Soccer Mania

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Introduction

Purpose of the Application

The FIFA World Cup, often simply called the World Cup, is an international association football competition contested by the senior men's national teams of the members of the Fédération Internationale de Football Association, the sport's global governing body.

The 21 World Cup tournaments have been won by eight national teams. Brazil have won five times, and they are the only team to have played in every tournament. The other World Cup winners are Germany and Italy, with four titles each; Argentina, France and inaugural winner Uruguay, with two titles each; and England and Spain with one title each.

The World Cup is the most prestigious association football tournament in the world, as well as the most widely viewed and followed sporting event in the world, exceeding even the Olympic Games; the cumulative viewership of all matches of the 2006 World Cup was estimated to be 26.29 billion with an estimated 715.1 million people watching the final match, a ninth of the entire population of the planet.
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- With this dashboard application, we intend to help millions of football fans around the world to visualize the historical statistics of this tournament
- To let the fans know about the top players and the popularity of the World Cup.

● To allow the fans to book tickets and search matches.

The clients for our application are:
● Football fans around the world who are interested in coming to the World Cup.
● Football analysts from different channels.
● Team analysts from different teams. They can find out about player characteristics and information about competitors.

High-Level Architecture

In our application we have followed the MVC (Model- View- Controller) architecture:
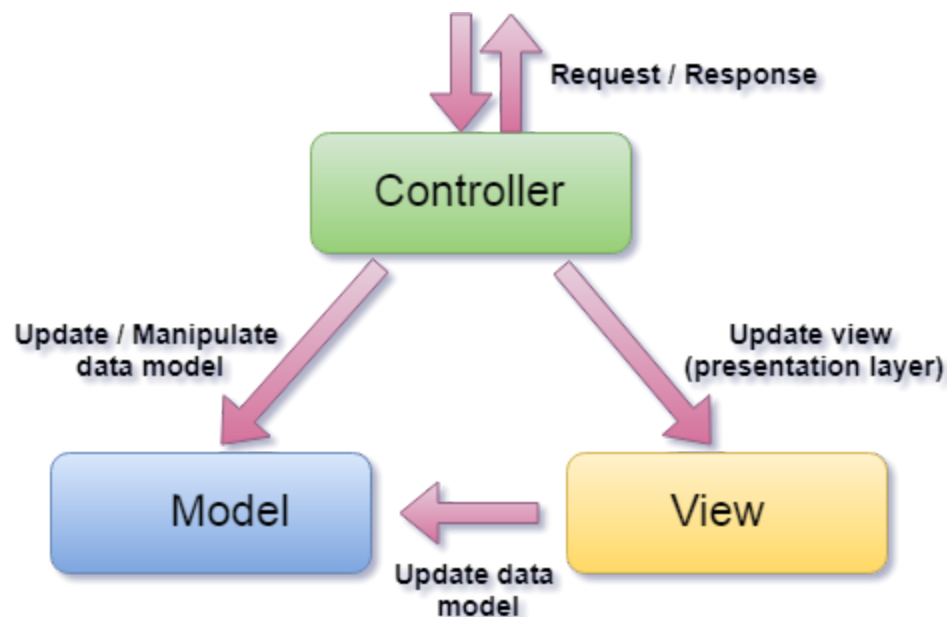
The Model-View-Controller (MVC) is an architectural pattern that separates an application into three main logical components: the model, the view, and the controller. Each of these components is built to handle specific development aspects of an application.

Technologies

Client-side:

- EJS dynamic page generation
- HTML
- CSS
- JavaScript
- jQuery Library
- Bootstrap Library

Server-side:

- Node.js with Express framework

Database:

- MongoDB with Mongoose

About Data

Source:

- Real Football data collected from the official FIFA website.
- Football datasets are available from football streaming websites such as ESPN.

Storage:

- MongoDB Cloud
- Tableau Public server.

Data Visualization Technologies

Tableau Public

We have tableau public to host our analysis graphs.

Google Charts

We have Google Charts framework to create some of our dashboard charts.

Highcharts Charts

We have used highcharts to create one of our charts in the dashboard.

Design Patterns

Some of the design patterns which we have used are:

Organization: News Stream
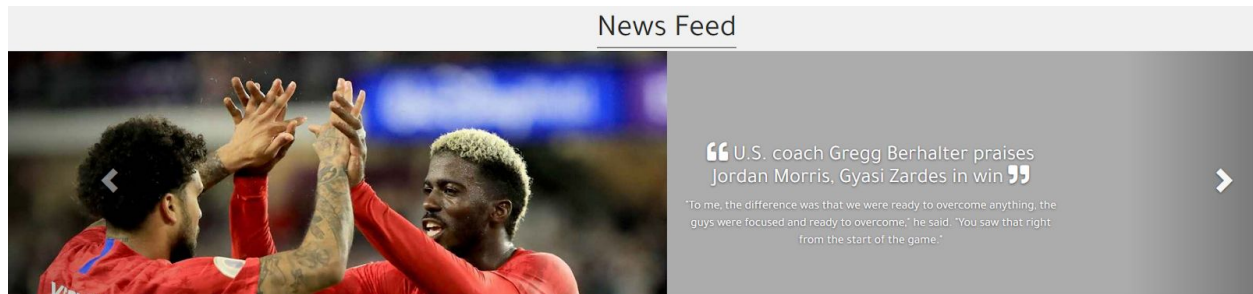
What: Updates on teams and players.

