Time zone of the host country:	Time zone of the host country:	Zona horaria del país anfitrión:	Fuso orario del paese ospitante:	Fuseau horaire de l'hôte pays hôte :	Zeitzone des Gastgeberlandes:	Tijdzone van het gastland:				
163				Click here and choose language:	Click here and choose language:	Haga clic aquí y elija el idioma:	Clicca qui e scegli la lingua:	Cliquez ici et choisissez la langue :	Hier klicken und Sprache wählen:	Klik hier en kies de taal:				
164				-	-	-	-	-	:	:				
165				For daylight saving time, the time zone must be adjusted accordingly (e.g. UTC+2 instead of UTC+1)	For daylight saving time, the time zone must be adjusted accordingly (e.g. UTC+2 instead of UTC+1)	Para el horario de verano, la zona horaria debe ajustarse en consecuencia (por ejemplo, UTC+2 en lugar de UTC+1)	Per l'ora legale, il fuso orario deve essere regolato di conseguenza (ad esempio UTC+2 invece di UTC+1)	Pour l'heure d'été, le fuseau horaire doit être ajusté en conséquence (par exemple, UTC+2 au lieu de UTC+1)	Bei Sommerzeit muss die Zeitzone entsprechend angepasst werden (z. B. UTC+2 statt UTC+1)	De tijdzone moet dienovereenkomstig worden aangepast voor de zomertijd (b.v. UTC+2 in plaats van UTC+1).				
166														
167														

A „1“ now appears to the right of the language that was selected in field **N1**. Unfortunately, however, someone can also click cell **N1** and then press the "Delete" key. Then no language is selected at all. In this case, the language "english" should be selected (default value).

To make that happen, let's change the formula in cell **C3**:

```
=IF(AND($M$1<>B4,$M$1<>B5,$M$1<>B6,$M$1<>B7,$M$1<>B8,$M$1<>B9);1;0)
```

That means: If none of the other languages is selected, then there should be a „1“ for "english".

In column E we now enter formulas which copy the texts of the selected language into column E.

We start with cell **E5**:

```
=IF($C$3,F5,IF($C$4,G5,IF($C$5,H5,IF($C$6,I5,IF($C$7,J5,IF($C$7,K5,IF(L5<>"" ,L5,F5))))))
```

The formula starts with =IF(\$C\$3,F5,... It should actually be there =IF(\$C\$3=1,F5,...

If there is a „1“ in **C3**, the English text from **F5** should be copied into column E. Since Excel regards a „1“ as TRUE and a „0“ as FALSE, it is sufficient to write IF(\$C\$3, here.

If there is a „1“ in **C3** (**C3** is TRUE), the text from **F5** is adopted in **E5**, otherwise there is another IF condition:

```
IF($C$4,G5,... If C4 is 1, the Spanish text is copied from cell G5 to E5, and so on.
```

We copy the formula in **E5** down to cell **E166**. In the lines where no translations take place, we delete the formulas, e.g. in **E95, E96, E114, E115**, ... The dollar signs in the formula are important: **\$C\$3** should remain unchanged in the next line, but **F5** should become **F6, F7**, etc.

The auxiliary columns B, C and E can be hidden later.

As a first test, we connect the cells **E1** to **U1** on the worksheet "World Cup" and enter the formula **=Language!\$E\$115** . The title of our match schedule now appears in the selected language.

The current status of the schedule can be found in the file named „**WCup_Tut_2.xlsx**“.

3 Choice of time zone

We will create a new worksheet called "TimeZone".

	A	B	C	D	E	F	G	H	I	J	K	L	
1	Choose time zone						Click here and choose time zone:	UTC + 1	←				
2													
3													
4		-12	UTC - 12	IDLW	-0,5		For daylight saving time, the time zone must be adjusted accordingly (e.g. UTC+2 instead of UTC+1)						
5		-11	UTC - 11		-0,5							Time zone of the host country:	UTC + 3
6		-10	UTC - 10	HAST	-0,4								
7		-9	UTC - 9	AKST	-0,4								
8		-8	UTC - 8	PST	-0,3								
9		-7	UTC - 7	MST	-0,3								
10		-6	UTC - 6	CST	-0,3								
11		-5	UTC - 5	EST	-0,2								
12		-4	UTC - 4	AST	-0,2								
13		-3,5	UTC - 3:30	NST	-0,1								
14		-3	UTC - 3		-0,1								
15		-2	UTC - 2		-0,1								
16		-1	UTC - 1		-0								
17		0	UTC	WET	0								
18		1	UTC + 1	CET/WEST	0,04								
19		2	UTC + 2	EET/CEST	0,08								
20		3	UTC + 3	AST/EAT	0,13								
21		3,5	UTC + 3:30	IRT	0,15								
22		4	UTC + 4		0,17								
23		4,5	UTC + 4:30		0,19								
24		5	UTC + 5		0,21								
25		5,5	UTC + 5:30	IST	0,23								
26		5,75	UTC + 5:45		0,24								
27		6	UTC + 6		0,25								
28		6,5	UTC + 6:30		0,27								
29		7	UTC + 7	ICT	0,29								
30		8	UTC + 8	CNST	0,33								
31		9	UTC + 9	JST	0,38								
32		9,5	UTC + 9:30	ACST	0,4								
33		10	UTC + 10		0,42								
34		10,5	UTC + 10:30		0,44								
35		11	UTC + 11		0,46								
36		12	UTC + 12	IDLE/NZST	0,5								
37		12,75	UTC + 12:45		0,53								
38		13	UTC + 13		0,54								
39		14	UTC + 14		0,58								
40													

We enter the formula `=Language!E118` in cell **A1** and merge cells **A1** to **F1**.

In column C we enter the currently existing time zones. We start with cell **C4**. In cell **H1** we create a selection field that contains exactly this list of time zones (range **\$C\$4:\$C\$39**). The additional designations in column D are for convenience only and have no further functionality.

The numbers in the range **\$B\$4:\$B\$39** are decisive for the calculations of date and time. These are the shifts in hours compared to the coordinated universal time UTC. Central European Time CET, for example, is UTC+1. These numbers are not generated by a formula, but entered manually.

The kick-off times for the individual matches are always given by FIFA in local time. So that this schedule can also be easily adapted for future world championships, we connect cells **L5** and **L6** and create the same selection field here as in **H1**. The time zone of the host country should be entered here. The columns from column K onwards will be hidden later.

The time in Qatar is UTC+3. Therefore we select the time zone UTC+3 in this second selection field.

We will take this time zone into account in the conversion formulas for the various local times. In this way, you only need to enter the official kick-off times of the host country for each World Cup and select the time zone of the host country in the second selection field. Everything else is then calculated automatically (see Section 4.2).

In column B, the hour shifts are in a form that we can read. Excel saves the hours in fractions of a day in its date and time formats. So three hours would be $3/24 = 0.125$.

In Excel, a complete date with time (a timestamp) is nothing more than a decimal number indicating the number of days that have passed since 01.01.1900, 00:00 hours. The whole days are in front of the comma, the digits after the comma indicate the fraction of a day. So these digits contain the hours, minutes and seconds.

If we add the decimal number 0.125 to a full Excel date, we have added three hours to it. That's exactly what we want to achieve when converting to another time zone.

In cell **E4** we enter the formula `=B4/24` and copy it down to **E39**. So we have the corresponding decimal number for each time zone, which we have to add to a UTC time.

The cells **G4:I6** are merged and we enter the formula `=Language!E165`. Cell **G1** contains the formula `=Language!E161` and the merged cells **K5:K6** contain the formula `=Language!E162`.

We select the cells **C4** and **D4** and insert a conditional formatting with the formula `=H1=$C4`. The selected time zone should be coloured green. The formatting is transferred to all time zones in columns C and D with the help of the "Format painter".

Columns B and E will be hidden later.

The current status of the schedule can be found in the file named „**WCup_Tut_3.xlsx**“.

4 Grouping and entry of the matches

The simplest way would be to enter the matches in the individual groups directly on the "World Cup" spreadsheet. In order to achieve maximum flexibility and make it as convenient as possible to adapt the match schedule for future tournaments, we will include two intermediate steps.

In the first step, we make the grouping on an extra spreadsheet called "Groups". In the second step, we create an overview of the 64 matches of the tournament on a spreadsheet called "Matches". The transfer to the spreadsheet "World Cup" is then done automatically with the help of formulas.

4.1 Grouping

We create a new spreadsheet called "Groups".

The names of the nations are already available in different languages on the "Language" spreadsheet. The grouping should now take place on the worksheet "Groups".

	A	B	C	D	E
1					
2				Groups	
3					
4		Team	Team no.	Name	
5					
6				A	
7		A1	51	Qatar	
8		A2	46	Ecuador	
9		A3	20	Senegal	
10		A4	10	Netherlands	
11				B	
12		B1	5	England	
13		B2	21	IR Iran	
14		B3	15	USA	
15		B4	18	Wales	
16				C	
17		C1	4	Argentina	
18		C2	49	Saudi Arabia	
19		C3	9	Mexico	
20		C4	26	Poland	
21				D	
22		D1	3	France	
23		D2	42	Australia	
24		D3	11	Denmark	
25		D4	35	Tunisia	
26				E	
27		E1	7	Spain	
28		E2	31	Costa Rica	
29		E3	12	Germany	
30		E4	23	Japan	
31				F	
32		F1	2	Belgium	
33		F2	38	Canada	
34		F3	24	Morocco	
35		F4	16	Croatia	
36				G	
37		G1	1	Brazil	
38		G2	25	Serbia	
39		G3	14	Switzerland	
40		G4	37	Cameroon	
41				H	
42		H1	8	Portugal	
43		H2	60	Ghana	
44		H3	13	Uruguay	
45		H4	29	South Korea	
46					

In column B we enter the abbreviations A1, A2, ... H4. In column C we enter the numbers from the FIFA World Ranking List on the spreadsheet "Language", i.e. 51 for Qatar, 46 for Ecuador, 20 for Senegal, etc.

For a new grouping, simply change these numbers.

In order for the corresponding names to appear automatically in column D, we enter the following formula in cell **D7**:

=VLOOKUP(\$C7,Language!\$D\$5:\$E\$94,2,0)

The **VLOOKUP** function has four parameters.

1st parameter: **\$C7**

The content of **C7** is searched for, in our example for "51".

2nd parameter: **Language!\$D\$5:\$E\$94**

This is the range where searches are made and found. The search column is always the first column on the far left.

3rd Parameter: **2**

The result is to be found in the second column.

4th Parameter: **0**

The "0" (or also "FALSE") has the effect that when searching in the search column, only exact matches are found.

So the formula looks in our FIFA World Ranking List to see which name belongs to number 51 and enters this name in cell **D7**.

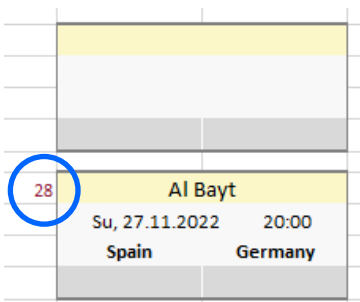
We copy the formula down to cell **D45**.

4.2 Matches

We'll create a new worksheet called "**Matches**" (see illustration on next page).

The idea is this:

We create an overview of all 64 matches on the "Matches" sheet. We number the matches from 1 to 64. These numbers are entered in column B. The order is determined by FIFA's actual scheme for running the tournament: first the group matches A1-A2, A3-A4, B1-B2, B3-B4 ect., then the knock-out matches.



28	Al Bayt
Su, 27.11.2022	20:00
Spain	Germany

On the "World Cup" worksheet, our actual schedule, there is a box for each match with the venue, date, teams and result. Each of these boxes is given one of these numbers at the top left, for example the number 28. The formulas in the box then cause the data of match 28 to be displayed in the box.

When adapting to a new World Cup, we are now free to decide where to place match No. 28 on the new schedule.

In columns C and D of the spreadsheet "Matches", we first transfer the teams according to the usual FIFA scheme. Match no. 28 would be E1-E3, i.e. team 1 of group E against team 3 of group E.

In the columns I and J, we do not enter the names directly, but a formula that provides us with the names automatically. Cell **C4** contains **A1**. So we have to look up the name of the first team for match no. 1 on the sheet "Groups" under **A1**. We'll find this name in cell **Groups!D7**.

The **VLOOKUP** function is available in Excel for such a lookup. Therefore we enter the following formula in cell **I4** on the "Matches" worksheet: **=VLOOKUP(C4,Groups!\$B\$7:\$D\$45,3,0)**

It is important that the first parameter does not contain any dollar signs. So we can copy this formula to the right and down at the same time. We go to the lower right corner of cell **I4** until the cursor turns into a small black cross and drag the formula over the entire range **I4: J51**. Now the team names appear in this range in the currently selected language.

4.3 Kick-off times

In column **E** we enter the date and time for each match and format the cells so that the date and time are displayed.

In column **F**, the times should now be converted into the time zone that was selected in the cell **TimeZone!H1**.

We enter the following formula in **F4**:

```
=E4-VLOOKUP(TimeZone!$L$5,TimeZone!$C$4:$E$39,3,0)
+VLOOKUP(TimeZone!$H$1,TimeZone!$C$4:$E$39,3,0)
```

The first VLOOKUP function looks up the table of all time zones to see which decimal number (positive or negative) corresponds to the local time of the host country. In the Qatar example, this is the number $3/24 = 0.125$.

This number (0.125) is first subtracted from the time at the venue (E4). Three hours are subtracted. That means it is converted to UTC. The expression **VLOOKUP(TimeZone!\$H\$1,TimeZone!\$C\$4:\$E\$39,3,0)** is now used to look up in the table of all time zones which decimal number (positive or negative) still has to be added to get the desired local time.

We copy the formula in **F4** down to **F72**.

In cells **F52**, **F61**, **F66**, **F69** and **F71** we delete the formula again.

