

FIFA World Cup



Presented By

Carlos Soda
Bharat Guturi
Balvinder Rajbans

Project Overview and Source of Data

As the world cup is around the corner, our project looks into the history of the FIFA World Cup to gather and store data to create visualisations for the teams that participated and scored goals and won the FIFA World Cup Title.

The Data is sourced from:

<https://github.com/jfjelstul/worldcup/tree/master/data-csv>

Using the csv files goals.csv & tournament_standings.csv

("Joshua C. Fjelstul, Ph.D."), a notice that the database is copyrighted ("© 2022 Joshua C. Fjelstul, Ph.D."), a link to the CC-BY-SA 4.0 license (<https://creativecommons.org/licenses/by-sa/4.0/legalcode>), and a link to this repository (<https://www.github.com/jfjelstul/worldcup>)

Extract, transform, load

- **Importing dependencies:**

Pandas and os, and create_engine, inspect and text from sqlalchemy.

- **Storing CSV into Dataframes:**

Two CSV files were used from the main source, goals.csv with 2548 entries and tournament_standings.csv with 84 entries.

- **Creating new data with select columns:**

New Dataframe is created with selected columns from goals.csv, called new_goals.csv, tournament_standings.csv was used as it was.

Extract, transform, load

- **Creating database:**

Using pgAdmin, we created a database called project_3 which has two tables called the same way as the csv files used.

- **Connecting to local database:**

With create_engine and inspect, we connected to this local database created (project_3).

```
protocol = 'postgresql'
username = os.environ.get('db_UserName')
password = os.environ.get('db_Password')
host = 'localhost'
port = 5432
database_name = 'project_3'
rds_connection_string = f'{protocol}://{username}:{password}@{host}:{port}/{database_name}'
engine = create_engine(rds_connection_string)
insp = inspect(engine)
```

Extract, transform, load

- **Checking for tables**

```
insp.get_table_names()  
  
['goals', 'tournament_standings']
```

- **Loading Dataframe into Database using Pandas**

With create_engine and inspect, we connected to this local database created (project_3).

```
new_goals_df.to_sql(name='goals', con=engine, if_exists='append', index=False)  
  
tournament_standings_df.to_sql(name='tournament_standings', con=engine, if_exists='append', index=False)
```