When: Timely content.

Why: Allows users to keep up with the latest world cup news.

Organization: Dashboard
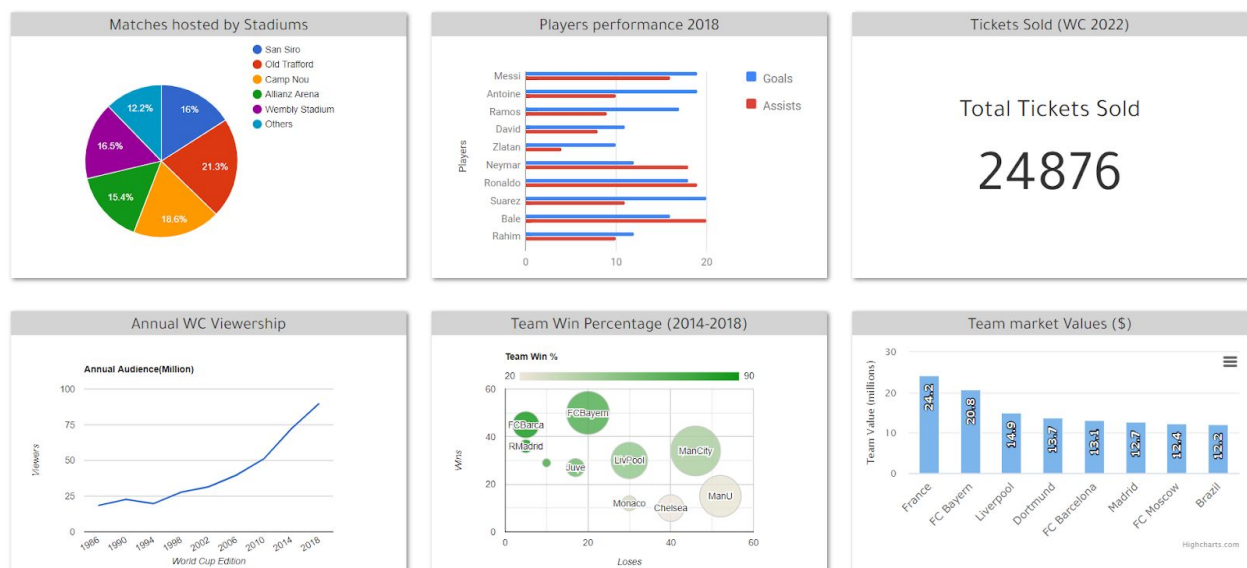
What: Page having important football statistics.

When: The Users want to see World Cup data.