	A	B	C	D	E	F	G	H	I	J	K	
1	Matches											
2												
3	Match No.	Teams		Date (local time host)		Date (my time)		Venue no.	Venue	Team 1	Team 2	Order of headings
4	1	A1	A2	So, 20.11.2022	19:00	So, 20.11.2022	17:00	1	Al Bayt	Qatar	Ecuador	
5	2	A3	A4	Mo, 21.11.2022	19:00	Mo, 21.11.2022	17:00	3	Al Thumama	Senegal	Netherlands	
6	3	B1	B2	Mo, 21.11.2022	16:00	Mo, 21.11.2022	14:00	2	Khalifa Internat.	England	IR Iran	
7	4	B3	B4	Mo, 21.11.2022	22:00	Mo, 21.11.2022	20:00	4	Ahmad Bin Ali	USA	Wales	
8	5	D1	D2	Di, 22.11.2022	22:00	Di, 22.11.2022	20:00	8	Al Janoub	France	Australia	
9	6	D3	D4	Di, 22.11.2022	16:00	Di, 22.11.2022	14:00	7	Education City	Denmark	Tunisia	
10	7	C3	C4	Di, 22.11.2022	19:00	Di, 22.11.2022	17:00	6	Stadium 974	Mexico	Poland	
11	8	C1	C2	Di, 22.11.2022	13:00	Di, 22.11.2022	11:00	5	Lusail	Argentina	Saudi Arabia	
12	9	F1	F2	Mi, 23.11.2022	22:00	Mi, 23.11.2022	20:00	4	Ahmad Bin Ali	Belgium	Canada	
13	10	E1	E2	Mi, 23.11.2022	19:00	Mi, 23.11.2022	17:00	3	Al Thumama	Spain	Costa Rica	
14	11	E3	E4	Mi, 23.11.2022	16:00	Mi, 23.11.2022	14:00	2	Khalifa Internat.	Germany	Japan	
15	12	F3	F4	Mi, 23.11.2022	13:00	Mi, 23.11.2022	11:00	1	Al Bayt	Morocco	Croatia	
16	13	G3	G4	Do, 24.11.2022	13:00	Do, 24.11.2022	11:00	8	Al Janoub	Switzerland	Cameroon	
17	14	H3	H4	Do, 24.11.2022	16:00	Do, 24.11.2022	14:00	7	Education City	Uruguay	South Korea	
18	15	H1	H2	Do, 24.11.2022	19:00	Do, 24.11.2022	17:00	6	Stadium 974	Portugal	Ghana	
19	16	G1	G2	Do, 24.11.2022	22:00	Do, 24.11.2022	20:00	5	Lusail	Brazil	Serbia	
20	17	B4	B2	Fr, 25.11.2022	13:00	Fr, 25.11.2022	11:00	4	Ahmad Bin Ali	Wales	IR Iran	
21	18	A1	A3	Fr, 25.11.2022	16:00	Fr, 25.11.2022	14:00	3	Al Thumama	Qatar	Senegal	
22	19	A4	A2	Fr, 25.11.2022	19:00	Fr, 25.11.2022	17:00	2	Khalifa Internat.	Netherlands	Ecuador	
23	20	B1	B3	Fr, 25.11.2022	22:00	Fr, 25.11.2022	20:00	1	Al Bayt	England	USA	
24	21	D4	D2	Sa, 26.11.2022	13:00	Sa, 26.11.2022	11:00	8	Al Janoub	Tunisia	Australia	
25	22	C4	C2	Sa, 26.11.2022	16:00	Sa, 26.11.2022	14:00	7	Education City	Poland	Saudi Arabia	
26	23	D1	D3	Sa, 26.11.2022	19:00	Sa, 26.11.2022	17:00	6	Stadium 974	France	Denmark	
27	24	C1	C3	Sa, 26.11.2022	22:00	Sa, 26.11.2022	20:00	5	Lusail	Argentina	Mexico	
28	25	E4	E2	So, 27.11.2022	13:00	So, 27.11.2022	11:00	4	Ahmad Bin Ali	Japan	Costa Rica	
29	26	F1	F3	So, 27.11.2022	16:00	So, 27.11.2022	14:00	3	Al Thumama	Belgium	Morocco	
30	27	F4	F2	So, 27.11.2022	19:00	So, 27.11.2022	17:00	2	Khalifa Internat.	Croatia	Canada	
31	28	E1	E3	So, 27.11.2022	22:00	So, 27.11.2022	20:00	1	Al Bayt	Spain	Germany	
32	29	G4	G2	Mo, 28.11.2022	13:00	Mo, 28.11.2022	11:00	8	Al Janoub	Cameroon	Serbia	
33	30	H4	H2	Mo, 28.11.2022	16:00	Mo, 28.11.2022	14:00	7	Education City	South Korea	Ghana	
34	31	G1	G3	Mo, 28.11.2022	19:00	Mo, 28.11.2022	17:00	6	Stadium 974	Brazil	Switzerland	
35	32	H1	H3	Mo, 28.11.2022	22:00	Mo, 28.11.2022	20:00	5	Lusail	Portugal	Uruguay	
36	33	B4	B1	Di, 29.11.2022	22:00	Di, 29.11.2022	20:00	4	Ahmad Bin Ali	Wales	England	
37	34	B2	B3	Di, 29.11.2022	22:00	Di, 29.11.2022	20:00	3	Al Thumama	IR Iran	USA	
38	35	A2	A3	Di, 29.11.2022	18:00	Di, 29.11.2022	16:00	2	Khalifa Internat.	Ecuador	Senegal	
39	36	A4	A1	Di, 29.11.2022	18:00	Di, 29.11.2022	16:00	1	Al Bayt	Netherlands	Qatar	
40	37	D2	D3	Mi, 30.11.2022	18:00	Mi, 30.11.2022	16:00	8	Al Janoub	Australia	Denmark	
41	38	D4	D1	Mi, 30.11.2022	18:00	Mi, 30.11.2022	16:00	7	Education City	Tunisia	France	
42	39	C4	C1	Mi, 30.11.2022	22:00	Mi, 30.11.2022	20:00	6	Stadium 974	Poland	Argentina	
43	40	C2	C3	Mi, 30.11.2022	22:00	Mi, 30.11.2022	20:00	5	Lusail	Saudi Arabia	Mexico	
44	41	F4	F1	Do, 01.12.2022	18:00	Do, 01.12.2022	16:00	4	Ahmad Bin Ali	Croatia	Belgium	
45	42	F2	F3	Do, 01.12.2022	18:00	Do, 01.12.2022	16:00	3	Al Thumama	Canada	Morocco	
46	43	E4	E1	Do, 01.12.2022	22:00	Do, 01.12.2022	20:00	2	Khalifa Internat.	Japan	Spain	
47	44	E2	E3	Do, 01.12.2022	22:00	Do, 01.12.2022	20:00	1	Al Bayt	Costa Rica	Germany	
48	45	H2	H3	Fr, 02.12.2022	18:00	Fr, 02.12.2022	16:00	8	Al Janoub	Ghana	Uruguay	
49	46	H4	H1	Fr, 02.12.2022	18:00	Fr, 02.12.2022	16:00	7	Education City	South Korea	Portugal	
50	47	G2	G3	Fr, 02.12.2022	22:00	Fr, 02.12.2022	20:00	6	Stadium 974	Serbia	Switzerland	
51	48	G4	G1	Fr, 02.12.2022	22:00	Fr, 02.12.2022	20:00	5	Lusail	Cameroon	Brazil	
52	1/8 finals											
53	49	1A	2B	Sa, 03.12.2022	18:00	Sa, 03.12.2022	16:00	2	Khalifa Internat.			
54	50	1C	2D	Sa, 03.12.2022	22:00	Sa, 03.12.2022	20:00	4	Ahmad Bin Ali			
55	51	1B	2A	So, 04.12.2022	22:00	So, 04.12.2022	20:00	1	Al Bayt			
56	52	1D	2C	So, 04.12.2022	18:00	So, 04.12.2022	16:00	3	Al Thumama			
57	53	1E	2F	Mo, 05.12.2022	18:00	Mo, 05.12.2022	16:00	8	Al Janoub			
58	54	1G	2H	Mo, 05.12.2022	22:00	Mo, 05.12.2022	20:00	6	Stadium 974			
59	55	1F	2E	Di, 06.12.2022	18:00	Di, 06.12.2022	16:00	7	Education City			
60	56	1H	2G	Di, 06.12.2022	22:00	Di, 06.12.2022	20:00	5	Lusail			
61	1/4 finals											
62	57	W49	W50	Fr, 09.12.2022	22:00	Fr, 09.12.2022	20:00	5	Lusail			
63	58	W53	W54	Fr, 09.12.2022	18:00	Fr, 09.12.2022	16:00	7	Education City			
64	59	W51	W52	Sa, 10.12.2022	22:00	Sa, 10.12.2022	20:00	1	Al Bayt			
65	60	W55	W56	Sa, 10.12.2022	18:00	Sa, 10.12.2022	16:00	3	Al Thumama			
66	1/2 finals											
67	61	W57	W58	Di, 13.12.2022	22:00	Di, 13.12.2022	20:00	5	Lusail			
68	62	W59	W60	Mi, 14.12.2022	22:00	Mi, 14.12.2022	20:00	1	Al Bayt			
69	Third Place											
70	63	RU61	RU62	Sa, 17.12.2022	18:00	Sa, 17.12.2022	16:00	2	Khalifa Internat.			
71	Final											
72	64	W61	W62	So, 18.12.2022	18:00	So, 18.12.2022	16:00	5	Lusail			
73												

4.4 Venues

It is most convenient if we only have to enter the number of the venue for each match. We look up these numbers in the spreadsheet "**Language**" in column **D** and enter them in column **G** on the spreadsheet "**Matches**".

We now enter the formula `=IFNA(VLOOKUP($G4,Language!$D$97:$E$112,2,0),"")` into cell **H4** and copy it down to cell **H72**. In lines 52, 61, 66, 69 and 71 we delete the formula again. The names of the venues now appear in column H.

The **IFNA** function has two parameters:

1st parameter: the value that should appear in the cell

2nd parameter: what is to appear in the cell in the event of the error "#N/A" (no value available).

In our case, the cell remains empty if the VLOOKUP function finds nothing.

Columns B, F, H, I and J should be locked to prevent accidental overwriting. They are no longer changed.

Columns C, D, E and G, on the other hand, will be readjusted at the next World Cup.

The current status of the schedule can be found in the file named "**WCup_Tut_4.xlsx**".

5 Matches of the group stage

On the „World Cup“ sheet we will enter the required formulas for the first group match and then copy these formulas to all other matches in the group stage. The formulas for the Round of 16, quarter-finals, semi-finals and finals will be discussed and entered later (see chapter 8).

With the help of the conditional formatting, we will highlight in color the date fields that contain today's date. So immediately you can see which matches are taking place today.

Also with the help of the conditional formatting, we will highlight empty input fields of matches that are in the past. So immediately you can see which match results are still to be entered.

5.1 Formulas for the matches

We go to the "World Cup" sheet and fill in the following formulas:

Cell **B9**: `=Language!E124&" A"`

Cell **E9**: `=Language!E124&" B"`

etc. until group H. This means that these headings always appear in the selected national language.

FIFA has numbered all the matches from 1 to 64. We now enter these numbers according to the following scheme at the top left of the box with the match data:

Group A	Group B	Group C	Group D	Group E	Group F	Group G	Group H
1	3	8	6	11	12	13	14
2	4	7	5	10	9	16	15
18	17	22	21	25	26	29	30
19	20	24	23	28	27	31	32
35	33	39	37	43	41	47	45
36	34	40	38	44	42	48	46

The first match in group A is match no. 1. So we enter a „1“ in cell **A11**. We enter a „2“ in cell **A16**.

In each group, the matches are arranged in chronological order.

Round of 16: 49, 50, 53, 54, 51, 52, 55, 56 (explanation of the sequence in chapter 8)

Quarter-finals: 57, 58, 59, 60

Semi-finals: 61, 62

Third place: 63

Finale: 64

So there is a 49 in cell **A48**, a 50 in cell **D48**, a 53 in cell **G48** etc.

Now we are going to fill the boxes for the matches of the group stage with content. Normally, we would look on the "Matches" sheet to see which data belong to match no. 1 and transfer this data to the box. With the help of the VLOOKUP function, we let this transfer of data take place automatically.

In cell **B11** we enter the formula **=VLOOKUP(A11;Matches!\$B\$4:\$K\$72;7;0)**. The search criterion in this formula is **A11**. In **A11** there is a 1.

This 1 is searched for on the "Matches" worksheet in the first column of the range **B\$4:\$K\$72**. After it has been found in row 4 of the worksheet, the content in column 7 ("Al Bayt") is returned by the VLOOKUP function.

"Al Bayt" now appears as the desired venue in cell **B11**.

All other formulas have the same structure:

Cell **B12**: **=VLOOKUP(A11,Matches!\$B\$4:\$K\$72,5,0)**

Cell **B13**: **=VLOOKUP(A11,Matches!\$B\$4:\$K\$72,8,0)**

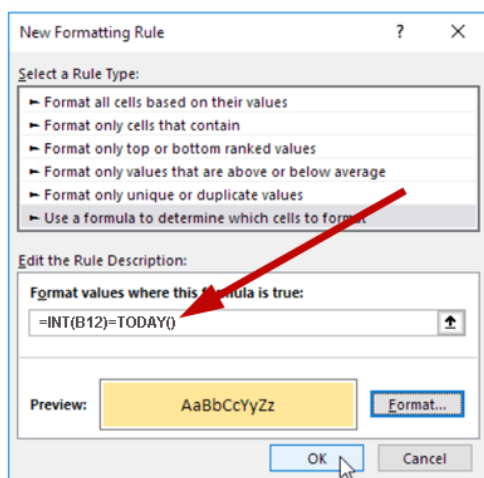
Cell **C13**: **=VLOOKUP(A11,Matches!\$B\$4:\$K\$72,9,0)**

A11 is a relative reference (without the dollar sign). That is why we can select range **B11:C13** on the "World Cup" worksheet and copy it into the boxes for the other group matches. The data of the match with the corresponding number appear in each box. We try it out: For example, in cell **M21** we change the number from 25 to 31. Immediately we see match number 31 in this box.

This flexibility also makes it easier for us to arrange the matches for the Round of 16 (see Chapter 8).

5.2 Conditional formatting

We click on the merged cells **B12:C12** and select "Start → Conditional Formatting → New Rule" in the menu. We select the last option as the rule type and enter the formula **=INT(B12)=TODAY()**.



We click on "Format ..." and choose a yellow background. We confirm all settings with OK.

With "Home → Format Painter" we copy this conditional formatting to all matches of the group stage and the Round of 16.