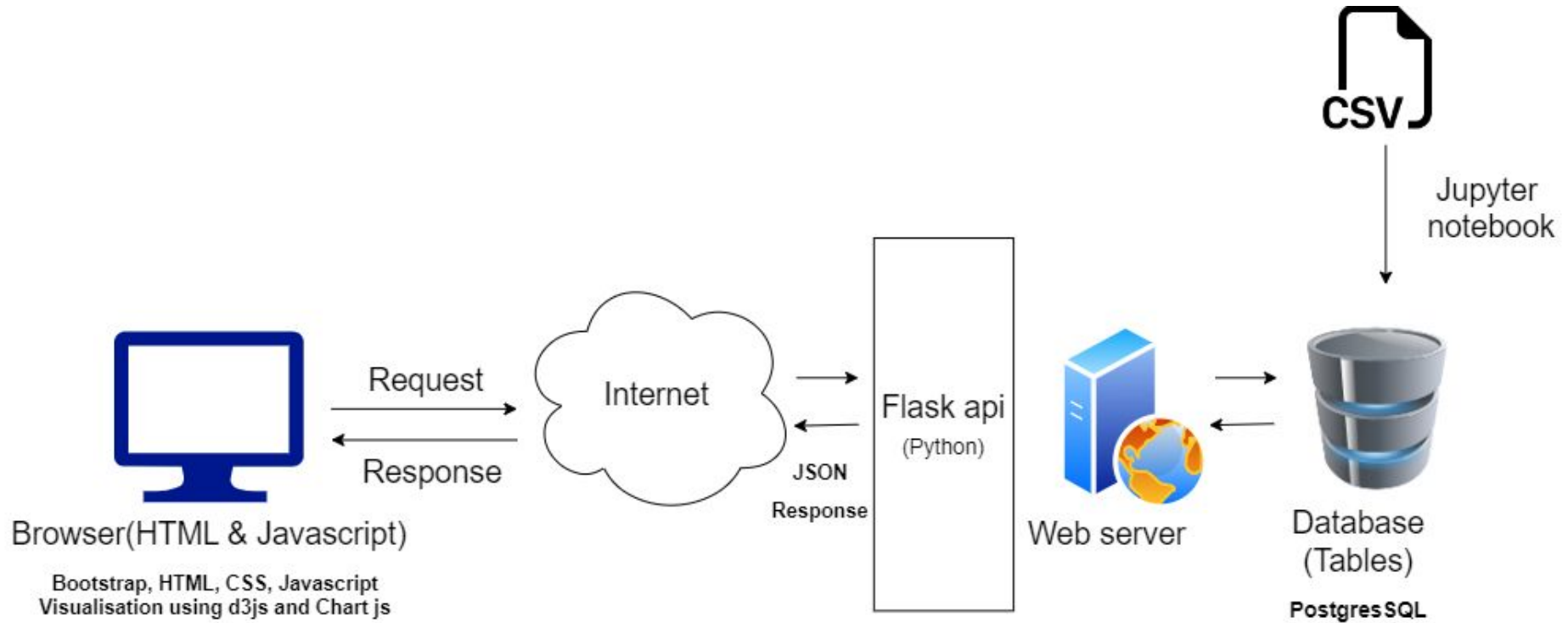
Extract, transform, load

- **Confirming data has been added by querying the tables names.**
(tournament_standings table as an example)

```
pd.read_sql_query('select * from tournament_standings', con=engine).head()
```

	key_id	tournament_id	tournament_name	position	team_id	team_name	team_code
0	1	WC-1930	1930 FIFA World Cup	1	T-80	Uruguay	URY
1	2	WC-1930	1930 FIFA World Cup	2	T-03	Argentina	ARG
2	3	WC-1930	1930 FIFA World Cup	3	T-79	United States	USA
3	4	WC-1930	1930 FIFA World Cup	4	T-83	Yugoslavia	YUG
4	5	WC-1934	1934 FIFA World Cup	1	T-39	Italy	ITA

Architecture diagram



Flask api

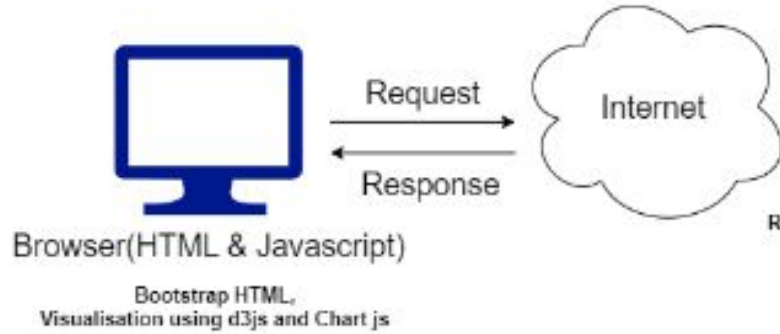


```
@app.route("/api/v1.0/goals")
def goals():
    session = Session(engine)
    results = session.query(Goals).all()
    session.close()
    goals = []
    for x in results:
        goals_dict = {}
        goals_dict["key_id"] = x.key_id
        goals_dict["tournament_id"] = x.tournament_id
        goals_dict["match_id"] = x.match_id
        goals_dict["tournament_name"] = x.tournament_name
        goals_dict["match_name"] = x.match_name
        goals_dict["match_date"] = x.match_date
        goals_dict["team_id"] = x.team_id
        goals_dict["team_name"] = x.team_name
        goals_dict["team_code"] = x.team_code
        goals_dict["home_team"] = x.home_team
        goals_dict["away_team"] = x.away_team
        goals_dict["player_id"] = x.player_id
```



```
[
  {
    "away_team": 0,
    "family_name": "Laurent",
    "given_name": "Lucien",
    "home_team": 1,
    "key_id": 1,
    "match_date": "1930-07-13",
    "match_id": "M-1930-01",
    "match_name": "France v Mexico",
    "match_period": "first half",
    "minute_regulation": 19,
    "player_id": "P-09831",
    "player_team_name": "France",
    "team_code": "FRA",
    "team_id": "T-28",
    "team_name": "France",
    "tournament_id": "WC-1930",
    "tournament_name": "1930 FIFA World Cup"
  },
  {
```