Why: See what's the facts about the world cup they are not aware of.
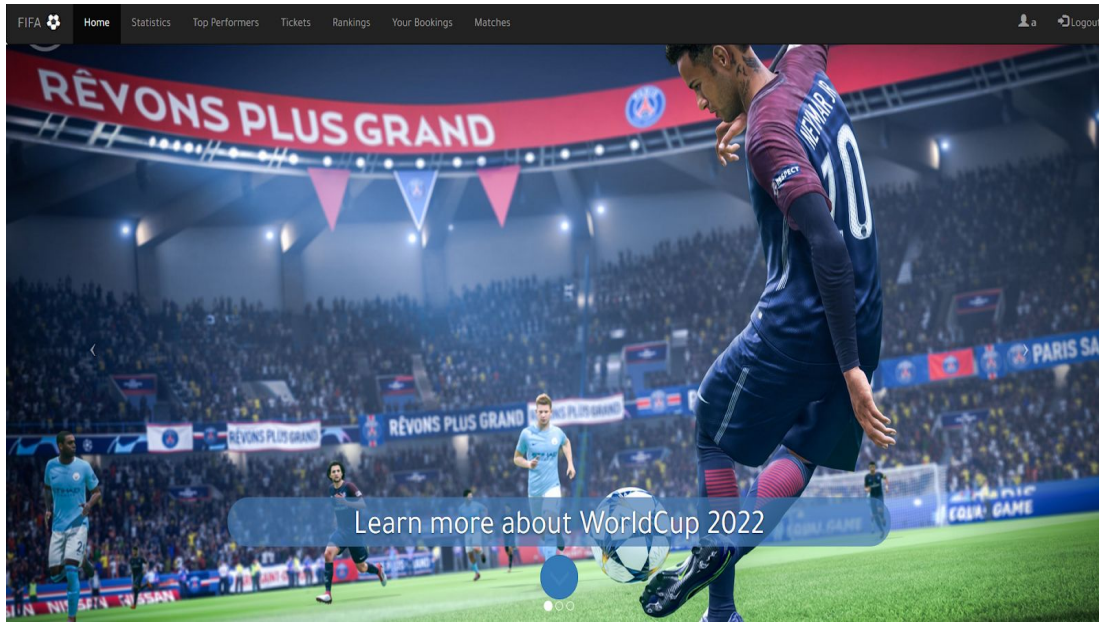
Organization: Search
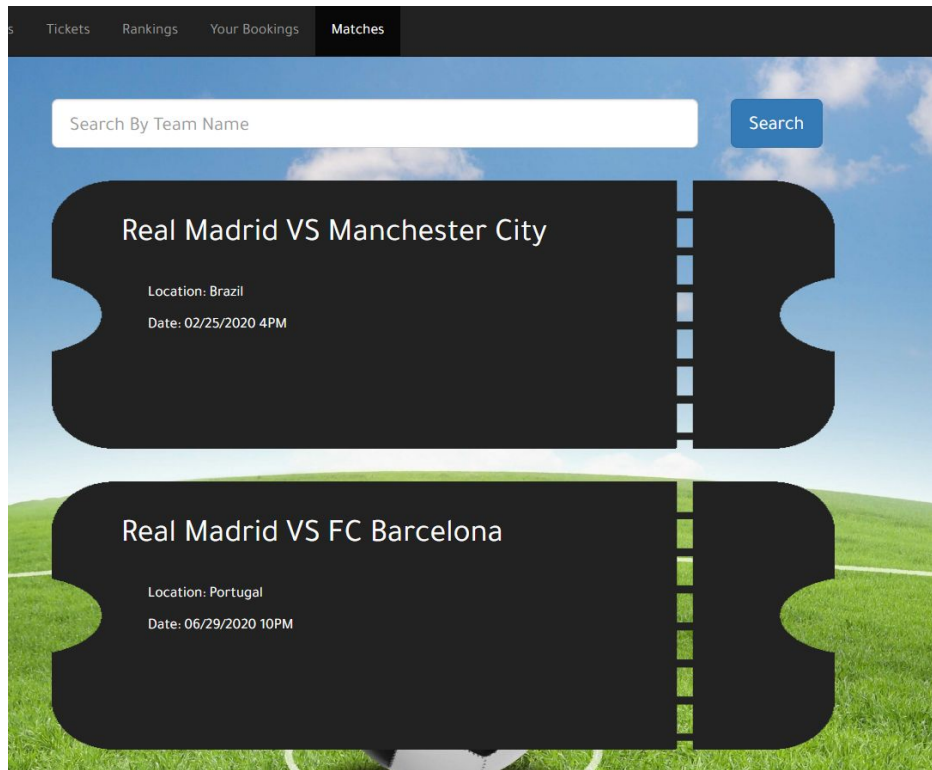
What: A search box on "matches" page.

When: Enable searching.