(Double click on "Format Painter" and click on all date fields)

We click on the connected cells **C57:E57** and give these cells the same type of conditional formatting, but here we enter the formula **=INT(C57)=TODAY()**. Then we transfer this conditional formatting to all date fields of the remaining knockout matches (quarter-finals, semi-finals, finals).

The conditional formatting of the input fields for the match results requires four formulas:

Cell **B14**: **=AND(B12<TODAY(),B14="")**

The conditional formatting is transferred to all input fields on the **left** for the group stage and the Round of 16, i.e. E14, H14, etc.

Cell **C14**: **=AND(B12<TODAY(),C14="")**

The conditional formatting is transferred to all input fields on the **right** for the group stage and the Round of 16, i.e. F14, I14, etc.

Cell **C59**: **=AND(C57<TODAY(),C59="")**

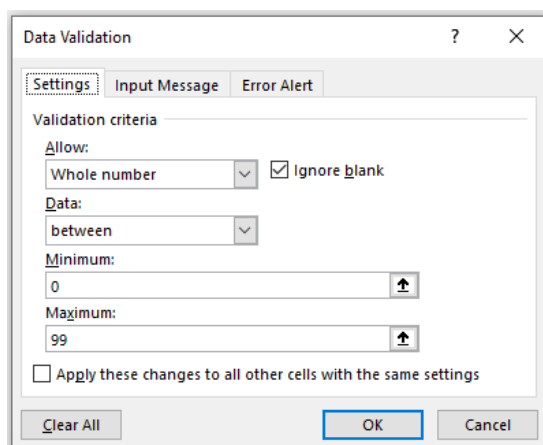
Transfer to all input fields on the **left** for the remaining KO matches

Cell **E59**: **=AND(C57<TODAY(),E59="")**

Transfer to all input fields on the **right** for the remaining KO matches

With the help of the data validation we prevent nonsensical entries for the match results.

We mark all input fields and select in the menu Data → Data Tools → Data validation.



We only allow whole numbers between 0 and 99.

The current status of the schedule can be found in the file named **“WCup_Tut_5.xlsx”**.

6 Fair play and lot

In the event that two teams are tied at the end of the group stage in terms of the number of points, the goal difference and the number of goals scored and their direct encounter also ended in a draw, the fair play score or the lot will decide on the better placement. At the 2018 World Cup, Japan and Senegal were affected. The fair play rating decided in favor of Japan and Senegal was eliminated.

In this case, it is sufficient if you can enter a bonus point on the beneficiary team, which then brings this team to the better position.

On a new worksheet with the name "Fair play and lot" we enable this entry of a bonus point.

	A	B	C	D	E	F	G
1							
2	Fair play and drawing lots						
3	In the case of two teams, if the fair play evaluation or the lottery decides on the better placement in the group, a "1" is entered here for the better team.						
4							
5	Group A	Bonus			Group E	Bonus	
6	Qatar	0			Spain	0	
7	Ecuador	0			Costa Rica	0	
8	Senegal	0			Germany	0	
9	Netherlands	0			Japan	0	
10							
11	Group B	Bonus			Group F	Bonus	
12	England	0			Belgium	0	
13	IR Iran	0			Canada	0	
14	USA	0			Morocco	0	
15	Wales	0			Croatia	0	
16							
17	Group C	Bonus			Group G	Bonus	
18	Argentina	0			Brazil	0	
19	Saudi Arabia	0			Serbia	0	
20	Mexico	0			Switzerland	0	
21	Poland	0			Cameroon	0	
22							
23	Group D	Bonus			Group H	Bonus	
24	France	0			Portugal	0	
25	Australia	0			Ghana	0	
26	Denmark	0			Uruguay	0	
27	Tunisia	0			South Korea	0	
28							

Cell B2: `=Language!E117`

Cell B3: `=Language!E160`

In the cells to the left of the headings - i.e. in A5, A11, A17, A23, D5, D11, D17 and D23 - we enter the letter of the relevant group and hide it using the custom formatting ";;;" (three semicolons).

Cell B5: `=Language!E124&" "&A5`

Cell C5: `=Language!E152`

Cell B6: `=VLOOKUP(A5&"1",Groups!B7:D45,3,0)`

Cell B7: `=VLOOKUP(A5&"2",Groups!B7:D45,3,0)`

Cell B8: `=VLOOKUP(A5&"3",Groups!B7:D45,3,0)`

Cell B9: `=VLOOKUP(A5&"4",Groups!B7:D45,3,0)`

The last four formulas read the four team names from the "Groups" spreadsheet.

We enter zeros in the cells C6 to C9.

Now we select the range B5:C9 and copy it seven times to the positions B11, B17, B23, E5, E11, E17 and E23.

The current status of the schedule can be found in the file named "WCup_Tut_6.xlsx".

7 Calculation of the group tables

The aim is to display the current status of the group table in range **B3:C6** on our schedule and to automatically enter the order of the teams in the final table **B42:B45**.

We create a new worksheet and call it "GrpA". It will look like this:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
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35																									
36																									

We then create the other spreadsheets with the names "GrpB", "GrpC", etc. by making **seven copies of the spreadsheet "GrpA"** and only entering a "B" or a "C" etc. in cell **P1**!

7.1 Transfer of the match results

Consideration:

We find the values for group A on the „World Cup“ sheet in columns B and C, those for group B in columns E and F, and so on. That is the only difference.

Therefore, we first create a new spreadsheet with the name "**References**" and create a small table here in the range **B4:D12** in which we enter the two relevant columns for each group (see illustration).

	A	B	C	D	E	F	G	H
1	World Cup							
2								
3								
4		Group	Referenced columns				Row number teams	Row number scores
5		A	B C				13	14
6		B	E F				18	19
7		C	H I				23	24
8		D	K L				28	29
9		E	N O				33	34
10		F	Q R				38	39
11		G	T U					
12		H	W X					
13								

On the spreadsheet "GrpA" we enter the following formulas in cells **B1** and **D1**:

B1: =VLOOKUP(\$P\$1,References!\$B\$5:\$D\$12,2,0)

D1: =VLOOKUP(\$P\$1,References!\$B\$5:\$D\$12,3,0)

A "B" then appears in cell **B1** and a "C" in cell **D1**. The letter in cell **P1** thus determines which two column names are in cells **B1** and **D1**.

The formula in cell **B4** could simply be: =**'World Cup'**!B13. But then this formula would only be correct for group A. Therefore, we will assemble this formula text with the help of the function INDIRECT.

If we write =INDIRECT(A1), in cell **A1** the INDIRECT function expects a cell reference such as "Z8", and the function would return the cell contents of **Z8**.

But if we write =INDIRECT(,"A1"), the INDIRECT function returns the cell contents of **A1**.

The formula is identical to =A1.

We use this second case for our purposes. In the end, the formula should be identical to =INDIRECT("'**World Cup'**!B13").

We will now assemble the character string within the brackets from individual parts. In Excel formulas, strings are concatenated with "&".

It looks like this: "**World Cup'**" & \$B\$1 & "**13**" (without the spaces). There is a "B" in \$B\$1.

For the second match in group A, this string would have to be "**World Cup'**" & \$B\$1 & "**18**", because the second match can be found in line 18.

Row number teams	Row number scores
13	14
18	19
23	24
28	29
33	34
38	39

To be even more flexible, we create a small table of these line numbers in range **References!G5:G10** and a small table of line numbers for the match results in range **References!H5:H10** (see figure on the left).

In our string we replace the "**13**" at the end with „References!\$G5“:
 "**World Cup'**" & \$B\$1 & References!\$G5

Our formula is now: =INDIRECT("'**World Cup'**"&\$B\$1&References!\$G5) .

The advantage: We can copy this formula by dragging it down with the mouse, which automatically creates \$G6, \$G7, ... at the end and the line numbers are taken from our small table.

Small disadvantage: If we change the table name "World Cup", the table name is not automatically updated in these formulas because it is within a character string and is just ordinary text for Excel. So that we do not have to change all 24 formulas in the "GrpA" worksheet in such a case, we store the table name in a central location where we only have to change it once.

On the worksheet "References", we enter the name "World Cup" in cell **A1**. Our formula must now get this name from this cell. The formula then looks like this:

=INDIRECT("''&References!\$A\$1&''!"&\$B\$1&References!\$G5) . That is the final formula.

The other three formulas are structured in the same way:

Cell **D4:** =INDIRECT("''&References!\$A\$1&''!"&\$D\$1&References!\$G5)

Cell **E4:** =INDIRECT("''&References!\$A\$1&''!"&\$B\$1&References!\$H5) [goals1]

Cell **G4:** =INDIRECT("''&References!\$A\$1&''!"&\$D\$1&References!\$H5) [goals2]

So that the number of goals is only taken into account in matches in which both fields for goals are filled in, we have to expand the formulas in cells **E4** and **G4** a little. The final formula says: If the first field is empty or the second field is empty, nothing is entered here in cell **E4**, otherwise the result.

Cell **E4**: `=IF(OR(goals1="";goals2="");"";goals1)`

The terms **INDIRECT(...)** must then be used for "goals1" and "goals2" (see above).

Final formulas for the goals:

Cell **E4**:

`=IF(OR(INDIRECT(""&References!A1&"!"&B1&References!$H5)="",INDIRECT(""&References!A1&"!"&D1&References!$H5)=""),"",INDIRECT(""&References!A1&"!"&B1&References!$H5))`

Cell **G4**:

`=IF(OR(INDIRECT(""&References!A1&"!"&B1&References!$H5)="",INDIRECT(""&References!A1&"!"&D1&References!$H5)=""),"",INDIRECT(""&References!A1&"!"&D1&References!$H5))`

Now we are ready: We select cells **B4:G4** and copy the formulas down to row 9. Done! - We have transferred the six matches in Group A and the match results to our "GrpA" worksheet.

We can now try out the flexibility of these formulas. For example, if we enter the letter "B" in cell **P1**, we immediately see the matches of group B with their results!

7.2 Ranking list - part 1

In cell **K4** we enter the formula `=IF(AND($E4<>"",$G4<>""),1,0)`. Here it is checked whether the match result has been entered in full. The formula is copied down to cell **K9**. In cell **K10** we form the sum of the range **K4:K9**. So we have the number of fully registered matches.

Cell **H4**: `=IF($K4>0,IF($E4>$G4,3,IF($E4=$G4,1,0)),0)`

Cell **I4**: `=IF($K4>0,IF($E4<$G4,3,IF($E4=$G4,1,0)),0)`

The two formulas are copied down.

In the range **H4:H9** 3 points appear if team 1 has won the match, 1 point in the case of a tie and 0 if the match was lost or no match result was entered. Correspondingly, the points scored by team 2 appear in range **I4:I9**.

In the range **N4:W7** we are now creating a table with the four teams, in which we calculate a rating number for each team that includes all FIFA criteria. **This number in column T will then determine the order of the four teams.**

In column N is the consecutive number from 1 to 4. In column O are the four teams.

In cell **O4** we enter the formula `=VLOOKUP(P1&ROW($A1),Groups!$B$7:$D$45,3,0)` and copy it down to cell **O7**.

The first parameter of the function VLOOKUP is the expression **\$P\$1 & ROW(\$A1)**. This expression resolves to "A1" because there is an "A" in **\$P\$1** and **ROW(\$A1)** returns a "1". The function VLOOKUP looks on the spreadsheet 'Groups' to see which country name can be found under "A1". It then looks in cell **O5** for "A2" and so on.

Cell **P4** should contain the number of points that the first team has achieved. To do this, we add all the points in column H if the team concerned is in column B: `SUMIF(B4:B9,O4,H4:H9)`.

In addition, all points in column I are added if the team in question is in column D:

`SUMIF(D4:D9,O4,I4:I9)`

The formula in **P4** is therefore:

```
=SUMIF($B$4:$B$9,O4,$H$4:$H$9)+SUMIF($D$4:$D$9,O4,$I$4:$I$9)
```

The formula can be copied down to **P7**.

In cell **Q4** we enter the formula for the **goal difference**: **=R4-S4** . This can also be copied downwards.

For the **goals scored** in column R and the **goals conceded** in column S, formulas with the same structure as for the number of points are used.

Cell **R4**: **=SUMIF(\$B\$4:\$B\$9,\$O4,\$E\$4:\$E\$9)+SUMIF(\$D\$4:\$D\$9,\$O4,\$G\$4:\$G\$9)**

Cele **S4**: **=SUMIF(\$B\$4:\$B\$9,\$O4,\$G\$4:\$G\$9)+SUMIF(\$D\$4:\$D\$9,\$O4,\$E\$4:\$E\$9)**

In column U the direct comparison of three teams should be taken into account and in column V the direct comparison of two teams. The formulas for this need preparation and will be discussed later (see Chapters 7.5 and 7.6).

Column W should contain the bonus points from the “Fair play and lot” worksheet. The formula in cell **W4** is:

```
=SUMIFS(FairPlayPoints1;FairPlayTeams1;O4)+SUMIFS(FairPlayPoints2;FairPlayTeams2;O4)
```

We define the four variables FairPlayPoints1, FairPlayTeams1, FairPlayPoints2 and FairPlayTeams2 in the Name Manager of Excel (menu Formulas → Name Manager) as follows:

FairPlayPoints1: **'Fair play and lot'!\$C\$6:\$C\$27**

FairPlayTeams1: **'Fair play and lot'!\$B\$6:\$B\$27**

FairPlayPoints2: **'Fair play and lot'!\$F\$6:\$F\$27**

FairPlayTeams2: **'Fair play and lot'!\$E\$6:\$E\$27**

In columns C and F on the worksheet “Fair play and lot”, all numbers are added up if the respective team name is to the left.

7.3 The Factors sheet

The sorting of the four teams into the correct ranking is done according to the following principle: In column T of the “GrpA” worksheet there is a “**ranking number**” for each team, which decides on the rank. The team with the largest number comes first.

This number is created in the following way:

The number of points achieved in column P has the highest priority. This number of points is therefore multiplied by a very large factor. We take the number 10000. The goal difference in column Q has the second highest priority. It is multiplied by the lower factor 100 and added. The goals scored in column R have the third highest priority. They are multiplied by a factor of 1 and also added. The remaining criteria (direct comparisons and fair play or drawing lots) have even smaller factors: 0.1, 0.01 and 0.0001.