Browser & Visualisation

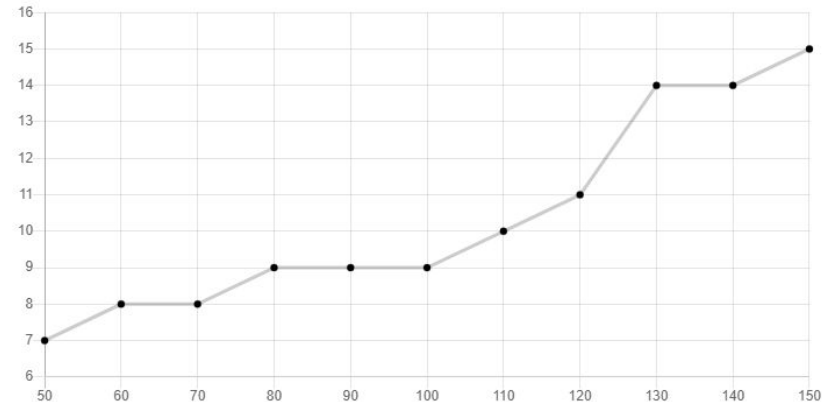
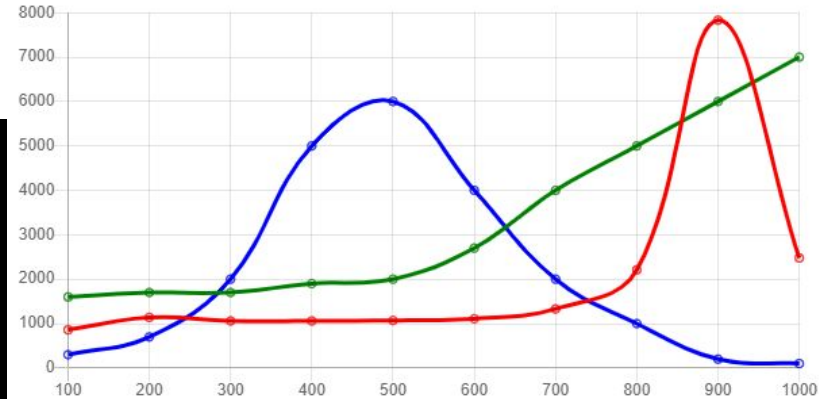


Visualisation and plotting done
using d3js and Chart js

Chart js

Chart.js is a simplified version of plotly with a better and appealing visualisation

Examples of Chart js



Loading chart js into HTML

```
<script src="https://cdnjs.cloudflare.com/ajax/libs/Chart.js/2.9.4/Chart.js"></script>
<script src="https://d3js.org/d3.v5.min.js"></script>
```

Few functions: Splitting and Sorting

```
yearGoals.sort(function (a, b) {
  return (a.year).split("-")[1] - (b.year).split("-")[1];
})
return yearGoals;
```

Few functions: Cumulative addition in a particular column

```
if (!(obj.tournament_id in res))
  res.__array.push(res[obj.tournament_id] = obj);
else {
  res[obj.tournament_id].home_team += obj.home_team;
  res[obj.tournament_id].away_team += obj.away_team;
}
return res;
}, { __array: [] }).__array
.sort(function (a, b) { return b.away_team - a.away_team; });
```

Plotting using Chart js

```
function plotBarYear(yearDetails) {
  var xValues = [];
  var yValues = [];
  for (x in yearDetails) {
    xValues.push(yearDetails[x].year);
    yValues.push(yearDetails[x].goalsPerYear);
  }

  new Chart("barChart", {
    type: "bar",
    data: {
      labels: xValues,
      datasets: [{
        backgroundColor: colors,
        data: yValues
      }]
    },
    options: {
      legend: { display: false },
      title: {
        display: true,
        text: "Goals Scored"
      }
    }
  });
}
```

Objective: FIFA World Cup Data Analysis

- 1) Number of World Cups won by the countries over the years
- 2) How did the competitiveness in the World Cup change over the years
- 3) Which country scored maximum number of goals in 1990 ?
- 4) Can I get a visual difference between the goals scored by each country in 2012 ?
- 5) First four standings in 2006
- 6) Which countries are participating in 2022 FIFA World Cup



FIFA World Cup 2022 Teams

The FIFA World Cup 2022 is only 24 days away and the whole world is waiting for the kick off.

We created an interactive map to show the teams that qualified for the FIFA World Cup 2022 and teams that previously won the FIFA World Cup Title.

The data has been sourced from

World cup Data Source: The Sporting News as at 18/10/2022

https://www.sportingnews.com/uk/soccer/news/fifa-world-cup-which-teams-have-qualified/86nbyru9dkh41ii7s800gjiw_av

A dictionary was created to store all the information to create the map.

FIFA World Cup 2022 Teams

Group A

A1  Qatar

A2  Ecuador

A3  Senegal

A4  Netherlands



Group B

B1  England

B2  IR Iran

B3  USA

B4  Wales



Group C

C1  Argentina

C2  Saudi Arabia

C3  Mexico

C4  Poland



Group D

D1  France

D2  Denmark

D3  Tunisia

D4  Australia



Group E

E1  Spain

E2  Germany

E3  Japan

E4  Costa Rica



Group F

F1  Belgium

F2  Canada

F3  Morocco

F4  Croatia



Group G

G1  Brazil

G2  Serbia

G3  Switzerland

G4  Cameroon



Group H

H1  Portugal

H2  Ghana

H3  Uruguay

H4  Korea Republic





Thank you

Presented By

**Carlos Soda
Bharat Guturi
Balvinder Rajbans**