Why: Users can search specific match information from a list of matches.
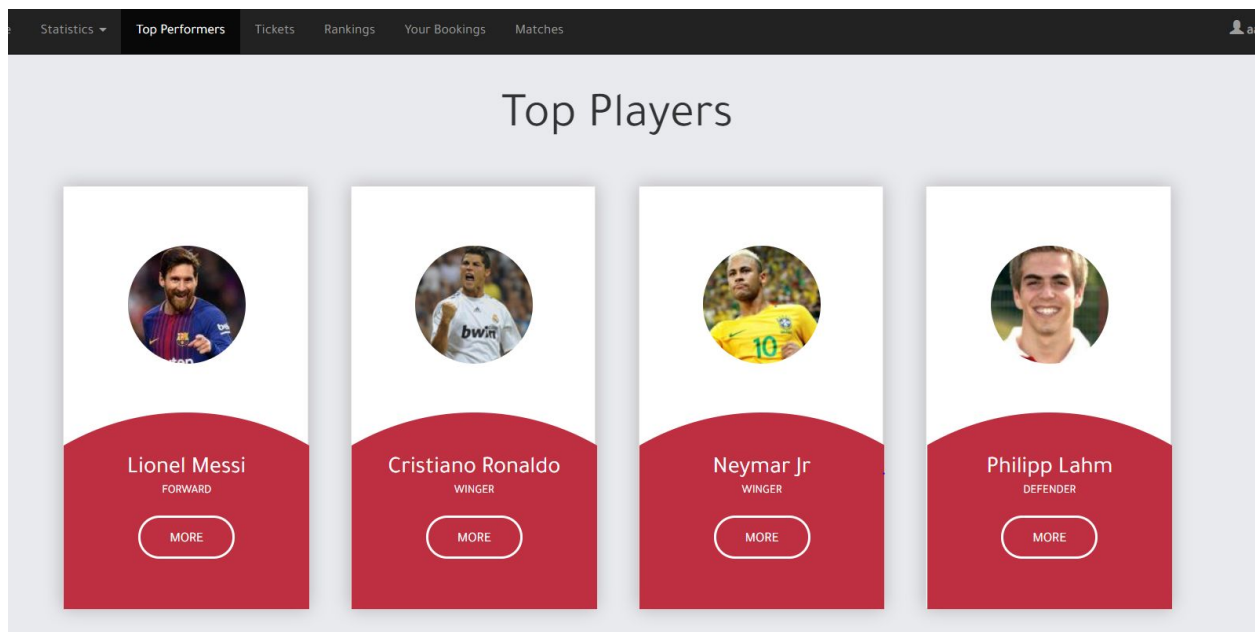
Navigation: Clear Entry Points
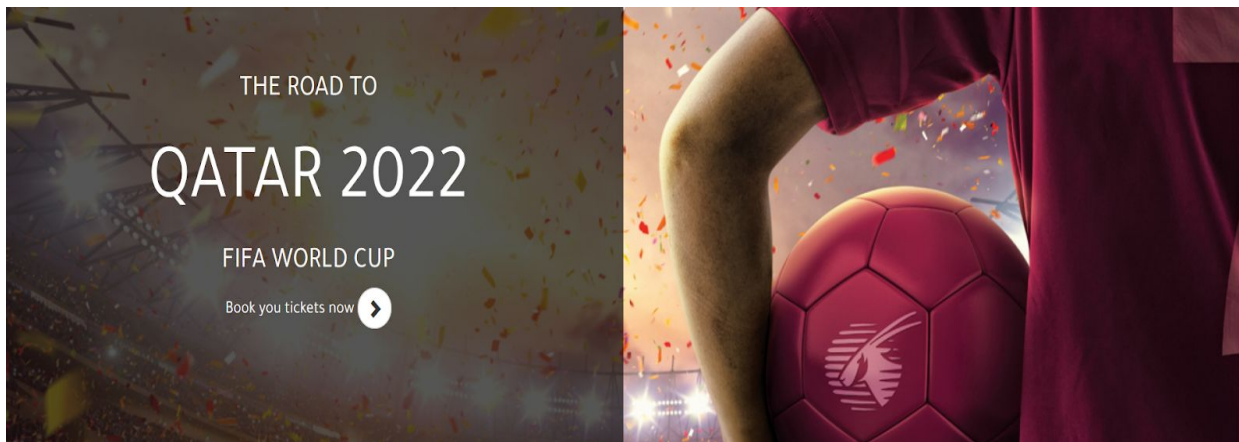
What: The navigation tabs are named according to the desired action. For eg, to buy match tickets, user clicks "Tickets" tab.

When: During application use.

Why: To avoid confusion.

Layout: Grid of Equals

What: Arranged players in a grid.

When: Allow user to see player information clearly and see the player video on hovering.

Why: Neat and Orderly manner. User can easily differentiate between players.