We store these factors on a separate worksheet called “**Factors**”. There are no formulas here, just texts and numbers. It looks like this:

	A	B	C	D	E	F
1		Factors				
2						
3		Factors	Category			
4		10000	Points			
5		100	Goal difference	50	Goal difference zero	
6		1	Goals scored			
7		0,1	direct Comp. 3			
8		0,01	direct Comp. 2			
9		0,0001	Fair play			
10		0,000001	Row number			
11						

The last factor will be explained later.

The individual factors in cells **B4** to **B10** are given the following variable names in the Name Manager:

B4:	FactorPts	(factor points)
B5:	FactorGD	(factor goal difference)
B6:	FactorFor	(factor goals scored)
B7:	FactorDirC3	(factor direct comparison of 3 teams)
B8:	FactorDirC2	(factor direct comparison of 2 teams)
B9:	FactorFairPlay	(factor fairplay)
B10:	FactorRow	(factor row)

Thus, instead of **Factors!\$B\$4**, we can simply write **FactorPts** in the formulas. The formulas will then be easier to read.

7.4 Ranking list - part 2

The formulas in **U4** and **V4** will be discussed later (see Chapters 7.5 and 7.6).

In cell **T4** we enter the following formula:

```
= $P4*FactorPts+(GDzero+$Q4)*FactorGD+$R4*FactorFor
+$U4*FactorDirC3+$V4*FactorDirC2+$W4*FactorFairPlay
```

GDzero is added to the goal difference **\$Q4** so that this value cannot become negative. This formula is still incomplete and will be expanded.

This gives us a ranking number that takes all FIFA criteria into account with the right priority. Using this ranking number, we can now sort the group table. The team with the highest ranking should come first. In the range **N11:T14** we will generate a **sorted list of the four teams**.

We enter the following formula in cell **T11**:

```
=LARGE($T$4:$T$7,ROW(A1))
```

and copy it down to **T14**.

The formula **=LARGE(Bereich;1)** returns the largest value of range,
 the formula **=LARGE(Bereich;2)** the second largest,
 the formula **=LARGE(Bereich;3)** the third largest,
 the formula **=LARGE(Bereich;4)** the fourth largest.

In order to be able to simply copy the first formula in **T14** downwards, the numbers 1, 2, 3 and 4 are generated automatically. The expression **ROW(A1)** returns the row number of **A1**, ie 1.

When copying down, it becomes **ROW(A2)**, **ROW(A3)**, **ROW(A4)**, so the numbers 2, 3 and 4 are generated.

In range **N11:T14** we now want to create the same group table as in range **N4:T7**, only this time sorted. To do this, the first step is to search for the ranking number of cell **T11** in range **T4:T7**. For example, if it is found in cell **T5**, all values to the left of cell **T5** (the values of cells **O5:S5**) are copied down to cells **O11:S11**.

The VLOOKUP function is not suitable here because it can only transfer values to the right of the search column. In this case, a combination of the INDEX and MATCH functions helps.

First we enter the current number in cells **N11** to **N14**. In cell **O11** we enter the following formula:

=INDEX(O\$4:O\$7,MATCH(\$T11,\$T\$4:\$T\$7,0))

The dollar sign in front of the "O" is missing because the formula is to be copied to the right. Then "O" becomes "P" and so on.

Explanation of the formula:

The formula **=INDEX(O\$4:O\$7,3)** would return the third value from the range **O\$4:O\$7**, i.e. the content of cell **O6**. The "3" is now replaced by the expression **MATCH(\$T11,\$T\$4:\$T\$7,0)**. The MATCH function returns the correct number because it searches for the content of **\$T11** in the range **\$T\$4:\$T\$7** and returns the relative position of the value found. The third parameter of the MATCH function is a zero. This means that the function is looking for an exact match.

The formula in **O11** is copied to the right and down to **S14** and the sorted group table is ready!

However, the sorted group table still has one error:

For example, if the second and third team have the same ranking, the MATCH function will only find the position of the second team, but no longer the position of the third team. The table then shows the name of the second team twice with their values, the third team is missing. So we have to avoid having two or more ranks equal. For example, if all four are the same because no match results have yet been entered, the first team appears four times in the sorted list. Instead, the four teams should appear in their original order. We achieve this by adding the row number multiplied by the factor FactorRow (= 0.000001) to the ranking number.

The final formula in cell **T4** is then:

**= \$P4*FactorPts+(GDzero+\$Q4)*FactorGD+\$R4*FactorFor+\$U4*FactorDirC3
+\$V4*FactorDirC2+\$W4*FactorFairPlay+(8-ROW())*FactorRow**

The **ROW()** function returns the row number of the cell in which the formula is located. The expression **8-ROW()** generates the number 4 for **T4**, the number 3 for **T5**, the number 2 for **T6** and the number 1 for **T7**. Thus, if all teams are equal, the team in line 4 appears at the top, the team in line 5 appears in the second position, and so on.

7.5 Direct comparison of three teams

In contrast to the UEFA European Championship, a direct comparison of three teams is very unlikely at the FIFA World Cup. This is because this case occurs at the European Championship when three teams are tied on points. At the FIFA World Cup, on the other hand, a direct comparison of three teams is only carried out if all three teams have the same number of points, the same goal difference and the same number of goals scored. This is very unlikely, but not impossible, so that correctly this case must also be considered here.

In order to carry out a direct comparison of three teams, we create four group tables with three teams each, in which only the matches are taken into account that these three teams have played against each other.

		Points	GD	For	Against	Pts/GD/For	Rank Column T	Dir. Comp. (3)
1.	Qatar	1	-1	3	4	14903	1	0
2.	Ecuador	4	1	3	2	45103	3	0
3.	Senegal	3	0	4	4	35004	2	0
	Netherlands							

For the team names we enter the following formulas:

Cell **O17**: =O\$4

Cell **O18**: =O\$5

Cell **O19**: =O\$6

Cell **O20**: =O\$7

In cell **P17** we enter the following formula:

=SUMIFS(\$H\$4:\$H\$9,\$B\$4:\$B\$9,\$O17,\$D\$4:\$D\$9,"<>"&O\$20)
+SUMIFS(\$I\$4:\$I\$9,\$B\$4:\$B\$9,"<>"&O\$20,\$D\$4:\$D\$9,\$O17)

Parameters of the function SUMIFS:

\$H\$4:\$H\$9 **Sum range**: the range in which the numbers are added under certain conditions
\$B\$4:\$B\$9 **Criteria range 1**: the range that is checked for criterion 1
\$O17 **Criterion 1**: the content of **\$O17** is checked for agreement in criteria range 1
\$D\$4:\$D\$9 **Criteria range 2**: the range that is checked for criterion 2
"<>"&O\$20 **Criterion 2**: in Criteria range 2 we check whether the content of **\$O17** is not the same as the content of **\$O\$20**

The second function SUMIFS in the formula has the same structure. The points scored for each of the three teams are added up if they were not scored against the fourth team in cell **O20**.

The formulas in **R17** and **S17** work on the same principle:

Cell **R17**:

=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O17,\$D\$4:\$D\$9,"<>"&O\$20)
+SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,"<>"&O\$20,\$D\$4:\$D\$9,\$O17)

Cell **S17**:

=SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O17,\$D\$4:\$D\$9,"<>"&O\$20)
+SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,"<>"&O\$20,\$D\$4:\$D\$9,\$O17)

Cell **Q17**: =R17-S17

Cell **T17**: =P17*FactorPts+Q17*FactorGD+R17*FactorFor

In a direct comparison, the points achieved, the goal difference and the goals scored are compared with each other. In cell **T17**, the ranking number stands for the direct comparison.

The formulas from **P17** to **T17** are now copied down to line 19.

In column U we now generate a ranking number for each of the three teams.

Cell **U17**: =RANK(T17,T\$17:T\$19,1)

The RANK function determines the rank of the number in **T17** within the range **T\$17:T\$19**. The third parameter, the "1", means that the largest number gets the lowest rank, ie rank 3.

A direct comparison of three teams will only take place if all three teams have the same number of points, the same goal difference and the same number of goals scored. To check this, we generate a ranking number in the range **Y4:Y7** that only takes these three criteria into account.

In cell **Y4** we enter the formula =P4*FactorPts+Q4*FactorGD+R4*FactorFor and copy it down to **Y7**.

If the criteria for the direct comparison of these three teams apply, these ranks are copied into column V, otherwise zeros are entered in column V. This checking and copying is done by the formula in **V17**:

=IF(AND(\$Y\$4=\$Y\$5,\$Y\$4=\$Y\$6,\$Y\$4<>\$Y\$7),U17,0)

The rest of the formulas look very similar:

Group 2

Cell **O22**: =O\$4

Cell **O23**: =O\$5

Cell **O24**: =O\$7

Cell **O25**: =O\$6

Cell **P22**:

=SUMIFS(\$H\$4:\$H\$9,\$B\$4:\$B\$9,\$O22,\$D\$4:\$D\$9,"<>"&O\$25)
+SUMIFS(\$I\$4:\$I\$9,\$B\$4:\$B\$9,"<>"&O\$25,\$D\$4:\$D\$9,\$O22)

Cell **Q22**: =R22-S22

Cell **R22**:

=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O22,\$D\$4:\$D\$9,"<>"&O\$25)
+SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,"<>"&O\$25,\$D\$4:\$D\$9,\$O22)

Cell **S22**:

=SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O22,\$D\$4:\$D\$9,"<>"&O\$25)
+SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,"<>"&O\$25,\$D\$4:\$D\$9,\$O22)

Cell **T22**: =P22*FactorPts+Q22*FactorGD+R22*FactorFor

Cell **U22**: =RANK(T22,T\$22:T\$24,1)

Cell **V22**: =IF(AND(\$Y\$4=\$Y\$5,\$Y\$4=\$Y\$7,\$Y\$4<>\$Y\$6),U22,0)

Group 3

Cell **O27**: =O\$4

Cell **O28**: =O\$6

Cell **O29**: =O\$7

Cell **O30**: =O\$5

Cell **P27**:

=SUMIFS(\$H\$4:\$H\$9,\$B\$4:\$B\$9,\$O27,\$D\$4:\$D\$9,"<>"&O\$30)
+SUMIFS(\$I\$4:\$I\$9,\$B\$4:\$B\$9,"<>"&O\$30,\$D\$4:\$D\$9,\$O27)

Cell **Q27**: =R27-S27

Cell **R27**:

=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O27,\$D\$4:\$D\$9,"<>"&O\$30)
+SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,"<>"&O\$30,\$D\$4:\$D\$9,\$O27)

Cell **S27**:

=SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O27,\$D\$4:\$D\$9,"<>"&O\$30)
+SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,"<>"&O\$30,\$D\$4:\$D\$9,\$O27)

Cell **T27**: =P27*FactorPts+Q27*FactorGD+R27*FactorFor

Cell **U27**: =RANK.EQ(T27,T\$27:T\$29,1)

Cell **V27**: =IF(AND(\$Y\$4=\$Y\$6,\$Y\$4=\$Y\$7,\$Y\$4<>\$Y\$5),U27,0)

Group 4Cell **O32**: =O\$5Cell **O33**: =O\$6Cell **O34**: =O\$7Cell **O35**: =O\$4Cell **P32**:

```
=SUMIFS($H$4:$H$9,$B$4:$B$9,$O32,$D$4:$D$9,"<>"&O$35)
+SUMIFS($I$4:$I$9,$B$4:$B$9,"<>"&O$35,$D$4:$D$9,$O32)
```

Cell **Q32**: =R32-S32Cell **R32**:

```
=SUMIFS($E$4:$E$9,$B$4:$B$9,$O32,$D$4:$D$9,"<>"&O$35)
+SUMIFS($G$4:$G$9,$B$4:$B$9,"<>"&O$35,$D$4:$D$9,$O32)
```

Cell **S32**:

```
=SUMIFS($G$4:$G$9,$B$4:$B$9,$O32,$D$4:$D$9,"<>"&O$35)
+SUMIFS($E$4:$E$9,$B$4:$B$9,"<>"&O$35,$D$4:$D$9,$O32)
```

Cell **T32**: =P32*FactorPts+Q32*FactorGD+R32*FactorForCell **U32**: =RANK(T32,T\$32:T\$34,1)Cell **V32**: =IF(AND(\$Y\$5=\$Y\$6,\$Y\$5=\$Y\$7,\$Y\$5<>\$Y\$4),U32,0)

We enter the following formula in cell **U4**:

```
=SUMIFS($V$17:$V$34,$O$17:$O$34,$O4)
```

That means:

In the range **V17:V34** all numbers that belong to the first team (**O4**) are added. So if a direct comparison is made for this team, a number greater than zero will appear in cell **U4**. This number is multiplied by the factor **FactorDirC3** and taken into account in the formula for the rank number (in cell **T4**) (see Chapter 7.4).

We copy the formula in **U4** down to **U7**. This concludes the direct comparison of three teams and we come to the direct comparison of two teams.

7.6 Direct comparison of two teams

In order to take into account the direct comparison of two teams, we first create a small table with the results of the direct encounters in range **D17:J21**.

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2		B		C								
3												
4			Match		Score		Points				valid	
5		Qatar	-	Ecuador	1 - 1		1 1				1	
6		Senegal	-	Netherlands	2 - 2		1 1				1	
7		Qatar	-	Senegal	2 - 3		0 3				1	
8		Netherlands	-	Ecuador	3 - 2		3 0				1	
9		Ecuador	-	Senegal	2 - 1		3 0				1	
10		Netherlands	-	Qatar	0 - 1		0 3				1	
11											Sum: 6	
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												

	Dir. Comp.(2)					Dir. C.?
	Qat	Ecu	Sen	Net		
Qatar		1	2	1	0	0
Ecuador	1		2	2	0	1
Senegal	3	1		2	0	0
Netherlands	0	3	2		3	1

We transfer the team names to cells **D18** to **D21** with the formulas **=D\$O\$4**, **=D\$O\$5**, **=D\$O\$6** and **=D\$O\$7**. The full names must be here! The first three letters of the team names are sufficient for the labeling in cells **E17** to **H17** above:

Cell **E17**: **=LEFT(D\$O\$4;3)**

Correspondingly in the other cells.

