Distributed Betting Service

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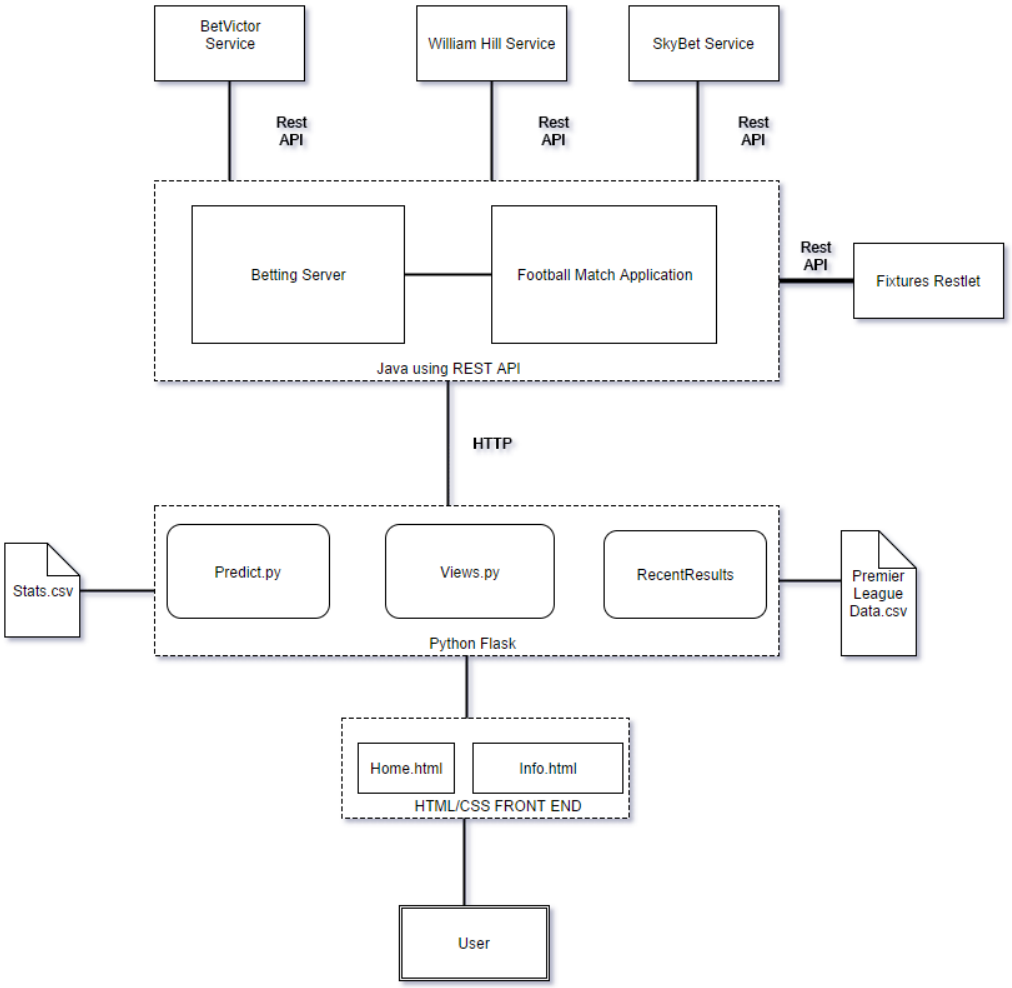
Motivation

Our aim in this project is to build a web application which will be a single portal for users to view odds offered by various bookmakers (Betting websites) on Premier League matches during the next Game week. This is only a prototype of the application and we believe that it has the potential to be developed to include more betting websites and use better prediction algorithms to allow users to view odds in **real-time** and profit in any difference in odds being offered by different bookmakers (services in the context of the architecture). We also use historical data to make predictions of the Expected outcome for the game of their choice. This prototype is **scalable** and new services can easily be created and as individual restlets and integrated as a new Betting Service which uses the REST API.

Major Tasks

Task	Team Member Responsible
Betting Service Design	Dylan and Tomasz
Python Flask Integration	Dylan
Relevant Data Collection	Pranav
Script to calculate expected outcome and find recent results	Pranav
Front End Design using HTML & CSS	Ashwin, Dylan and Pranav
Design Document	Pranav
Guide to help setup Project	Tomasz
Report	Ashwin, Dylan and Pranav

Design Document:



- We have three REST services (Rest let) William Hill, Sky Bet and Bet Victor which scrape the websites and retrieve the latest odds for the relevant Premier League Games.
- They use JSoup, which is an open source Java library to extract data from HTML files.
- We also have a Fixture Restlet which initializes all the fixtures before the upcoming round of games in the Premier League.
- The Football Match Application initializes football matches for the week and the Betting Server acts as a server for all the three web services.