Input: Same Page Error messages
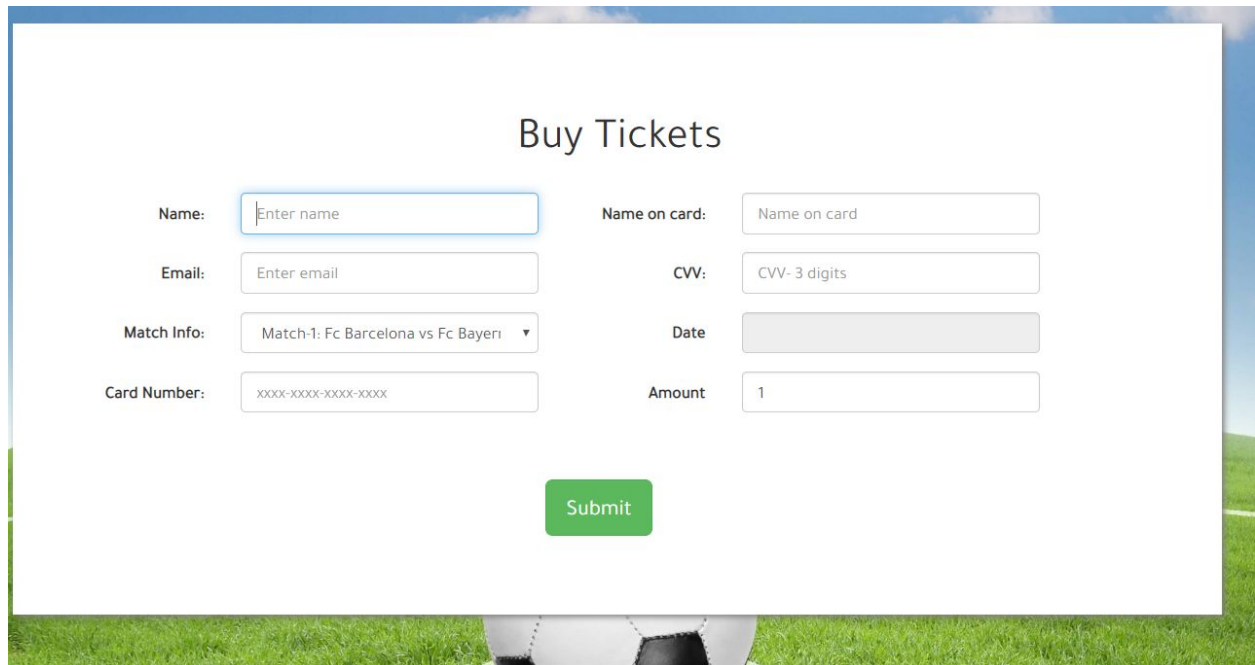

What: Display error message on same page.

When: Users submit the "Buy Ticket" form with some errors.

Why: Immediate feedback to users.

Input: Prompting Text Field

What: Text fields have placeholders.

When: Form with various input fields.

Why: Let the users know the desired input and it's format.

Key Performance Index (KPI)
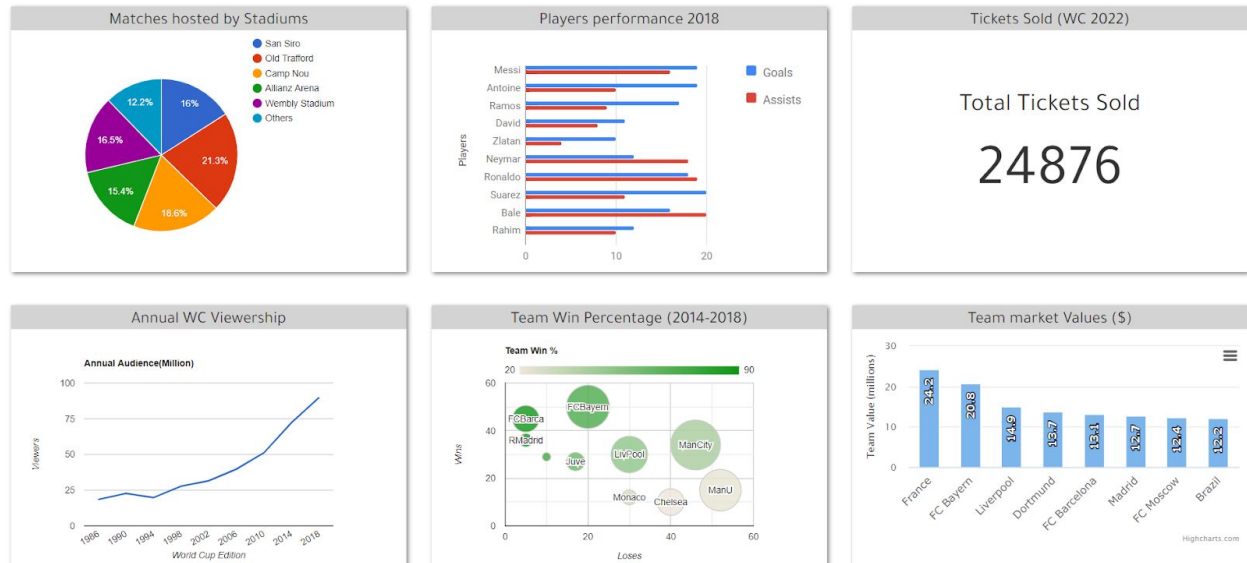
Some of the KPIs for our dashboard are:

Pie Chart: % of matches that will be played in every stadium.
Outcome: To let the users know the popular stadiums.
Why pie chart?

A pie chart is a circular statistical graphic, which is divided into slices to illustrate numerical proportion. In a pie chart, the arc length of each slice (and consequently its central angle and area), is proportional to the quantity it represents.

Why it is appropriate for our app?

Here the pie chart gives percentage in 100 unit, so the total number of matches played is more suitable.

Bar Chart: Goals and Assist for every player after the last world cup.
Outcome: Users can know the players in good form.
Why bar chart?

A Bar Graph (also called Bar Chart) is a graphical display of data using bars of different heights. It shows analysis in form of heights and values.

Why it is appropriate for our app?

Here the bar/quality of the player is measured with the performance i.e. goals and assist, that's why bar chart is used here.

Line Chart: World Cup viewership history
Outcome: Users can know the increasing popularity of the World cup.
Why Line chart?

A line chart or line plot or line graph or curve chart is a type of chart which displays information as a series of data points called 'markers' connected by straight line segments.It is a basic type of chart common in many fields.

Why it is appropriate for our app?

It is appropriate for our chart because it shows the analysis of increasing viewers FIFA world cup years.

Bubble Chart: Team win-lose stats.
Outcome: Users can know the top performing team coming to the World cup.
Why Scatter plot?
A bubble chart is a variation of a scatter chart in which the data points are replaced with bubbles, and an additional dimension of the data is represented in the size of the bubbles.