The number of goals scored by team 1 against team 2 should be in cell **F18**. Cell **E19** then shows the number of goals that team 2 scored against team 1. We enter the following formula in **F18**:

**=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$4,\$D\$4:\$D\$9,\$O\$5)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$5,\$D\$4:\$D\$9,\$O\$4)**

In the range **\$E\$4:\$E\$9**, the numbers are added if team 1 is on the left and team 2 is on the right. In the range **\$G\$4:\$G\$9**, the numbers are added if team 2 is on the left and team 1 is on the right. This way we get exactly the number of goals that team 1 scored against team 2.

The rest of the formulas work in the same way. They are:

Cell **G18**: **=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$4,\$D\$4:\$D\$9,\$O\$6)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$6,\$D\$4:\$D\$9,\$O\$4)**

Cell **H18**: **=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$4,\$D\$4:\$D\$9,\$O\$7)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$7,\$D\$4:\$D\$9,\$O\$4)**

Cell **E19**: **=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$5,\$D\$4:\$D\$9,\$O\$4)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$4,\$D\$4:\$D\$9,\$O\$5)**

Cell **G19**: **=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$5,\$D\$4:\$D\$9,\$O\$6)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$6,\$D\$4:\$D\$9,\$O\$5)**

Cell **H19**: **=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$5,\$D\$4:\$D\$9,\$O\$7)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$7,\$D\$4:\$D\$9,\$O\$5)**

Cell **E20**: **=SUMIFS(\$E\$4:\$E\$9,\$B\$4:\$B\$9,\$O\$6,\$D\$4:\$D\$9,\$O\$4)
 +SUMIFS(\$G\$4:\$G\$9,\$B\$4:\$B\$9,\$O\$4,\$D\$4:\$D\$9,\$O\$6)**

Cell **F20**:
`=SUMIFS(E4:E9,B4:B9,O6,D4:D9,O5)
+SUMIFS(G4:G9,B4:B9,O5,D4:D9,O6)`

Cell **H20**:
`=SUMIFS(E4:E9,B4:B9,O6,D4:D9,O7)
+SUMIFS(G4:G9,B4:B9,O7,D4:D9,O6)`

Cell **E21**:
`=SUMIFS(E4:E9,B4:B9,O7,D4:D9,O4)
+SUMIFS(G4:G9,B4:B9,O4,D4:D9,O7)`

Cell **F21**:
`=SUMIFS(E4:E9,B4:B9,O7,D4:D9,O5)
+SUMIFS(G4:G9,B4:B9,O5,D4:D9,O7)`

Cell **G21**:
`=SUMIFS(E4:E9,B4:B9,O7,D4:D9,O6)
+SUMIFS(G4:G9,B4:B9,O6,D4:D9,O7)`

A direct comparison of two teams will only take place if both teams have the same number of points, the same goal difference and the same number of goals scored. To check this, we use the ranking numbers in the range **Y4:Y7** which only consider these three criteria.

In the range **I18:I21**, a team is now given a 3 (three points) if it has won a direct comparison. If there is a tie in the direct comparison, it receives a 1 (one point). Otherwise there are all zeros in these cells.

To do this, we enter the following formula in cell **I18**:

```
=IF(AND($Y$4=$Y$5,$Y$4<>$Y$6,$Y$4<>$Y$7),IF(F18>E19,3,IF(F18=E19,1,0)),0)
+IF(AND($Y$4=$Y$6,$Y$4<>$Y$5,$Y$4<>$Y$7),IF(G18>E20,3,IF(G18=E20,1,0)),0)
+IF(AND($Y$4=$Y$7,$Y$4<>$Y$5,$Y$4<>$Y$6),IF(H18>E21,3,IF(H18=E21,1,0)),0)
```

The first IF function means: If team 1 is tied with team 2 in points, goal difference and goals scored (**\$Y\$4=\$Y\$5**), but otherwise with no other team (**\$Y\$4<>\$Y\$6,\$Y\$4<>\$Y\$7**), then she gets 3 points for a win against team 2 (**F18>E19**), 1 point for a draw (**F18=E19**) and 0 points for a defeat.

The second and third IF functions test whether a direct comparison of team 1 with team 3 or team 4 takes place.

The formulas for cells **I19**, **I20** and **I21** are accordingly:

Cell **I19**:
`=IF(AND(Y5=Y4,Y5<>Y6,Y5<>Y7),IF(E19>F18,3,IF(E19=F18,1,0)),0)
+IF(AND(Y5=Y6,Y5<>Y4,Y5<>Y7),IF(G19>F20,3,IF(G19=F20,1,0)),0)
+IF(AND(Y5=Y7,Y5<>Y4,Y5<>Y6),IF(H19>F21,3,IF(H19=F21,1,0)),0)`

Cell **I20**:
`=IF(AND(Y6=Y4,Y6<>Y5,Y6<>Y7),IF(E20>G18,3,IF(E20=G18,1,0)),0)
+IF(AND(Y6=Y5,Y6<>Y4,Y6<>Y7),IF(F20>G19,3,IF(F20=G19,1,0)),0)
+IF(AND(Y6=Y7,Y6<>Y4,Y6<>Y5),IF(H20>G21,3,IF(H20=G21,1,0)),0)`

Cell **I21**:
`=IF(AND(Y7=Y4,Y7<>Y5,Y7<>Y6),IF(E21>H18,3,IF(E21=H18,1,0)),0)
+IF(AND(Y7=Y5,Y7<>Y4,Y7<>Y6),IF(F21>H19,3,IF(F21=H19,1,0)),0)
+IF(AND(Y7=Y6,Y7<>Y4,Y7<>Y5),IF(G21>H20,3,IF(G21=H20,1,0)),0)`

In cell **V4** we enter the formula `=I18` and copy this formula down to **V7**.

The number in cell **V4** is multiplied by the factor **FactorDirC2** and taken into account in the formula for the ranking number in cell **T4** (see Chapter 7.4).

The direct comparison of two teams is now done and we can now finish creating the group table.

7.7 Ranking list - part 3

We now make seven copies of the worksheet **GrpA**, which we call **GrpB**, **GrpC**, ..., **GrpH**.

A copy of a worksheet can be created by right-clicking on the name of the worksheet at the bottom, then selecting "Move or copy ..." from the context menu. Don't forget to tick the "Create a copy" box!

On each copy, we only need to change **one cell**: cell **P1**.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		E		F											Group	B		
2																		
3			Match		Score		Points		valid							Points	GD	For
4		England	-	IR Iran	1 - 2		0 3		1					1.	England	4	0	4
5		USA	-	Wales	1 - 2		0 3		1					2.	IR Iran	6	3	5
6		Wales	-	IR Iran	0 - 3		0 3		1					3.	USA	4	0	4
7		England	-	USA	2 - 2		1 1		1					4.	Wales	3	-3	2
8		Wales	-	England	0 - 1		0 3		1									
9		IR Iran	-	USA	0 - 1		0 3		1									

For group B we enter a "B" here, for group C a "C" and so on.

Our formulas in cells **B1**, **D1** and in the ranges **B4:G9** and **O4:O7** have the effect that just by changing cell **P1** the whole table is filled with the data of the correct group.

7.8 Group table on the schedule

On the worksheet "World Cup" we enter the formula `=Language!E128` in the cells **C2**, **F2**, **I2**, **L2**, **O2**, **R2**, **U2** and **X2**. The spaces in the text " Pts. Goals" ensure the correct position of the headings "Pts." And "Goals".

Cell **B3**: `=GrpA!O11`

This formula is copied down to cell **B6**.

Cell **E3**: `=GrpB!O11`

This formula is copied down to cell **E6**.

We enter the corresponding formulas for the remaining six groups.

To display the points and the goals, we enter the following formula in cell **C3**:

`= " "&GrpA!$P11&" "&GrpA!$R11&Language!E164&GrpA!$S11.`

Here, too, the inserted spaces ensure correct positioning.

In `Language!E164` there is a separator for the goal difference (colon or minus) surrounded by a space.

This formula is also copied down to cell **C6**.

In cell **F3** we enter the following formula:

`= " "&GrpB!$P11&" "&GrpB!$R11&Language!E164&GrpB!$S11`

We enter the corresponding formulas for the remaining six groups.

In the **Final table** in lines 41 to 45, the fields should remain empty if no match has been entered in the relevant group.

We enter the following formulas in cells **B41** and **B42**:

Cell **B41**: `=Language!E134`

Cell **B42**: `=IF(GrpA!K10>0,GrpA!$O11,"")`

The formula in **B42** is copied down to cell **B45**.

The Final tables of the other groups have corresponding formulas. "GrpA" changes to "GrpB" etc.

The current status of the schedule can be found in the file named "**WCup_Tut_7.xlsx**".

8 Knockout phase

We have prepared all match data for the group stage to such an extent that we only need to enter the number of the match in the top left next to each match box on the "World Cup" worksheet. The match data is then automatically taken from the "Matches" sheet.

We will also apply this principle in the Round of 16.

There will be an exception for the other games in the knockout phase (quarter-finals, semi-finals, finals):

The team names for the individual encounters are not prepared on the "Matches" sheet.

Actually, it would be best to use this principle for all games up to the final. But from the quarter-finals onwards, the team names depend on entries on the "World Cup" worksheet. We would need difficult-to-read formulas with unnecessary computational effort to first generate the team names on the "Matches" sheet and then transfer them to the "World Cup" sheet.

8.1 Round of 16

On the "Matches" worksheet in cells **C53** and **D53**, we see that match number 49 is match **1A** against **2B**. The corresponding team names should now appear in columns I and J - but not statically, but depending on the entries in columns C and D - just like in the group matches.

To do this, we create a small auxiliary table in the range **M53:N68**. It has the following entries:

	M	N
53	1A	= 'World Cup'! \$B\$42
54	2A	= 'World Cup'! \$B\$43
55	1B	= 'World Cup'! \$E\$42
56	2B	= 'World Cup'! \$E\$43
57	1C	= 'World Cup'! \$H\$42
58	2C	= 'World Cup'! \$H\$43
59	1D	= 'World Cup'! \$K\$42
60	2D	= 'World Cup'! \$K\$43
61	1E	= 'World Cup'! \$N\$42
62	2E	= 'World Cup'! \$N\$43
63	1F	= 'World Cup'! \$Q\$42
64	2F	= 'World Cup'! \$Q\$43
65	1G	= 'World Cup'! \$T\$42
66	2G	= 'World Cup'! \$T\$43
67	1H	= 'World Cup'! \$W\$42
68	2H	= 'World Cup'! \$W\$43

The team name for **1A** is in the cell **'World Cup'!**\$B\$42, the team name for **2A** is in the cell **'World Cup'!**\$B\$43 and so on.

In cell **I53** we enter the formula **=VLOOKUP(C53,\$M\$53:\$N\$68,2,0)** and copy it down and to the right over the whole range **I53:J60**. The team names of the Round of 16 matches now appear.

The headings "**Round of 16 - 1**", "**Round of 16 - 2**", etc. are not officially given. We choose them according to the chronological order of the Round of 16 matches. However, the headings can just as well be numbered from left to right.

To make it as easy as possible to adapt the chronological order to future World Cup tournaments, we enter the numbers from 1 to 8 in the desired order in cells **K53** to **K60**. The rest will be done by formulas.

At the 2022 World Cup in Qatar, Match No. **49** (Round of 16 Match **1A-2B**) is first, it gets the number 1.

Match No. **50** (Round of 16 Match **1C-2D**) is second, it gets the number 2.

Match No. **51** (Round of 16 Match **1B-2A**) will be the fourth, it gets the number 4.

In this way, the chronological order is 1, 2, 4, 3, 5, 6, 7, 8.

Now we fill the match plan with the dates of the Round of 16.

On the "World Cup" spreadsheet, we enter the following formula in cell **B47**:

=VLOOKUP(VLOOKUP(A48,Matches!\$B\$53:\$K\$60,10,0),Language!\$D\$136:\$E\$143,2,0)

The inner VLOOKUP function **VLOOKUP(A48,Matches!\$B\$53:\$K\$60,10,0)** takes the match number "49" in cell **A48** and then looks up the number for this match in column K on the spreadsheet 'Matches'.

It finds the number "1".

The outer VLOOKUP function now looks on the spreadsheet 'Language' in the range **\$D\$136:\$E\$143** to see which heading belongs to the number "1", and finds there the language-dependent heading for the first Round of sixteen, in English for example "Round of 16 - 1". The idea of translating only the word "Round of 16" and adding a 1 can possibly lead to conflicts with languages where the 1 is not at the end.

We copy the formulas for range **B48:C50** from one of the group games: for example, select range **B36:C38**, copy with "Ctrl C", then click on cell **B48** and paste with "Ctrl V".

In cell **B52** we enter: **=Language!\$E\$153** ("Penalty shoot-out:"). Cells **B52** and **C52** are merged.

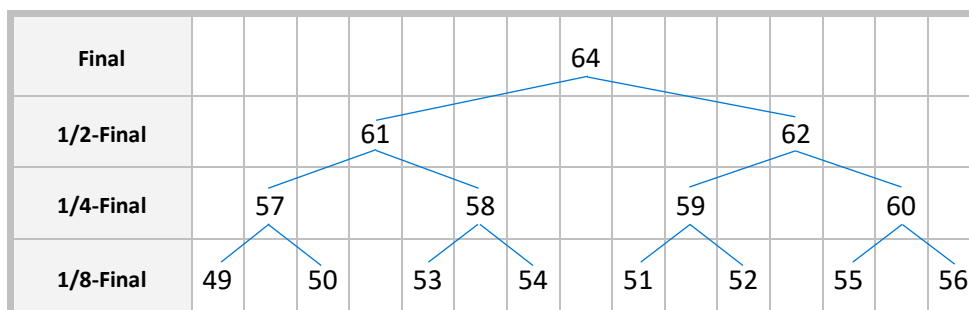
They get a conditional formatting (font colour red) with the formula **=AND(B51=C51;B51<>"";C51<>"")**.

In line 54 we enter the following two formulas:

Cell **B54**: **=VLOOKUP(A48,Matches!\$B\$4:\$K\$72,2,0)**

Cell **C54**: **=VLOOKUP(A48,Matches!\$B\$4:\$K\$72,3,0)**

Now we select the range **B47:C54** and copy it into the other Round of 16 games.



Explanation of the order of the Round of 16 games on the match schedule:

If we follow the matches backwards from the final, we can see in the FIFA plan that in the final, the winner of match 61 will play against the winner of match 62. In match 61, the winner of match 57 plays against the winner of match 58. In match 57, the winner of match 49 plays against the winner of match 50. This gives us the following order of the Round of 16 games: 49, 50, 53, 54, 51, 52, 55, 56.