- The front end is designed using Flask (Python) which reads in the Json from the REST API.
- The file views.py takes in statistical data analyzing team's recent performances and attacking and defensive strengths to predict probabilities for various outcomes based on these stats which are stored in the file Stats.csv.
- It also reads in historical data from the file Premier League Data.csv and displays the recent results for both teams as well as the head to head past encounters.
- This information is then displayed on the screen using the Info.html file designed using HTML and CSS.

Challenges/Future Improvements

- At present, we only have three services/websites and the prototype can be improvised to add more websites and services. A major challenge to this would be the HTML layout for different websites which makes scraping them challenging.
- We can also use a stronger predictive model which factors in individual player records and other factors to make more accurate predictions about an outcome.
- The files Premier League Data.csv and Stats.csv need to be updated manually and we could improve the application by making use of a database which is periodically updated after every match takes place.

How to Install

Please follow the instructions provided in the YouTube video below to troubleshoot any issues which may arise during setup

Video Link - https://youtu.be/n1P6Q8b26dk

- install python 2.7.10
- The installation file can be found at the following link https://www.python.org/downloads/release/python-2710/
- install pip
- It requires python to install, this may require specification of PATH variable for Python
- the installation file can be found at the following link https://bootstrap.pypa.io/get-pip.py
- make sure your environmental variable PATH is correct
- execute the following commands in a command prompt