Why it is appropriate for our app?

This chart shows the wins, loss and the ratio of each time which is a buuble of varying color intensity from year 2014-2018 that is appropriate for the users to see the data with proper clarity.
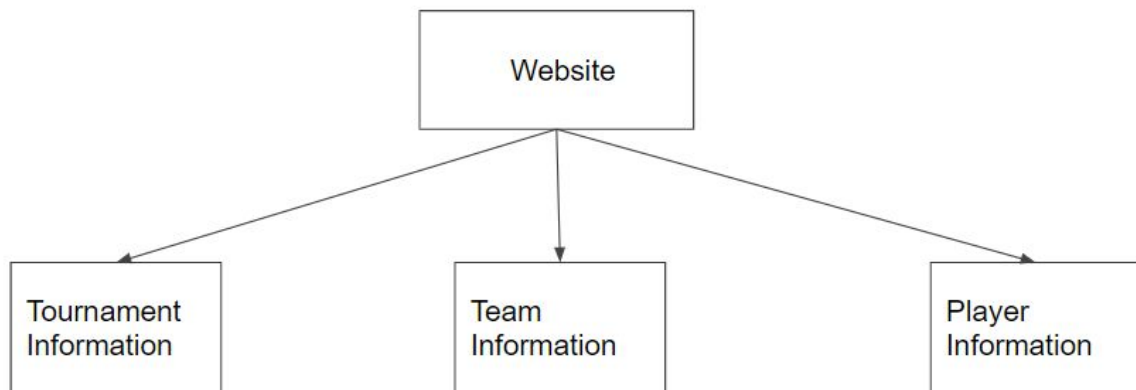
Tickets Sold: The number of tickets sold.
Outcome: The number of tickets indicate the popularity of the World Cup. It shows the number of people attending the tournament.
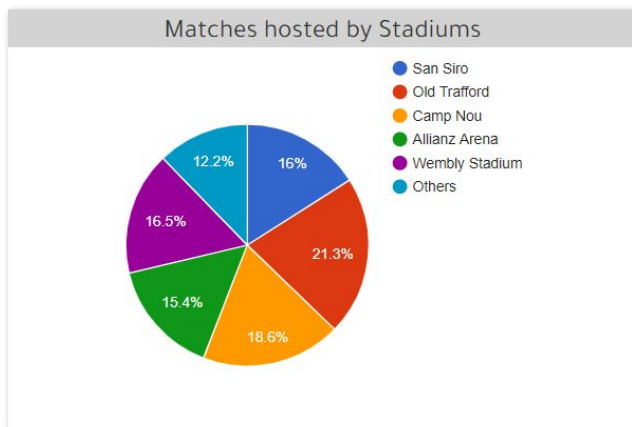
Bar Chart: Team Market Value
Outcome: Users can know the total market of each team. Market value is the total of each player's value.
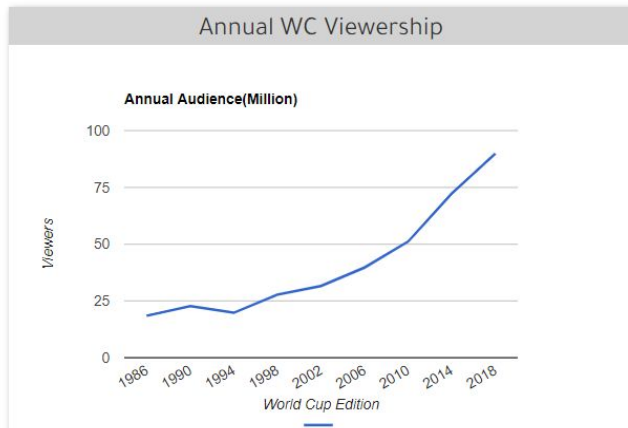
Story

Our application tells the story to the users by providing them with information on 3 main areas:

Tournament related charts:

This chart will show number of matches hosted stadiums.

Annual WC Viewership
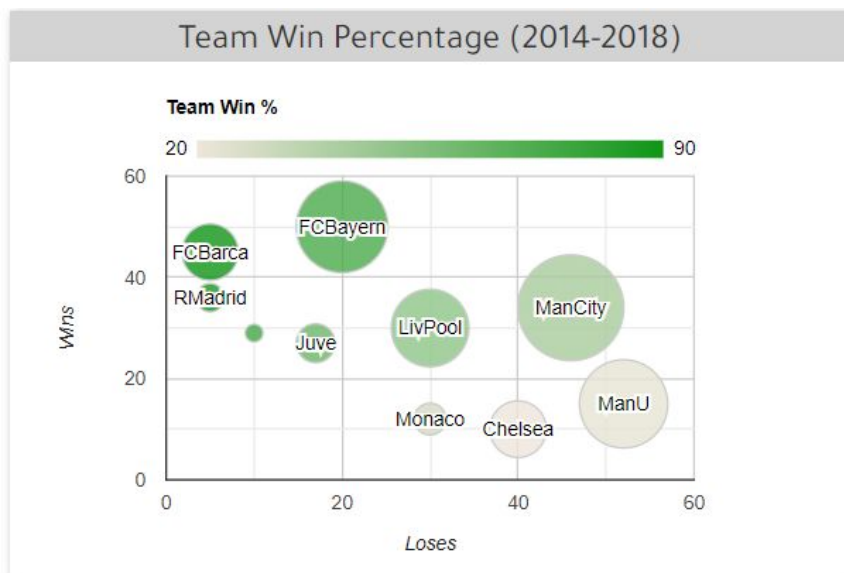
This chart will tell about WC viewership.

