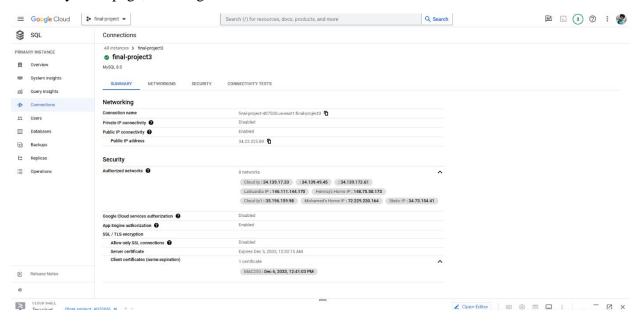
Fifa World Cup 2022 Analysis Project Group 3

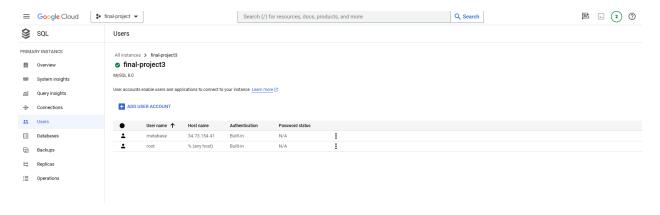
Mohamed Elmonoufy - Hemraj Rasulan

Back End:

Summary view page, showing the IP Addresses whitelisted and the SSL Certificates created.



User tab showing the Metabase connection.



Showing the construction of the Schema "finals" and the table "Fifa"

Showing the construction of the fields in the Fifa table

Showing the view created for "average goals per each match"

```
mysql> SELECT * FROM average_goals_per_match_view ;
                 | total_goals | average_goals_per_match |
| team
 ENGLAND
  PORTUGAL.
                                                   2.4000
 FRANCE
                            16 |
                                                   2.2857
  SPAIN
 ARGENTINA
                            15 |
                                                   2.1429
 GERMANY
NETHERLANDS
                                                   2.0000
                            10 I
                                                   2.0000
                                                   1.6667
  GHANA
  BRAZIL
                                                   1.6000
 CAMEROON
                                                   1.3333
 ECUADOR
                                                   1.3333
 SENEGAL
                                                   1.2500
 SWITZERLAND
                                                   1.2500
 JAPAN
                                                   1.2500
 KOREA REPUBLIC |
                                                   1.2500
  CROATIA
 COSTA RICA
                                                   1.0000
 SAUDI ARABIA
                                                   1.0000
 AUSTRALIA
                                                   1.0000
                                                   0.8571
                             3 | 3 | 2 | 2 | 2 |
  UNITED STATES
 POLAND
                                                   0.7500
 MEXICO
                                                   0.6667
  URUGUAY
                                                   0.6667
  CANADA
                                                   0.6667
  TUNISIA
                                                   0.3333
                             1 |
 OATAR
                                                   0.3333
 BELGIUM
                                                   0.3333
  DENMARK
 WALES
                                                   0.3333
32 rows in set (0.00 sec)
mysql>
```

```
CREATE VIEW average_goals_per_match_view AS
SELECT
    team,
    COALESCE(SUM(goals_team1), 0) + COALESCE(SUM(goals_team2), 0) AS total_goals,
    COALESCE((SUM(goals_team1) + SUM(goals_team2)) / COUNT(*), 0) AS
average_goals_per_match
FROM (
    SELECT team1 AS team, goals_team1, NULL AS goals_team2
    FROM Fifa
    UNION ALL
    SELECT team2 AS team, NULL AS goals_team1, goals_team2
    FROM Fifa
) AS subquery
GROUP BY team
ORDER BY average_goals_per_match DESC;
```

