

Relational Model

Team (country, URL, group, national_association)

Player (pid, name, DOB, shirt_number, general_position, country
country foreign key references Team(country))

Coach (cid, name, DOB, role, country
country foreign key references Team(country))

Stadium(name, location, capacity, Entrance_information, parking_information)

Match (identifier, date, time, round, match_length, stadium, Extra_program, availability,
match_length, match_name, h_name, v_name
stadium foreign key references Stadium(name))

Referees (rid, name, years_of_experience, role, country, match
match foreign key references Match(identifier))

MatchPlayer (name, attendance, entered_time, left_time, detailed_position_in_this_game,
yellow_card_number, red_card_number, match
name foreign key references Player(pid)
match foreign key references Match(identifier))

MatchGoals (Occurrence, identifier, match, occurred_time, whether_penalty, who_scored,
who_scored foreign key references MatchPlayer(name))

Customer(Customer_number, preferred_language, nationality, live_location, DOB, address,
Eaddress, name, password, pronoun, ticket_quantity_in_sCart, sCart_subtotal)

Ticket (tid, price, seat_location, ticket_category, ticket_type, Customer
Customer foreign key references Customer(Customer_number))

PaymentMethod(Card_number, Card_type, Security_code, Expiration_date, customer_number
customer_number foreign key references Customer(Customer_number))

Match_Result(identifier, date, round, h_name, v_name, h_score, v_score, identifier foreign key references
Match(identifier))

Group_Goals(country, goal_num)

Application interaction

a) (i)

Yusen Tang 260890520 && Xize Xin 260956421

```
db2 => select *
from MATCH
inner join match_player on match.identidier = match_player.identidier
db2 (cont.) => db2 (cont.) => db2 (cont.) => inner join MATCHGOALS on match.IDENTIDIER = matchgoals.IDENTIDIER;
```

IDENTIDIER	DATE	TIME	ROUND	EXTRA_PROGRAM	AVAILABILITY	MATCH_LENGTH	MATCH_NAME	
V_NAME	PID	IDENTIDIER	ATTENDANCE	ENTERED_TIME	LEFT_TIME	DETAILED_POSITION_IN_GAME	YELLOW_CARD_NUMBER	RED_CARD_
NUMBER OCCURRENCE	IDENTIDIER	OCCURRED_TIME	WHO SCORED	WHETHER_PENALTY				
10001	06/01/2023	16:00:00	Group Round 1	-	5000	90	France vs Argentina	
Al-Rayyan Stadium				France				
Argentina	1	0	1010001	10001	1 00:45:00	01:30:00	Forward	0
10001	06/01/2023	16:00:00	Group Round 1	-	5000	0	France vs Argentina	
Al-Rayyan Stadium				France				
Argentina	0	0	1010002	10001	1 00:45:00	01:30:00	Midfield	0
10001	06/01/2023	16:00:00	Group Round 1	-	5000	90	France vs Argentina	
Al-Rayyan Stadium				France				
Argentina	1	0	1010001	10001	1 00:45:00	01:30:00	Forward	0
10001	06/01/2023	16:00:00	Group Round 1	-	5000	90	France vs Argentina	
Al-Rayyan Stadium				France				
Argentina	0	0	1010002	10001	1 00:45:00	01:30:00	Midfield	0
10002	06/02/2023	16:00:00	Group Round 2	-	7500	90	England vs Brazil	
Al-Wakrah Stadium				England				
Brazil	0	0	1010004	10002	1 00:00:00	01:15:00	Defender	1
10002	06/02/2023	16:00:00	Group Round 2	-	7500	90	England vs Brazil	
Al-Wakrah Stadium				England				
Brazil	0	0	1040001	10002	1 00:15:00	01:10:05	Defender	1
10002	06/02/2023	16:00:00	Group Round 2	-	7500	90	England vs Brazil	
Al-Wakrah Stadium				England				
Brazil	0	0	1020001	10002	0 -	-	-	1
10003	06/03/2023	16:00:00	Group Round 3	-	6000	90	Spain vs Germany	
Education City Stadium				Spain				
Germany	1	10003 00:19:23	1020004	10003	1 00:30:00	01:10:00	Goalkeeper	0
0	1	10003 00:19:23	1030003	0				
10003	06/03/2023	16:00:00	Group Round 3	-	6000	90	Spain vs Germany	
Education City Stadium				Spain				
Germany	1	0	1030001	10003	1 01:15:00	01:30:00	Midfield	0
10011	06/11/2023	16:00:00	Quarterfinals	-	7000	90	Spain vs England	
Lusail Iconic Stadium				Spain				
England	1	0	1040004	10011	1 00:19:10	01:00:00	Midfield	1
1	1	0	10011 00:19:10	1040004				

10 record(s) selected.