The below chart will tell about the World Cup History:

Team related charts:

All the charts in this category tell the user about different teams:
- Win %
- Revenue
- Team market value
- Delta Analysis

In this chart, the darker the green color, the higher the win percentage. Also, the higher the wins, larger the bubble. Here the bubble chart accurately depicts the relationship between the size and number of wins

Team market Values ($)
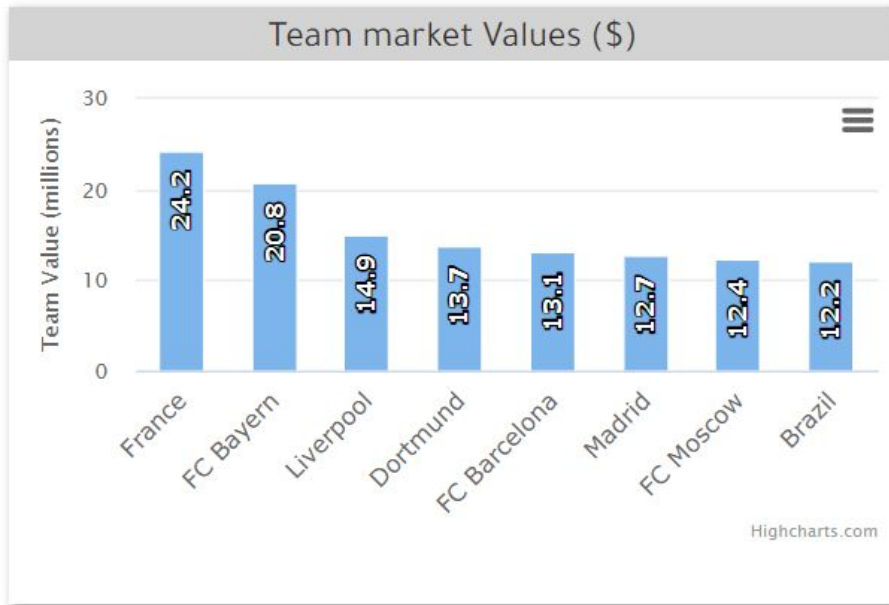
The below chart shows the revenue each team earned. From the drop
down menu users can select the revenue type. Map view shows different
teams.

Five major European leagues are represented.