Showing the Second view of the "conversion rate per game"

```
mysql> SELECT * FROM conversion_rate_view;
                         | conversion rate |
  NETHERLANDS
                                          0.6250
  SPAIN
GHANA
                                         0.5625
0.5000
  GHANA |
SERBIA |
ENGLAND |
PORTUGAL |
FRANCE |
SWITZERLAND |
AUSTRALIA |
COSTA RICA |
POLAND |
JAPAN |
IRAN |
SENEGAL |
MOROCCO |
CANADA |
ECUADOR |
SAUDI ARABIA |
ARGENTINA |
CAMEROON |
                                         0.5000
                                         0.4815
                                       0.4800
                                         0.4571
                                      0.4545
0.4444
0.4286
0.4286
                                       0.3636
                                         0.3571
                                         0.3529
                                       0.3323
                                         0.3333
                                          0.3125
  CAMEROON
                                         0.2857
  KOREA REPUBLIC |
GERMANY
                                         0.2857
                                         0.2778
                                         0.2500
  GERMANY |
UNITED STATES |
                                          0.2000
  BRAZIL
                                          0.1951
  QATAR
WALES
                                          0.1667
                                          0.1429
0.1333
  MEXICO
  TUNISIA
                                          0.1250
  BELGIUM
32 rows in set (0.00 sec)
mysql>
```

CREATE VIEW conversion_rate_view AS SELECT

```
team,
    COALESCE(SUM(total_goals) / NULLIF(SUM(on_target_attempts), 0), 0) AS
conversion_rate
FROM (
    SELECT team1 AS team, on_target_attempts_team1 AS on_target_attempts,
goals_team1 AS total_goals
    FROM Fifa
    UNION ALL
    SELECT team2 AS team, on_target_attempts_team2 AS on_target_attempts,
goals_team2 AS total_goals
    FROM Fifa
) AS subquery
GROUP BY team
ORDER BY conversion_rate DESC, team;
```

The third view showing the pass accuracy

```
CREATE VIEW passing_accuracy_view AS
SELECT
   AVG(passing_accuracy) AS avg_passing_accuracy
FROM (
    SELECT
        team1 AS team,
        (SUM(passes completed team1) / NULLIF(SUM(passes team1), 0)) * 100.0 AS
passing_accuracy
   FROM
        Fifa
   GROUP BY
        team1
   SELECT
        team2 AS team,
        (SUM(passes completed team2) / NULLIF(SUM(passes team2), 0)) * 100.0 AS
passing_accuracy
   FROM
        Fifa
   GROUP BY
        team2
) AS subquery
GROUP BY
   team
ORDER BY
```

```
avg_passing_accuracy DESC
LIMIT 32;
```

And the fourth view showing the shots vs goal comparison view.

```
CREATE VIEW shots vs goals comparison AS
SELECT
    team,
    COALESCE(SUM(on_target_attempts), 0) AS total_shots_on_target,
    COALESCE(SUM(total goals), 0) AS total goals
FROM (
    SELECT team1 AS team, on_target_attempts_team1 AS on_target_attempts,
goals team1 AS total goals
   FROM Fifa
   UNION ALL
   SELECT team2 AS team, on_target_attempts_team2 AS on_target_attempts,
goals team2 AS total goals
   FROM Fifa
) AS subquery
GROUP BY team
ORDER BY total_shots_on_target DESC, team;
```

A view showing the total goals

```
CREATE VIEW total_goals_by_team_view AS
SELECT
    team,
    COALESCE(SUM(goals_team1), 0) + COALESCE(SUM(goals_team2), 0) AS total_goals
FROM (
    SELECT team1 AS team, goals_team1 AS goals_team1, NULL AS goals_team2
    FROM Fifa
    UNION ALL
    SELECT team2 AS team, NULL AS goals_team1, goals_team2 AS goals_team2
    FROM Fifa
) AS subquery
GROUP BY team
ORDER BY total_goals DESC;
```