(ii)

```
cs421g216@winter2023-comp421:~/2022World_Cup_Management_System$ javac Soccer.java
cs421g216@winter2023-comp421:~/2022World_Cup_Management_System$ java Soccer
Soccer Main Menu
  1. List information of matches of a country
  2. Insert initial player information for a match
  3. For you to design
  4. Exit application
Please Enter Your Option:
1
please enter the country name you want to check:
England
England Brazil 2023-03-12 Group Round2 1 3 52500
France England 2023-03-17 Group Round16 1 0 72000
Spain England 2023-03-21 Group Round16 0 0 73000
Enter [A] to find matches of anther country, [P] to go to the previous menu:
```

(iii)

```
Enter [A] to find matches of anther country, [P] to go to the previous menu:
p
Soccer Main Menu
  1. List information of matches of a country
  2. Insert initial player information for a match
  3. For you to design
  4. Exit application
Please Enter Your Option:
```

b) (i)

Yusen Tang 260890520 && Xize Xin 260956421

```
db2 => select *
from Mdb2 (cont.) => ATCH
where db2 (cont.) => MATCH.DATE -3 <= current date;
```

IDENTIDIER	DATE	TIME	ROUND	EXTRA_PROGRAM H_NAME	AVAILABILITY V_NAME	MATCH_LENGTH	MATCH_NAME
10001	03/11/2023	16:00:00	Group Round 1	-	5000	90	France vs Argentina
			Al-Rayyan Stadium	France	Argentina		
10002	03/12/2023	16:00:00	Group Round 2	-	7500	90	England vs Brazil
			Al-Wakrah Stadium	England	Brazil		
10003	03/13/2023	16:00:00	Group Round 3	-	6000	90	Spain vs Germany
			Education City Stadium	Spain	Germany		
10007	03/17/2023	16:00:00	Round of 16	-	8000	90	France vs England
			Lusail Iconic Stadium	France	England		

4 record(s) selected.

(ii)

```
db2 => select name
from MATCdb2 (cont.) => H_PLAYER inner join PLAYER
on MATCH_PLAYER.PID = PLAYEdb2 (cont.) => R.PID
where PLAYER.COUNTRY = 'France'db2 (cont.) =>
and MATCH_db2 (cont.) => PLAYER.IDENTIDIER = 10007;
```

NAME

0 record(s) selected.

(iii)

```
db2 => select name
from PLAYdb2 (cont.) => ER
where COUNTRY = 'France';db2 (cont.) => ;
```

NAME

Kylian Mbappe
Antoine Griezmann
Konde abab
Varane auas
Ibra Konate

5 record(s) selected.

(iv)

```
Soccer Main Menu
  1. List information of matches of a country
  2. Insert initial player information for a match
  3. For you to design
  4. Exit application
Please Enter Your Option:
2
Matches:
10007 France England Round of 16
10008 Brazil Germany Round of 16
Please enter a match identifier or you can press P to back to the previous menu:
|
```

(v)

```
Please enter a match identifier or you can press P to back to the previous menu:
10007
Please enter the country:
France
The following players from France are already entered for match 10007:
Possible players fromFrancenot yet selected:
1. Kylian Mbappe Forward 7
1. Antoine Griezmann Forward 10
1. Konde abab Defender 12
1. Varane auas Defender 2
1. Ibra Konate Midfielder 3
Enter the shirt number of the player you want to insert or [P] to go to the previous menu
|
```