8.2 Quarter-finals, semi-finals and finals

For the quarter-finals we enter the numbers 2, 1, 4, 3 in the cells **K62:K65** of the spreadsheet 'Matches'. They result from the chronological order of the quarter-finals.

Since the order of the semi-finals and the finals is always the same, we enter the corresponding formulas in this case:

Cell **K67**: `=Language!E148`

Cell **K68**: `=Language!E149`

Cell **K70**: `=Language!E150`

Cell **K72**: `=Language!E151`

On the 'World Cup' spreadsheet, we enter the following formulas for the first quarter-final match:

Cell **C57**: `=VLOOKUP(VLOOKUP(B58,Matches!B62:K65,10,0),Language!D144:E147,2,0)`

Cell **C58**: `=VLOOKUP(B58,Matches!B4:K72,7,0)`

Cell **C59**: `=VLOOKUP(B58,Matches!B4:K72,5,0)`

Cell **C62**: `=Language!E153`

Cell **C64**: `=VLOOKUP(B58,Matches!B62:K72,2,0)`

Cell **E64**: `=VLOOKUP(B58,Matches!B62:K72,3,0)`

The cells **C62:E62** are merged and get a conditional formatting for red font color with the formula `=AND(C61=E61;C61<>"";E61<>"")`.

We select the range **C57:E64** and copy it into the boxes of the remaining quarter-final matches and the **first semi-final match**. The formula for the heading is no longer correct in the semi-final and the error "#N/A" (no value available) appears. From the semi-final onwards, we have constant headings with a different formula. In cell **F67** we therefore enter:

Cell **F67**: `=VLOOKUP(E68,Matches!B62:K72,10,0)`

We select the range **F67:H74** and copy it into the boxes of the remaining semis or finals.

At this point we have the possibility of further optimization:

On the 'World Cup' spreadsheet, the **numbers of the matches in the KO round** (round of 16, quarter-finals and semi-finals) can be generated **automatically** using formulas. This has the advantage that once the match plan has been filled out on the 'Matches' spreadsheet, all the matches in the KO round are automatically arranged correctly.

On the 'World Cup' spreadsheet, cell **C65** has the content "W49". This means that the first round of 16 match (far left) must be match number 49. We therefore replace the number 49 in cell **A48** with the formula `=RIGHT(C64,2)*1`.

The last two characters ("49") are truncated from the text "W49". Multiplying by 1 converts the truncated text to the **number** 49. This conversion is necessary because the LOOKUP functions in the range **B47:C54** would not find the text "49" in the Matches worksheet. They would return the error code **#N/A**.

We proceed accordingly with the other match numbers of the KO round. For example, in cell **D48** we enter the formula `=RIGHT(E64,2)*1`. Cell **H58** then contains the formula `=RIGHT(H74,2)*1` and cell **E68** contains the formula `=RIGHT(L92,2)*1`.

Cell **K76** contains the number 63 and cell **K86** contains the number 64.

Now only the **team names** are missing.

In cell **C60** we enter the following formula:

```
=IF(AND(B51<>"",C51<>""),IF(B51>C51,B50,IF(B51<C51,C50,IF(AND(B53<>"",C53<>""),IF(B53>C53,B50,IF(B53<C53,C50,"")),""))),""))
```

The winner of match 49 is said to be here. The formula consists of six nested **IF** functions. The first **IF** function checks whether the match result is entered completely in cells **B51** and **C51**. If not, no team name is entered. Otherwise: The next two **IF** functions check whether one of the two teams has won. In this case, the winner is entered. Otherwise (draw): Now it is checked whether the result of the penalty shoot-out is complete and no draw has been entered. Accordingly, the winner or nothing is entered for the team name.

Here are the remaining formulas for the **team names**:

Cell **E60**:

```
=IF(AND(E51<>"",F51<>""),IF(E51>F51,E50,IF(E51<F51,F50,IF(AND(E53<>"",F53<>""),IF(E53>F53,E50,IF(E53<F53,F50,"")),""))),""))
```

Cell **I60**:

```
=IF(AND(H51<>"",I51<>""),IF(H51>I51,H50,IF(H51<I51,I50,IF(AND(H53<>"",I53<>""),IF(H53>I53,H50,IF(H53<I53,I50,"")),""))),""))
```

Cell **K60**:

```
=IF(AND(K51<>"",L51<>""),IF(K51>L51,K50,IF(K51<L51,L50,IF(AND(K53<>"",L53<>""),IF(K53>L53,K50,IF(K53<L53,L50,"")),""))),""))
```

Cell **O60**:

```
=IF(AND(N51<>"",O51<>""),IF(N51>O51,N50,IF(N51<O51,O50,IF(AND(N53<>"",O53<>""),IF(N53>O53,N50,IF(N53<O53,O50,"")),""))),""))
```

Cell **Q60**:

```
=IF(AND(Q51<>"",R51<>""),IF(Q51>R51,Q50,IF(Q51<R51,R50,IF(AND(Q53<>"",R53<>""),IF(Q53>R53,Q50,IF(Q53<R53,R50,"")),""))),""))
```

Cell **U60**:

```
=IF(AND(T51<>"",U51<>""),IF(T51>U51,T50,IF(T51<U51,U50,IF(AND(T53<>"",U53<>""),IF(T53>U53,T50,IF(T53<U53,U50,"")),""))),""))
```

Cell **W60**:

```
=IF(AND(W51<>"",X51<>""),IF(W51>X51,W50,IF(W51<X51,X50,IF(AND(W53<>"",X53<>""),IF(W53>X53,W50,IF(W53<X53,X50,"")),""))),""))
```

Cell **F70**:

```
=IF(AND(C61<>"",E61<>""),IF(C61>E61,C60,IF(C61<E61,E60,IF(AND(C63<>"",E63<>""),IF(C63>E63,C60,IF(C63<E63,E60,"")),""))),""))
```

Cell **H70**:

```
=IF(AND(I61<>"",K61<>""),IF(I61>K61,I60,IF(I61<K61,K60,IF(AND(I63<>"",K63<>""),IF(I63>K63,I60,IF(I63<K63,K60,"")),""))),""))
```

Cell **R70**:

```
=IF(AND(O61<>"",Q61<>""),IF(O61>Q61,O60,IF(O61<Q61,Q60,IF(AND(O63<>"",Q63<>""),IF(O63>Q63,O60,IF(O63<Q63,Q60,"")),""))),""))
```

Cell **T70**:

```
=IF(AND(U61<>"",W61<>""),IF(U61>W61,U60,IF(U61<W61,W60,IF(AND(U63<>"",W63<>""),IF(U63>W63,U60,IF(U63<W63,W60,"")),""))),""))
```

Cell **L78**:

```
=IF(AND(F71<>"",H71<>""),IF(F71<H71,F70,IF(F71>H71,H70,IF(AND(F73<>"",H73<>""),IF(F73<H73,F70,IF(F73>H73,H70,"")),""))),""))
```

Cell **N78**:

```
=IF(AND(R71<>"",T71<>""),IF(R71<T71,R70,IF(R71>T71,T70,IF(AND(R73<>"",T73<>""),IF(R73<T73,R70,IF(R73>T73,T70,"")),""))),""))
```

Cell **L88**:

```
=IF(AND(F71<>"",H71<>""),IF(F71>H71,F70,IF(F71<H71,H70,IF(AND(F73<>"",H73<>""),IF(F73>H73,F70,IF(F73<H73,H70,"")),""))),""))
```

Cell **N88**:

```
=IF(AND(R71<>"",T71<>""),IF(R71>T71,R70,IF(R71<T71,T70,IF(AND(R73<>"",T73<>""),IF(R73>T73,R70,IF(R73<T73,T70,"")),""))),""))
```

8.3 Notice when entering an invalid match result

A draw is not possible in the knockout phase, as the match will definitely be decided by a penalty shoot-out. If a tie is entered as a match result, a note should appear under the match result.

We merge cells **B55** and **C55** and enter the following formula:

```
=IF(AND(B51<>"" ,C51<>"" ,B51=C51,B53<>"" ,C53<>"" ,B53=C53),Language!$E$159,"")
```

We copy this formula into cells **E55**, **H55**, **K55**, **N55**, **Q55**, **T55** and **W55**.

The note appears when the match result and the penalty shoot-out result have been entered in full, but no winner emerges.

We connect cells **C65**, **D65** and **E65** and fill in the following formula:

```
=IF(AND(C61<>"" ,E61<>"" ,C61=E61,C63<>"" ,E63<>"" ,C63=E63),Language!$E$159,"")
```

We copy this formula into cells **I65**, **O65**, **U65**, **F75**, **R75**, **L83** and **L93**.

Finally, the announcement of the new world champion:

Cell **R86**: `=Language!E135`

Cell **R88**: `=IF(AND(L89<>"" ,N89<>""),IF(L89>N89,L88,IF(L89<N89,N88,IF(AND(L91<>"" ,N91<>""),IF(L91>N91,L88,IF(L91<N91,N88,"")),""))),""))`

The ranges **R86:W87** and **R88:W89** are each merged to one cell.

The match plan is now ready. The rest (chapters 9 and 10) is additional convenience.

The current status of the schedule can be found in the file named **"WCup_Tut_8.xlsx"**.

9 Optional: The thing with the red dot

If two or more teams cannot be distinguished at the end of the group stage due to their points, goals and direct comparisons, a decision will be made on the basis of the fair play rating or a drawing of lots. The user of this match plan must then enter additional bonus points on the “**Fair play and lot**” worksheet.

So that the occurrence of such a case is clearly recognizable, the affected groups are marked with a red dot. The red dot disappears again when the order has been clarified by entering bonus points.

To make this even more transparent for the user, we also set up an eye-catching red or green message, for example “**Groups with fair play valuation or drawing lots: A, C and G.**”

or

“**The placement has been clarified in all groups.**”

9.1 The red dot

In cell **V11** on the „GrpA“ worksheet we enter the following formula:

```
=IF(AND(OR(TRUNC($T$11,4)=TRUNC($T$12,4),TRUNC($T$11,4)=TRUNC($T$13,4),TRUNC($T$11,4)=TRUNC($T$14,4),TRUNC($T$12,4)=TRUNC($T$13,4),TRUNC($T$12,4)=TRUNC($T$14,4),TRUNC($T$13,4)=TRUNC($T$14,4)), $K$10>0),1,0)
```

In detail:

TRUNC(\$T\$11,4) means that the rank number in **T11** (e.g. 30102.000004) is reduced to four decimal places. This cuts off the line number and leaves the ranking number, which contains all FIFA criteria from the number of points to the drawing of lots.

If we call these abbreviated ranks R1, R2, R3 and R4, then the formula says: If at least two of these rank numbers are the same (R1 = R2 or R1 = R3 or ... R3 = R4) and at least one match result is entered in this group (**\$K\$10>0**), then a 1 appears in cell **V11**, otherwise a 0.

If there is a 1 in cell **V11**, a red dot should be displayed in the relevant group.

On the “World Cup” worksheet, we merge cells **B8** and **C8**. The red dot should appear here.

Therefore we enter the formula **=IF(GrpA!\$V\$11>0,"•","")** here.

The dot can first be created in any cell with “Insert → Symbol” and then inserted into the formula with copy and paste.

The formula in **GrpA! V11** is now copied into the "GrpB", "GrpC" etc. worksheets.

On the “World Cup” worksheet, the formula in **B8** is copied to **E8, H8** etc.

"GrpA" is changed to "GrpB", "GrpC" etc.

9.2 The message

We create a new worksheet with the name "**Distinctness**". It should look like this:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		Distinctness of the ranks within the groups												
2														
3		Group	Distinctness	Number	Not clear	Indicator	Position	Text						
4		A	0	3		0	0				Groups with fair play valuation or drawing lots: B, C and D.			
5		B	1		B	1	1	B,			The placement has been clarified in all groups.			
6		C	1		C	1	2	C and						
7		D	1		D	1	3	D						
8		E	0			0	3							
9		F	0			0	3							
10		G	0			0	3							
11		H	0			0	3							
12														
13						Full text:	B, C and D							
14														

In cells **B4** to **B11** we write the letters from A to H.

In cells **C4** to **C11** we enter the formulas **=GrpA!\$V\$11**, **=GrpB!\$V\$11**, ... , **=GrpH!\$V\$11**.

This gives us an overview of the groups in which the fair play valuation or the lot will decide. These are all groups for which there is a 1 in column C - in the figure above, groups B, D and E.

In this case, a message should appear on the schedule with the following text:

Groups with fair play valuation or drawing lots: B, D and E.

The first part of the message (**groups with fair play valuation or drawing lots:**) is a fixed text. The second part (**B, D and E.**) is variable text that looks different depending on the situation. For example, it can also be: **D and H.**

To create this second part of the text, we first enter a formula in cell **D4** for the number of groups with fair play valuation/drawing lots: **=COUNTIF(\$C\$4:\$C\$11,">0")**.

In column E we enter the letter of the group if the group is not clear.

Cell **E4**: **=IF(\$C4>0,\$B4,"")**

The formula is copied down to **E11**.

We enter the following formulas in cells **F4** and **G4**:

Cell **F4**: **=LEN(\$E4)**

Cell **G4**: **=SUM(\$F\$4:\$F4)**

and copy both formulas down to line 11. It is important that there is no dollar sign in front of the last 4 in the expression **\$F\$4:\$F4**. When copying, **\$F4** becomes **\$F5**, etc.

Side note: Column F is only an auxiliary column to avoid the use of the SUMPRODUCT function, which behaves like a matrix formula and is therefore more difficult to understand. You could also omit column F and enter the formula **=SUMPRODUCT(LEN(\$E\$4:\$E4))** in column G.

The numbers in column G now tell us the position of the three ambiguous groups in the list of these groups. The B in line 5 is in the first position. At the 3 in cell **G11** we can see that there are two more ambiguous groups. Therefore, a comma must follow after the B. The D in line 7 is in the second position. At the 3 in cell **G11** we see that this is the penultimate position and must be followed by an "and" after the D. The E in line 8 is in the third position. At the 3 in cell **G11** we can see that this is the last position. Nothing more has to follow the E. The final period is placed by the formula in cell **J4**.

This logic is summarized in the formulas in column H.