A view that shows team possession

CREATE VIEW possession_analysis_view AS

```
SELECT
    team,
    AVG(possession) AS avg_possession
FROM (
    SELECT
        team1 AS team,
        possession team1 AS possession
    FROM
        Fifa
    UNION
    SELECT
        team2 AS team,
        possession_team2 AS possession
    FROM
        Fifa
) AS subquery
GROUP BY
    team
ORDER BY
   avg_possession DESC;
```

Front End:

```
1- gcloud compute instances create metabase \
2- --image-family ubuntu-2204-lts \
3- --image-project ubuntu-os-cloud \
4- --machine-type n1-standard-1 \
5- --description metabase \
6- --zone us-east1-b \
7- --metadata=startup-script='
```

Creating and setting up the Compute Engine and Metabase software to connect to the CloudSQL database instance.

```
sudo apt install openjdk-8-jdk
```

Installing Java for the metabase software

```
wget https://downloads.metabase.com/v0.47.9metabase.jar
```

Downloading the metabase software

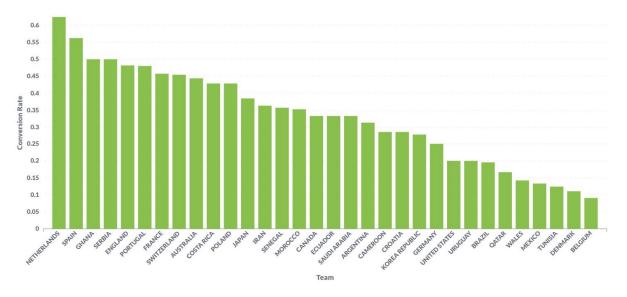
```
--project="double-rigging-404816" firewall-rules create default-allow-metabase \
--direction=INGRESS \
--priority=1000 \
--network=default \
--action=ALLOW \
--rules=tcp:3000 \
--source-ranges="10.142.0.3, 34.70.200.13, 174.204.132.41, 34.139.17.33,
72.229.230.164, 146.111.144.170, 148.75.50.173, 34.73.154.41" \
--target-tags=allow-metabase
```

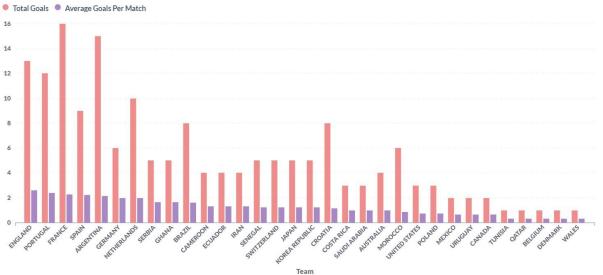
Creating a Firewall rule to allow the metabase connection through 3000 port

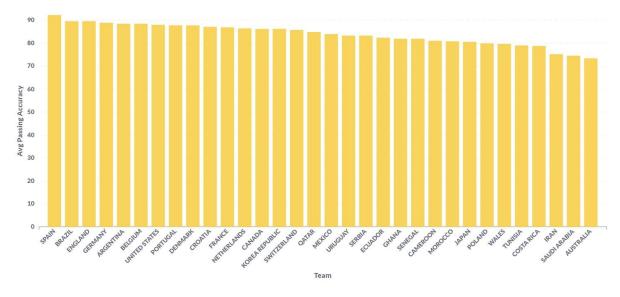
```
java -jar /opt/metabase.jar
http://34.73.154.41/:3000/setup
```

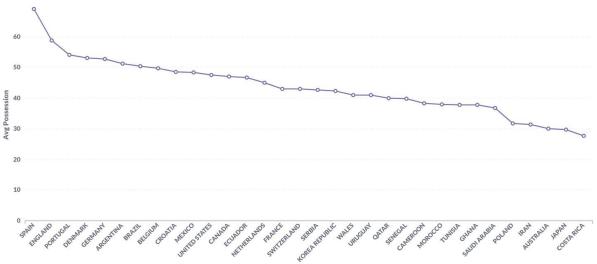
Connecting to the metabase

Using the Views made in the backend to create data visualizations.









Team