Total Revenue (M Euro)
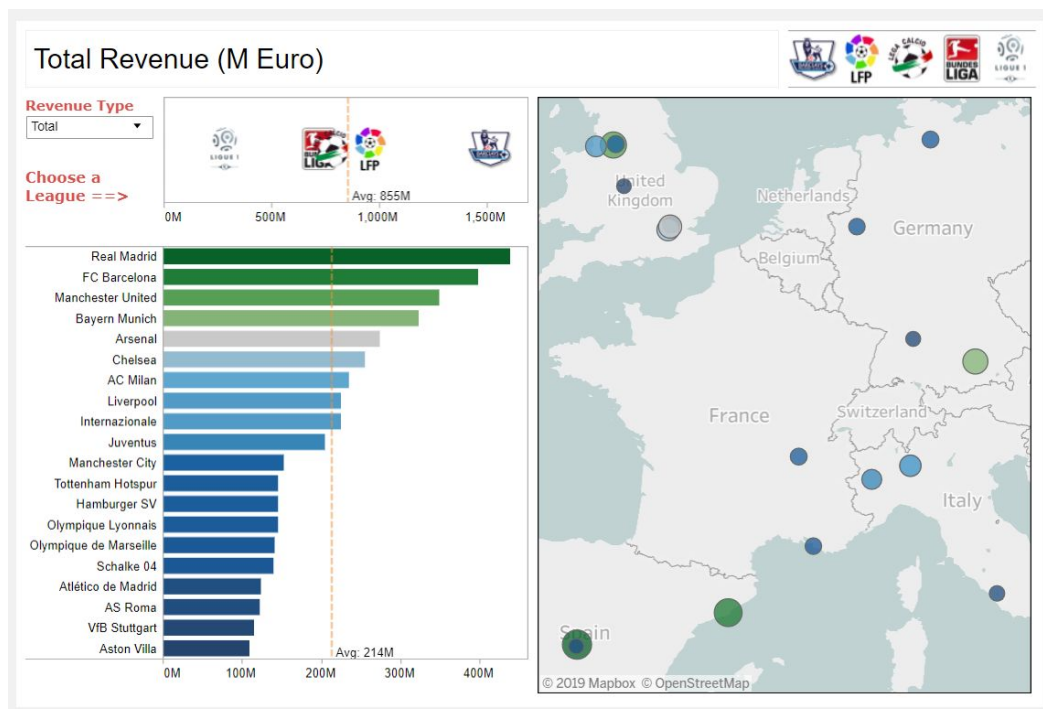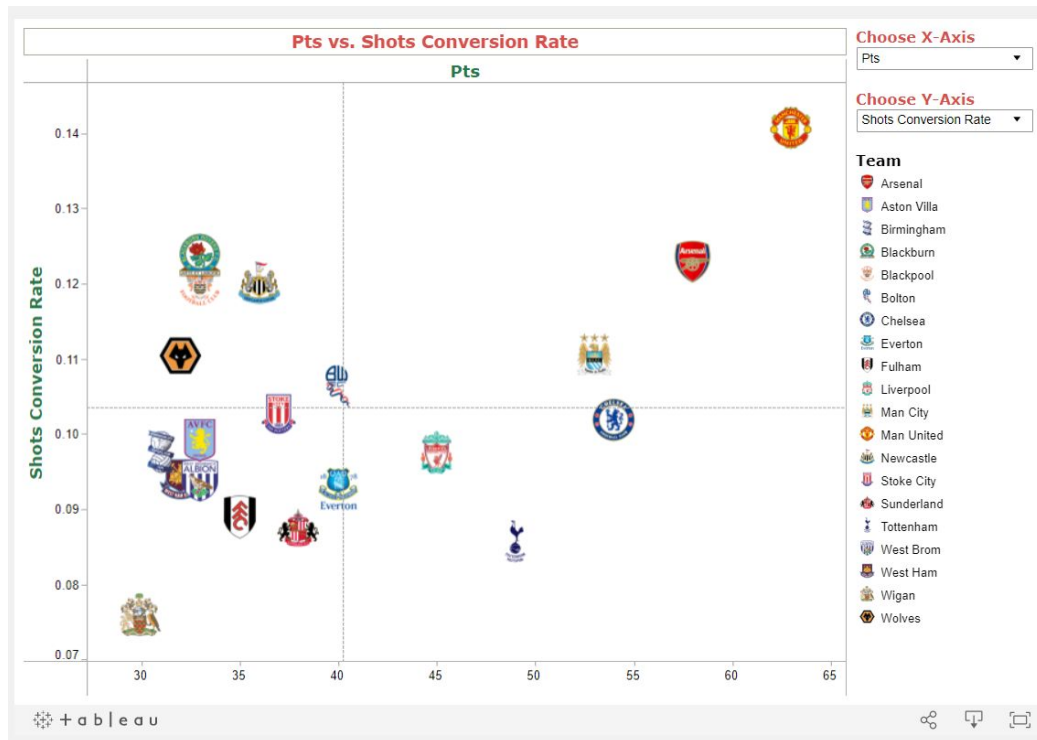
The above chart shows the delta analysis of 20 teams.
Plot graphs based on:

- Points
- Win %
- Goals Scored
- Goal Difference
- Points Per Game (PPG)
- (Shots on Goal) SOG Converion Rate
- Shots Conversion Rate
- Shots

Select the appropriate X and Y axis and plot different graphs. This would allow the user to know different relations.

Player related charts:

Players performance 2018
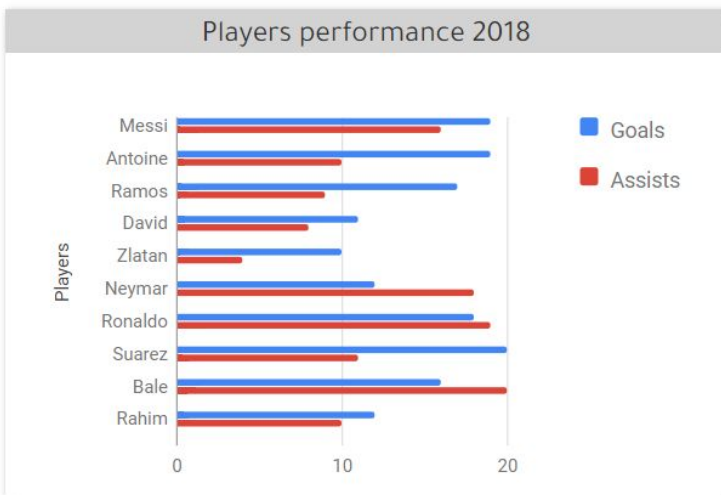
This chart will show the individual player performance. For each player: Goals and Assists.

The below chart will show the goal scored by players. The position of the point represent the position of the soccer field from which the goal was scored.