pip install flask

pip install numpy

- run the betting server jar file
- in front end/ app directory run

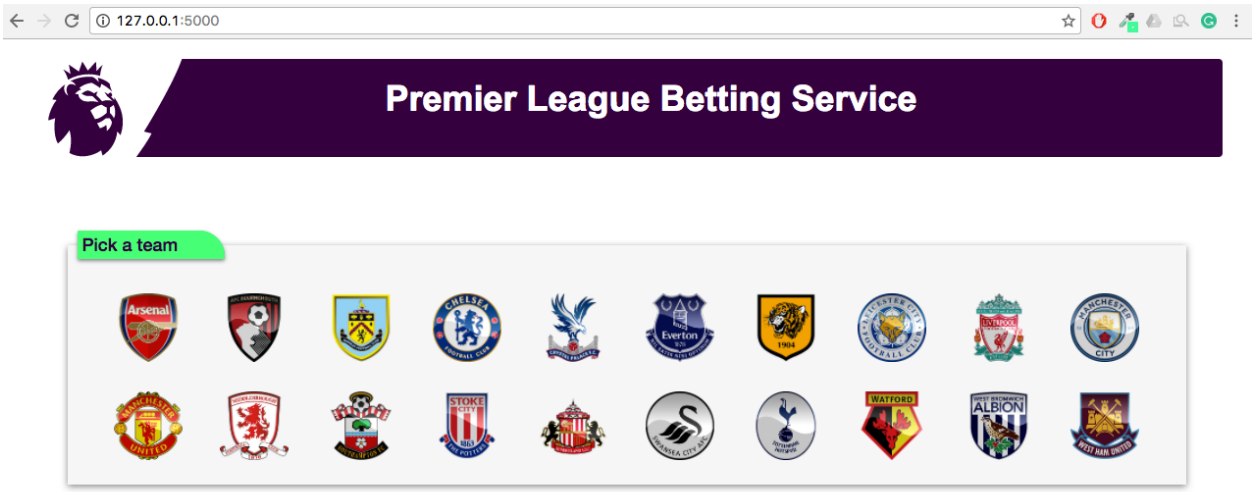
set FLASK_APP=views.py

flask run

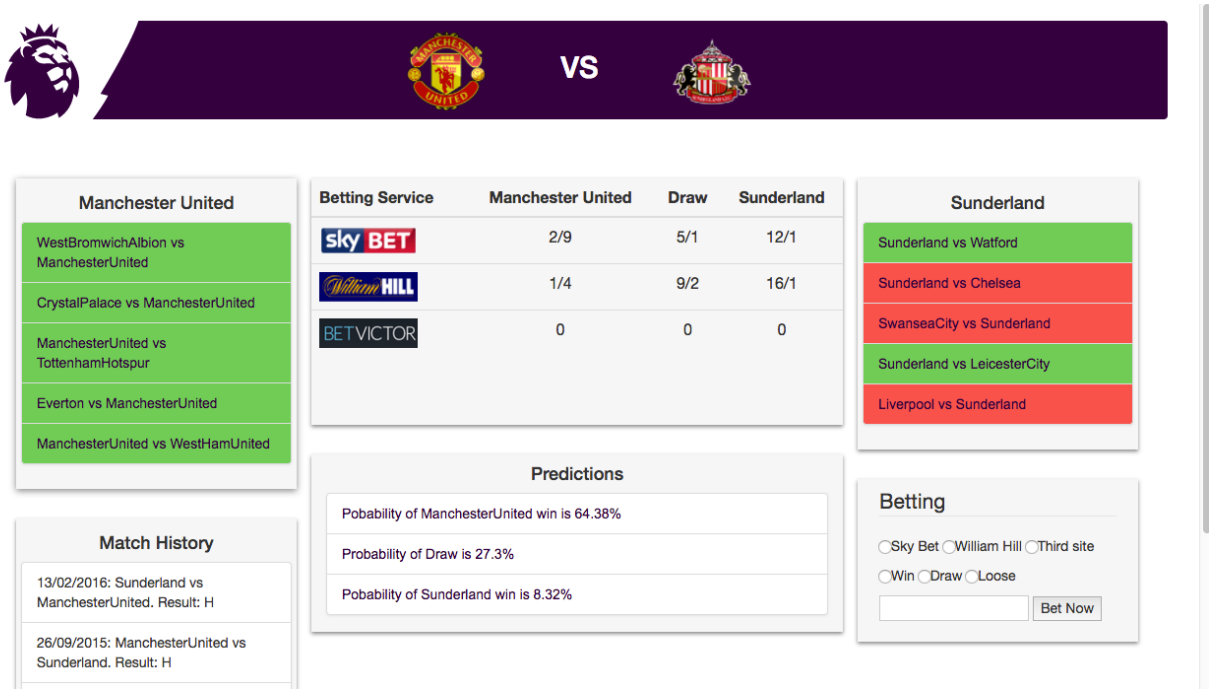
- open 127.0.0.1:5000 in your browser

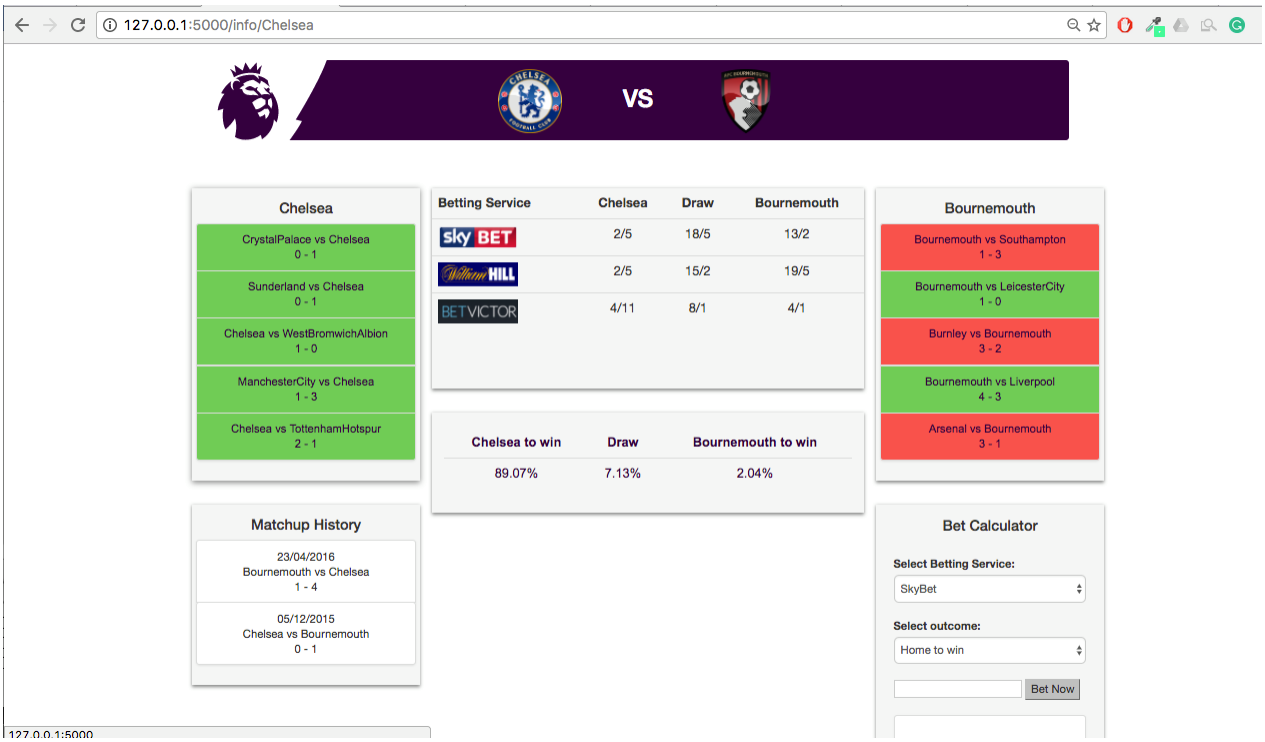
Screenshots

HOME PAGE



INFO.HTML (MATCH PAGE)





This YouTube video will help you understand how to use the application.
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