(vi) and (vii)

```
Enter the shirt number of the player you want to insert or [P] to go to the previous menu
7
Matches:
10007 France England Round of 16
10008 Brazil Germany Round of 16
Please enter a match identifier or you can press P to back to the previous menu:
10007
Please enter the country:
France
The following players from France are already entered for match 10007:
Kylian Mbappe 7 Forward from minute 0 to minute 0 yellow: 0 red: 0
Possible players fromFrancenot yet selected:
1. Antoine Griezmann Forward 10
1. Konde abab Defender 12
1. Varane auas Defender 2
1. Ibra Konate Midfielder 3
Enter the shirt number of the player you want to insert or [P] to go to the previous menu
10
Matches:
10007 France England Round of 16
10008 Brazil Germany Round of 16
Please enter a match identifier or you can press P to back to the previous menu:
10007
Please enter the country:
```

```
France
The following players from France are already entered for match 10007:
Kylian Mbappe 7 Forward from minute 0 to minute 0 yellow: 0 red: 0
Antoine Griezmann 10 Forward from minute 0 to minute 0 yellow: 0 red: 0
Possible players fromFrance not yet selected:
1. Konde abab Defender 12
1. Varane auas Defender 2
1. Ibra Konate Midfielder 3
Enter the shirt number of the player you want to insert or [P] to go to the previous menu
12
Matches:
10007 France England Round of 16
10008 Brazil Germany Round of 16
Please enter a match identifier or you can press P to back to the previous menu:
10007
Please enter the country:
France
The following players from France are already entered for match 10007:
Kylian Mbappe 7 Forward from minute 0 to minute 0 yellow: 0 red: 0
Antoine Griezmann 10 Forward from minute 0 to minute 0 yellow: 0 red: 0
Konde abab 12 Defender from minute 0 to minute 0 yellow: 0 red: 0
Possible players fromFrance not yet selected:
1. Varane auas Defender 2
1. Ibra Konate Midfielder 3
Enter the shirt number of the player you want to insert or [P] to go to the previous menu
|
```

(viii)

```
Please enter the country:
France
The following players from France are already entered for match 10007:
Kylian Mbappe 7 Forward from minute 0 to minute 0 yellow: 0 red: 0
Antoine Griezmann 10 Forward from minute 0 to minute 0 yellow: 0 red: 0
Konde abab 12 Defender from minute 0 to minute 0 yellow: 0 red: 0
Varane auas 2 Defender from minute 0 to minute 0 yellow: 0 red: 0
Possible players fromFrance not yet selected:
1. Ibra Konate Midfielder 3
Enter the shirt number of the player you want to insert or [P] to go to the previous menu
3
Matches:
10007 France England Round of 16
10008 Brazil Germany Round of 16
Please enter a match identifier or you can press P to back to the previous menu:
10007
Please enter the country:
France
The following players from France are already entered for match 10007:
Kylian Mbappe 7 Forward from minute 0 to minute 0 yellow: 0 red: 0
Antoine Griezmann 10 Forward from minute 0 to minute 0 yellow: 0 red: 0
Konde abab 12 Defender from minute 0 to minute 0 yellow: 0 red: 0
Varane auas 2 Defender from minute 0 to minute 0 yellow: 0 red: 0
Ibra Konate 3 Midfielder from minute 0 to minute 0 yellow: 0 red: 0
```

above is the situation where there is no player to add. It will show the current players and offer no chance to add more players. Press p here to go back to the last step.

(ix)

```
Matches:
10007 France England Round of 16
10008 Brazil Germany Round of 16
Please enter a match identifier or you can press P to back to the previous menu:
p
Soccer Main Menu
1. List information of matches of a country
2. Insert initial player information for a match
3. For you to design
4. Exit application
Please Enter Your Option:
4
cs421g216@winter2023-comp421:~/2022World_Cup_Management_System$ db2 -t
```

(x)

```
db2 => select name
from MATCH_PLdb2 (cont.) => AYER inner join PLAYER
on MATCH_PLAYER.PID = PLAYEdb2 (cont.) => R.PID
where PLAYER.COUNTRY = 'France'db2 (cont.) =>
and MATCH_PLAYER.IDENTdb2 (cont.) => IDIER = 10007;

NAME
-----
Kylïan Mbappe
Antoine Griezmann
Konde abab
Varane auas
Ibra Konate

5 record(s) selected.

db2 => |
```

as you see, the sql code for (x) is the same as (ii), which means these five players were added after step (ii).

c.The menu selection: 3. For your selection shows the information of referees. Entering the Rid of a referees, the user could see all the information of this referee.Also, the user could enter [P] to go back to the main menu.].

4.Index

```
db2 => CREATE INDEX match ON MATCH(IDENTIDIER,H_NAME,V_NAME);
DB20000I The SQL command completed successfully.
db2 => |
```

I created an index over the match table because it contains all important information about the match, and these 3 attributes(IDENTIDIER, H_NAME,V_NAME) are the most important information about the match. People can find this match by searching either one of the name or its IDENTIDIER(It is misspelled, but we use this “wrong word” from project 1).

5.Data Analytics.

```
db2 => SELECT *  
FROM GROUP_G0db2 (cont.) => ALS;
```

COUNTRY	GOAL_NUM
France	3
Argentina	1
England	1
Spain	5
Germany	2
Brazil	3

6 record(s) selected.

COUNTRY	GOAL
France	3
Argentina	1
England	1
Spain	5
Germany	2
Brazil	3

please see sheet 5 left down the page in the excel file.