Cell **H4**: **=IF(\$E4<>"" , \$E4&IF(\$G4=\$G\$11,"" , IF(\$G4<\$G\$11-1,"" , Language!\$E\$158)) , "")**

The formula is copied down. The expression **Language!\$E\$158** is the word "and" in the selected language.

In cell **H13** we put all parts together into one text:

Cell **H13**: **=H\$4&H\$5&H\$6&H\$7&H\$8&H\$9&H\$10&H\$11**

The entire message is then in cell **J4**: **=Language!\$E\$156&" "&H\$13&".**

Formula in cell **J5**: **=Language!\$E\$157**

The message in **J5** appears when there is a zero in **D4**.

Line 7 of the “World Cup” worksheet is intended for the message. We merge cells **B7:X7** into one cell and center its contents.

In cell **B7** we enter the following formula:

=IF(GrpA!\$K\$10+GrpB!\$K\$10+GrpC!\$K\$10+GrpD!\$K\$10+GrpE!\$K\$10+GrpF!\$K\$10+GrpG!\$K\$10+GrpH!\$K\$10=0,"",IF(Distinctness!\$D\$4>0,Distinctness!\$J\$4,Distinctness!\$J\$5))

The first condition

GrpA!\$K\$10+GrpB!\$K\$10+GrpC!\$K\$10+GrpD!\$K\$10+GrpE!\$K\$10+GrpF!\$K\$10+GrpG!\$K\$10+GrpH!\$K\$10=0

means that no message appears if no results have yet been entered in the schedule.

Cell **B7** is given a green font. With the help of the conditional formatting, the font color changes to red if there is an unclear order of precedence in one of the groups. The formula for the condition is:

=Distinctness!\$D\$4>0 .

The current status of the schedule can be found in the file named **“WCup_Tut_9.xlsx”**.

10 Optional: Additional overview of the direct comparisons

(contains matrix formulas)

This overview is intended to show the comparison table of the three teams concerned, when comparing three teams directly, in order to make it clear how the ranking is established in this case. The direct comparison of two teams is also shown in this overview.

We create a new spreadsheet named "Direct comparisons". It should look like this:

Direct comparisons																											
Group A										Clear?					Row numbers					Col num		Dir. Comp. (3)					
Total			Dir. Comp.(2)		Dir. Comp.(3)			Fair Play/Lot		Not clear	Points	GD	For	Against													
Pts.	GD	Goals	Pts.	GD	Goals	Pts.	GD	Goals	Fair Play/Lot	Not clear																	
1. Senegal	4	0	6	-	6	3	0	4	-	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. Netherlands	4	0	5	-	5	3	0	4	-	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Ecuador	4	0	5	-	5	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Qatar	4	0	4	-	4				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group B										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. Iran	6	3	5	-	2	1	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. England	4	0	4	-	4	1	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. USA	4	0	4	-	4	1	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Wales	3	-3	2	-	5				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group C										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. Saudi Arabia	4	0	5	-	5	3	0	4	-	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Mexico	4	0	5	-	5	3	0	4	-	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Argentina	4	0	5	-	5	3	0	3	-	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Poland	3	0	4	-	4				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group D										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. France	5	2	6	-	4	2	0	4	-	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Australia	5	2	6	-	4	2	0	3	-	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Tunisia	5	2	6	-	4	2	0	3	-	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Denmark	0	-6	2	-	8				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group E										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. Germany	9	4	4	-	0				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Spain	4	3	4	-	1				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Japan	3	-5	2	-	7				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Costa Rica	1	-2	1	-	3				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group F										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. Canada	7	2	5	-	3				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Croatia	4	0	3	-	3				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Morocco	3	0	4	-	4				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Belgium	1	-2	1	-	3				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group G										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. Switzerland	5	3	6	-	3				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. Serbia	5	2	6	-	4				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Cameroon	5	1	7	-	6				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Brazil	0	-6	3	-	9				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Group H										Clear?					Row numbers					Col num		Dir. Comp. (3)					
1. Uruguay	5	1	5	-	4				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2. South Korea	4	1	3	-	2				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3. Ghana	4	0	6	-	6				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4. Portugal	3	-2	6	-	8				-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Columns A to V are the range visible to the user. Columns W to AG are hidden.

We will develop the formulas for group A and then copy the entire range **B3:AG9** seven times. In each of these copies we then only need to adapt the formula for the heading (cells **C11**, **C19** etc.) and to replace the character string "GrpA" with "GrpB" or "GrpC" etc. in the formulas by Find/Replace. Therefore, the setting or omission of the dollar signs must be carefully observed here.

10.1 Visible area - part 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	Direct comparisons																					
2																						
3		● Group A	Total			Dir. Comp.(2)			Dir. Comp.(3)													
4			Pts.	GD	Goals	Pts.	Pts.	GD	Goals	Fair Play/Lot	Not clear											
5		1. Senegal	4	0	6 - 6					0												
6		2. Netherlands	4	0	5 - 5	3																
7		3. Ecuador	4	0	5 - 5	0																
8		4. Qatar	4	0	4 - 4																	
9																						
10																						
11		● Group B	Total			Dir. Comp.(2)			Dir. Comp.(3)													
12			Pts.	GD	Goals	Pts.	Pts.	GD	Goals	Fair Play/Lot	Not clear											
13		1. IR Iran	6	3	5 - 2					0												
14		2. England	4	0	4 - 4	1																•
15		3. USA	4	0	4 - 4	1																•
16		4. Wales	3	-3	2 - 5																	
17																						
18																						
19		● Group C	Total			Dir. Comp.(2)			Dir. Comp.(3)													
20			Pts.	GD	Goals	Pts.	Pts.	GD	Goals	Fair Play/Lot	Not clear											
21		1. Saudi Arabia	4	0	5 - 5		3	0	4 - 4	0												•
22		2. Mexico	4	0	5 - 5		3	0	4 - 4	0												•
23		3. Argentina	4	0	5 - 5		3	0	3 - 3	0												
24		4. Poland	3	0	4 - 4					0												
25																						

We start with the heading:

Cell **B1**: `=Language!E116`

The cells **B1** to **U1** are merged.

For the headings in line 3 we enter the following formulas:

Cell **C3**: `=Language!E124&" A"`

Cell **D3**: `=Language!E129`

Cell **I3**: `=Language!E132`

Cell **N3**: `=Language!E133`

For the headings in line 4 we enter the following formulas:

Cell **D4**: `=Language!E125`

Cell **E4**: `=Language!E126`

Cell **F4**: `=Language!E127`

Cell **K4**: `=Language!E125`

Cell **N4**: `=Language!E125`

Cell **O4**: `=Language!E126`

Cell **P4**: `=Language!E127`

Cell **T4**: `=Language!E130`

Cell **U4**: `=Language!E131`

We enter the current number in cells **A5** to **A8**. We copy the team names in sorted order from the worksheet "GrpA":

Cell **C5**: `=GrpA!O11`

Cell **C6**: `=GrpA!O12`

Cell **C7**: `=GrpA!O13`

Cell **C8**: `=GrpA!O14`

For example, for later copying of the complete group, it is important that there is a dollar sign in front of the numbers 11, 12, 13 and 14.

In range **D5:H8** you should first see a copy of the group table:

Cell **D5**: =GrpA!\$P\$11
 Cell **D6**: =GrpA!\$P\$12
 Cell **D7**: =GrpA!\$P\$13
 Cell **D8**: =GrpA!\$P\$14
 Cell **E5**: =GrpA!\$Q\$11
 Cell **E6**: =GrpA!\$Q\$12
 Cell **E7**: =GrpA!\$Q\$13
 Cell **E8**: =GrpA!\$Q\$14
 Cell **F5**: =GrpA!\$R\$11
 Cell **F6**: =GrpA!\$R\$12
 Cell **F7**: =GrpA!\$R\$13
 Cell **F8**: =GrpA!\$R\$14
 Cell **H5**: =GrpA!\$S\$11
 Cell **H6**: =GrpA!\$S\$12
 Cell **H7**: =GrpA!\$S\$13
 Cell **H8**: =GrpA!\$S\$14

In the range **K5:K8** the points of a direct comparison of two teams should be displayed. If there is no direct comparison between two teams, the fields remain empty.

In order to determine whether a direct comparison with another team is taking place for the team in question, we first add two more formulas to the group tables.

On the **"GrpA" worksheet**, we enter the formula **=(P4+S4>0)** in cell **X4** and copy it down to cell **X7**. This formula returns a boolean value; it enters TRUE or FALSE in the cell. TRUE means that at least one match result has been entered for the team in question, FALSE means that no match result has yet been entered for this team. This is based on the following consideration: A team where both the number of points (P4) and the number of goals accepted (S4) is zero cannot have played a match yet. If they have played a match but have zero points, at least one goal must have been accepted, otherwise they could not have lost.

In cell **J18** of the "GrpA" worksheet, we enter a formula that returns a „1“ if there is a direct two-way comparison for the team in question and the team has played at least one match, otherwise a „0“. The formula is:

=IF(\$X\$4,IF(AND(\$Y\$4=\$Y\$5,\$Y\$4<>\$Y\$6,\$Y\$4<>\$Y\$7),1,0)+IF(AND(\$Y\$4=\$Y\$6,\$Y\$4<>\$Y\$5,\$Y\$4<>\$Y\$7),1,0)+IF(AND(\$Y\$4=\$Y\$7,\$Y\$4<>\$Y\$5,\$Y\$4<>\$Y\$6),1,0),0)

The structure of the formula is:

=IF(\$X\$4,IF(...)+IF(...)+IF(...),0)

The outer IF function returns a „0“ if the team in question has not played a match. Otherwise, a sum of three IF functions is calculated.

The first IF function **IF(AND(\$Y\$4=\$Y\$5,\$Y\$4<>\$Y\$6,\$Y\$4<>\$Y\$7),1,0)** checks whether the ranking of the team concerned (**\$Y\$4**) matches the rank in cell **\$Y\$5**, but none of the others. The other two IF functions check the other two possibilities for a two-way comparison. Only one of the three IF functions can ever apply. The formula therefore enters a „0“ or a „1“ in cell **J18**.

We copy this formula down to cell **J21**.

Now we can enter the following formulas on the "Direct comparisons" worksheet in range **K5:K8**:

Cell **K5**:

```
=IF(VLOOKUP(GrpA!$O$11,GrpA!$D$18:$J$21,7,0)=0,"",VLOOKUP(GrpA!$O$11,GrpA!$D$18:$J$21,6,0))
```

Cell **K6**:

```
=IF(VLOOKUP(GrpA!$O$12,GrpA!$D$18:$J$21,7,0)=0,"",VLOOKUP(GrpA!$O$12,GrpA!$D$18:$J$21,6,0))
```

Cell **K7**:

```
=IF(VLOOKUP(GrpA!$O$13,GrpA!$D$18:$J$21,7,0)=0,"",VLOOKUP(GrpA!$O$13,GrpA!$D$18:$J$21,6,0))
```

Cell **K8**:

```
=IF(VLOOKUP(GrpA!$O$14,GrpA!$D$18:$J$21,7,0)=0,"",VLOOKUP(GrpA!$O$14,GrpA!$D$18:$J$21,6,0))
```

Also important here: dollar signs before 11, 12, 13 and 14!

The first VLOOKUP function accesses the value in column J of the "GrpA" worksheet and uses it to check whether a direct two-way comparison is taking place for the team in question. If so, the value of the second VLOOKUP function (the score 3, 1, or 0) is displayed; otherwise, the cell is blank.

In range **N5:R8**, the group table should be displayed for a direct comparison of three teams. To do this, additional formulas must first be prepared in the hidden area (see Chapter 10.2). We will enter and discuss these formulas later (see Chapter 10.3).

In range **T5:T8** it should be shown whether a bonus for fair play/lot has already been entered:

Cell **T5**:

```
=SUMIFS(FairPlayPoints1,FairPlayTeams1,$C5)+SUMIFS(FairPlayPoints2,FairPlayTeams2,$C5)
```

The formula is copied down to cell **T8**.

A red dot should appear in the range **U5:U8** if the positioning for the team in question is not yet clear. We will enter and discuss the formulas for this later (see Chapter 10.3).

10.2 Hidden area

W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
Clear?	Row numbers					Col num	Dir. Comp. (3)			
							Points	GD	For	Against
0		0	0	0	0		0	0	0	0
0		0	0	0	0		0	0	0	0
0		0	0	0	0		0	0	0	0
0		0	0	0	0		0	0	0	0
		0	0	0	0	0				
0		0	0	0	0		0	0	0	0
1		0	0	0	0		0	0	0	0
1		0	0	0	0		0	0	0	0
0		0	0	0	0		0	0	0	0
		0	0	0	0	0				
1		2	0	0	0		3	0	3	3
1		3	0	0	0		3	0	4	4
0		1	0	0	0		3	0	4	4
0		0	0	0	0		0	0	0	0
		6	0	0	0	1				

In order to show the direct comparisons of three teams, we need a preparation in the hidden area (columns W to AG).

Four different groups of three are possible in each group. The tables for these four groups of three can be found on the “GrpA” worksheet in range **N16:V35**. If there is no direct comparison between three teams, these four tables are all zeros. Only in the case of a direct comparison of three teams do numbers not equal to zero appear in one of the four tables. We want to copy exactly this table into the range **AD5:AG7** of our worksheet “Direct comparisons”.

To do this, we need to know which are the correct line numbers.

We enter the following formula in cell **Y5**:

=IF(VLOOKUP(\$C5,GrpA!\$O\$17:\$V\$20,8,0)>0,MATCH(\$C5,GrpA!\$O\$17:\$O\$20,0),0)

The expression **VLOOKUP(\$C5,GrpA!\$O\$17:\$V\$20,8,0)** looks for the relevant team (**\$C5**) on the worksheet “GrpA” in column V to see whether there is a zero (not a direct Comparison) or a number greater than zero (direct comparison).

The expression **MATCH(\$C5,GrpA!\$O\$17:\$O\$20,0)** tells us at which position the respective team (**\$C5**) is in the range **GrpA!\$O\$17:\$O\$20**.

The formula in **Y5** therefore returns the position of the team in question within the first of the four possible groups of three if a direct comparison is available, otherwise a zero.

In the same way, the formulas in cells **Z5**, **AA5** and **AB5** return the team's position in the other three possible groups of three. These formulas are:

Cell **Z5**: **=IF(VLOOKUP(\$C5,GrpA!\$O\$22:\$V\$25,8,0)>0,MATCH(\$C5,GrpA!\$O\$22:\$O\$25,0),0)**

Cell **AA5**: **=IF(VLOOKUP(\$C5,GrpA!\$O\$27:\$V\$30,8,0)>0,MATCH(\$C5,GrpA!\$O\$27:\$O\$30,0),0)**

Cell **AB5**: **=IF(VLOOKUP(\$C5,GrpA!\$O\$32:\$V\$35,8,0)>0,MATCH(\$C5,GrpA!\$O\$32:\$O\$35,0),0)**

We copy the formulas in cells **Y5**, **Z5**, **AA5** and **AB5** down to row 8.

In line 9 we form the sum of the respective column:

Cell **Y9**: **=SUM(Y5:Y8)**

Cell **Z9**: **=SUM(Z5:Z8)**

Cell **AA9**: **=SUM(AA5:AA8)**

Cell **AB9**: **=SUM(AB5:AB8)**

Those four numbers are then either all zero or one of them is a six.

We enter the following formula in cell **AC9**: **{=MAX(IF(\$Y9:\$AB9>0,SPALTE(\$Y9:\$AB9)-SPALTE(X\$1),0))}**

This is a so-called matrix formula. The curly brackets are not allowed to be entered. But you have to finish entering the formula with **Ctrl-Shift-Enter**. Then the curly brackets are set automatically.

This matrix formula calculates the four expressions

IF(\$Y9>0,COLUMN(\$Y9)-COLUMN(X\$1),0)

IF(\$Z9>0,COLUMN(\$Z9)-COLUMN(X\$1),0)

IF(\$AA9>0,COLUMN(\$AA9)-COLUMN(X\$1),0)

IF(\$AB9>0,COLUMN(\$AB9)-COLUMN(X\$1),0)

and returns the maximum of it.

For example, in the following figure we see a six in cell **Z9**.

W	X	Y	Z	AA	AB	AC
Clear?	Row numbers					Col num
0	0	2	0	0		
0	0	1	0	0		
0	0	3	0	0		
0	0	0	0	0		
		6	0	0	2	

The first, third and fourth expressions result in 0. Only for the second expression, the condition **\$Z9>0** is true, so that the expression **COLUMN(\$Z9)-COLUMN(W\$1)** is calculated here. This expression gives 25 - 23 = 2. The maximum of the four numbers 0, 0, 2, 0 is then 2.

The number in cell **AC9** tells us that in this example, column 2 of the small table contains line numbers greater than 0.

So we know that we can find the positions or the relative row numbers of the teams in column 2 of the small table **Y5:AB8**. We will use this in the formulas in the **N5:R8** range.

We also know that we have to copy the second table from the "GrpA" worksheet from the four tables in range **P17:S35** to the "Direct comparisons" worksheet. And that's what we're going to do next. We use a matrix formula here again, this time not in a single cell, but in a range.

To do this, we select the range **AD5:AG7** on the "Direct comparisons" worksheet and enter the following formula in the editing line above:

=IF(\$Y9>0,GrpA!\$P\$17:\$S\$19,IF(\$Z9>0,GrpA!\$P\$22:\$S\$25,IF(\$AA9>0,GrpA!\$P\$27:\$S\$30,IF(\$AB9>0,GrpA!\$P\$32:\$S\$35,"0"))))

The entry must be completed with **Ctrl-Shift-Enter**. The formula is then automatically enclosed in curly brackets.

The formula causes the second table in our example to be copied to the "Direct comparisons" worksheet.

The formula consists of nested IF functions. If $\$Y9>0$, the range **GrpA!\$P\$17:\$S\$19** should be copied. If $\$Z9>0$, the range **GrpA!\$P\$22:\$S\$25** should be copied etc. Otherwise "0" is entered everywhere.

With the help of the matrix formula, we only need to enter a single formula for the entire range (the so-called matrix).

The alternative would be to enter a formula of the type

=IF(\$Y9>0,GrpA!\$P\$17,IF(\$Z9>0,GrpA!\$P\$22,IF(\$AA9>0,GrpA!\$P\$27,IF(\$AB9>0,GrpA!\$P\$32,"0"))))

in everyone of the 12 cells.

We want to put a red dot in cells **U5** to **U8** for each team with an unclear rank. In preparation for this, we first create zeros or ones in cells **W5** to **W8**. We enter the following formulas in cells **W5** to **W8**:

Cell **W5**:

=IF(AND(OR(TRUNC(GrpA!\$T\$11,4)=TRUNC(GrpA!\$T\$12,4),TRUNC(GrpA!\$T\$11,4)=TRUNC(GrpA!\$T\$13,4),TRUNC(GrpA!\$T\$11,4)=TRUNC(GrpA!\$T\$14,4)),VLOOKUP(GrpA!\$O\$11,GrpA!\$O\$4:\$X\$7,10,0)),1,0)

Cell **W6**:

=IF(AND(OR(TRUNC(GrpA!\$T\$12,4)=TRUNC(GrpA!\$T\$11,4),TRUNC(GrpA!\$T\$12,4)=TRUNC(GrpA!\$T\$13,4),TRUNC(GrpA!\$T\$12,4)=TRUNC(GrpA!\$T\$14,4)),VLOOKUP(GrpA!\$O\$12,GrpA!\$O\$4:\$X\$7,10,0)),1,0)

Cell **W7**:

=IF(AND(OR(TRUNC(GrpA!\$T\$13,4)=TRUNC(GrpA!\$T\$11,4),TRUNC(GrpA!\$T\$13,4)=TRUNC(GrpA!\$T\$12,4),TRUNC(GrpA!\$T\$13,4)=TRUNC(GrpA!\$T\$14,4)),VLOOKUP(GrpA!\$O\$13,GrpA!\$O\$4:\$X\$7,10,0)),1,0)

Cell **W8**:

=IF(AND(OR(TRUNC(GrpA!\$T\$14,4)=TRUNC(GrpA!\$T\$11,4),TRUNC(GrpA!\$T\$14,4)=TRUNC(GrpA!\$T\$12,4),TRUNC(GrpA!\$T\$14,4)=TRUNC(GrpA!\$T\$13,4)),VLOOKUP(GrpA!\$O\$14,GrpA!\$O\$4:\$X\$7,10,0)),1,0)

If the ranking of the team in question, reduced to four decimal places, matches the reduced ranking of another team, a 1 is entered, otherwise a 0.

The AND function **AND(OR(...),VLOOKUP(GrpA!\$O\$14,GrpA!\$O\$4:\$X\$7,10,0))** has the effect that a „1“ is only entered if at least one match has been entered for the team in question.

The expression **VLOOKUP(GrpA!\$O\$14,GrpA!\$O\$4:\$X\$7,10,0)** reads a Boolean value from column X of the worksheet "GrpA" that indicates whether the number of games entered for the relevant Crew is greater than zero.

With these formulas, too, it is important that the numbers 11, 12, 13 and 14 are preceded by the dollar sign!

10.3 Visible area - part 2

In cell **U5** we enter the formula `=IF($W5>0;"•";"")` and copy it down to cell **U8**.

The special character can be entered in any cell (Insert → Symbol) and then inserted into the editing line with Copy + Paste.

A red dot appears for the teams with an unclear ranking.

In the range **N5:R8** the table for the direct comparison of three teams should be shown.

In cell **N5** we enter the following formula:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,1,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,1,$AC9),1)))
```

Explanation of the formula:

`IF($AC9=0;"")` means: if there is no direct comparison of three teams, nothing is entered.

The INDEX function in the form **INDEX (range, row, column)** returns the content of a cell from the specified range. The relative positions of the cell in this range are entered in the parameters **row** and **column**. For example, the expression `INDEX(C4:H9;2;3)` would return the contents of cell **E5**.

If there is a direct comparison, there is a number greater than zero in cell **AC9** and in the small table **Y5:AB8** one of the four columns contains the row numbers of the three teams involved in the direct comparison. In cell **AC9** is the number of the column in which we can find these line numbers.

The expression `IF(INDEX($Y5:$AB8,1,$AC9)=0` therefore checks whether the line number in the first line is equal to 0. If this is the case, then it is the team that does not take part in the direct comparison, and nothing is entered. Otherwise, the expression `INDEX($AD5:$AG7,INDEX($Y5:$AB8,1,$AC9),1)` is evaluated and the result is returned.

In this expression we have two nested INDEX functions.

The inner INDEX function `INDEX($Y5:$AB8,1,$AC9)` gives us the relative row number of the team in question, the outer INDEX function gives us the score of the team in question from column 1 of table **AD5:AG7**.

If we insert a "2" instead of a "1" for the column number, we get the **goal difference** and with a "3" or a "4" the **goals**. We use this for the formulas in cells **O5**, **P5** and **R5**. They are:

Cell **O5**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,1,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,1,$AC9),2)))
```

Cell **P5**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,1,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,1,$AC9),3)))
```

Cell **R5**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,1,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,1,$AC9),4)))
```

The remaining formulas in table **M5:Q8** all look very similar:

Cell **N6**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,2,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,2,$AC9),1)))
```

Cell **O6**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,2,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,2,$AC9),2)))
```

Cell **P6**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,2,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,2,$AC9),3)))
```

Cell **R6**:

```
=IF($AC9=0,"",IF(INDEX($Y5:$AB8,2,$AC9)=0,"",INDEX($AD5:$AG7,INDEX($Y5:$AB8,2,$AC9),4)))
```

Cell **N7**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,3,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,3,\$AC9),1)))

Cell **O7**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,3,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,3,\$AC9),2)))

Cell **P7**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,3,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,3,\$AC9),3)))

Cell **R7**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,3,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,3,\$AC9),4)))

Cell **N8**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,4,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,4,\$AC9),1)))

Cell **O8**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,4,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,4,\$AC9),2)))

Cell **P8**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,4,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,4,\$AC9),3)))

Cell **R8**:

=IF(\$AC9=0,"",IF(INDEX(\$Y5:\$AB8,4,\$AC9)=0,"",INDEX(\$AD5:\$AG7,INDEX(\$Y5:\$AB8,4,\$AC9),4)))

A large blue dot should appear to the left of the group name so that the groups in which a direct comparison is carried out are even more visible. In cell **B3** we enter the following formula:

=IF(OR(\$AC9>0,\$K5<>"", \$K6<>"", \$K7<>""), "●", "")

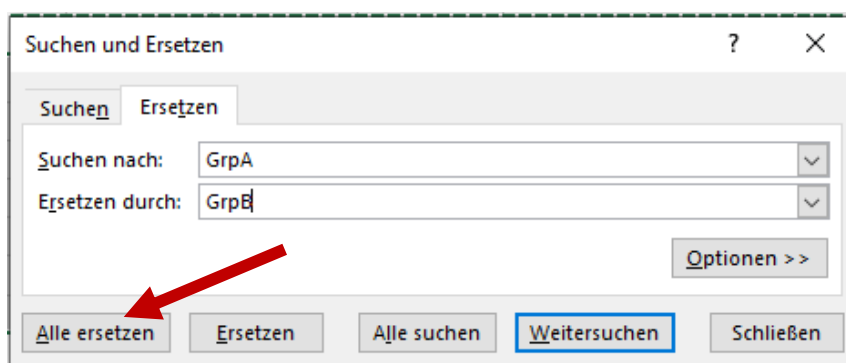
The special character can be entered again in any cell with **Insert** → **Symbol** and then inserted into the editing line with **Copy + Paste**. It may appear as a space in the editing line, but it still works.

We now select the range **B3:AG9** and copy it with Ctrl C, for example.

Then we click on cell **B11** and paste the copy, for example with Ctrl V.

Important: The new range is still selected!

With **Find and Replace** we change the text „GrpA“ to „GrpB“ in all formulas of the selected range.



In cell **C11** we change the formula =Language!\$E\$124&" B".

We create the ranges for the remaining groups in the same way. - **All done!**

The final schedule can be found in the file "**WCup_Tut_final.xlsx**".

11 Adjusting the schedule after the group draw

The match schedule is designed in such a way that changes in the group allocation as well as changes in the FIFA schedule are easy to handle. No formulas need to be changed, just certain entries in the 'Language', 'Groups' and 'Matches' spreadsheets.

11.1 Spreadsheet 'Language'

The list of venues will be updated here.

There is nothing else to do on this spreadsheet. If you want, you can arrange the teams in the order of the current FIFA rankings. However, this is not necessary for the functionality of the schedule. Also, the numbers in column D may be mixed up. They just have to be unique.

11.2 Allocation of the teams to the groups

We show the worksheet 'Groups'. In column C we now enter the numbers of the teams that have been assigned to the group in question. For example, for team A1 we enter the number 51 because Qatar has the number 51 on the sheet 'Language'. For team A2 we enter the number of Ecuador, for team A3 the number of Senegal and for team A4 the number of the Netherlands.

Accordingly, we enter the numbers for the remaining groups in accordance with the FIFA draw. On the spreadsheet 'World Cup' we now see the correct group participants in the correct order.

11.3 Match data update

We show the 'Matches' spreadsheet. The kick-off times must be updated in column E and the venues in column G.

The match numbers correspond to the FIFA match numbers. If you would like to number the games differently, you can make the appropriate changes in column B after removing the sheet protection.

11.4 Updating the match numbers on the schedule

The match numbers are now corrected on the 'World Cup' spreadsheet. It is advisable to arrange the six group games within each group in chronological order.

That's it! - All these changes are automatically applied to the rest of the spreadsheets.

Schedule for the next World Cup tournament in 2026

On 10 January 2017, FIFA decided in a vote that from 2026 onwards, 48 teams will take part in the final tournament instead of 32.

In the group stage, instead of 8 groups of four, there should be 16 groups of three.

After sustained criticism of the groups of three, the tournament mode was changed again on March 14, 2023. The 48 teams now play in 12 groups of four.

In the KO round there is also a sixteenth final with 16 KO games. The 1st and 2nd place finishers in each group and the 8 best third-placed teams qualify for the KO round.

The total number of games increases from 64 to 104.

So this tutorial no longer fits the new tournament schedule one-to-one, but it does fit the tournament schedule of the Women's World Cup.

Source

<https://www.fifa.com/en/tournaments/mens/worldcup/qatar2022>

https://en.wikipedia.org/wiki/Time_zone

