Project Synopsis

on

INNING STARS

Submitted as a part of course curriculum for

Bachelor of Technology

in

Computer Science

Submitted by

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2022-2023

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DECLARATION

We hereby declare that this submission is our work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgement has been made in the text.

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CERTIFICATE

This is to certify that Project Report entitled "**INNING STARS**" which is submitted by **SAUMYA SNGH, VAGEESHA RAI, VIKAS KUMAR VERMA** in partial fulfillment of the requirement for the award of degree B. Tech. in Department of Computer Science of Dr A.P.J. Abdul Kalam Technical University, Lucknow, is a record of the candidates' own work carried out by them under my supervision. The matter embodied in this report is original and has not been submitted for the award of any other degree.

Date:

Supervisor
Signature
Dr. Kalpna Sagar
Department of
Computer Science

ACKNOWLEDGEMENT

It gives us a great sense of pleasure to present the synopsis of the B.Tech Major Project undertaken during B.Tech. Third Year. We owe a special debt of gratitude to **Dr. Kalpna Sagar(Professor)**, Department of Computer Science, KIET Group of Institutions, Delhi-NCR, Ghaziabad, for his/her constant support and guidance throughout the course of our work. Her sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his/her cognizant efforts that our endeavors have seen the light of the day.

We also take the opportunity to acknowledge the contribution of **Dr. Ajay Kumar Shrivastava**, Head of the Department of Computer Science, KIET Group of Institutions, Delhi- NCR, Ghaziabad, for his full support and assistance during the development of the project. We also do not like to miss the opportunity to acknowledge the contribution of all the faculty members of the department for their kind assistance and cooperation during the development of our project.

Last but not the least, we acknowledge our friends for their contribution to the completion of the project.

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ABSTRACT

Player Selection in Cricket is one of the most important tasks. The whole match is depend on the performance of the players and the performance of players is dependent on various factors such as opposite team, venue etc. Many research has been done for the prediction of the outcome of a match. Analyzing different characteristics and the statistics of the players for team selection. Identifying and categorizing various batting shots from cricket videos. To train the system solely on batting frames, we have extracted small sequences from the different sources available on the Internet. Video sequences consist of variations in teams, matches and video quality. Many research has been done to get the information of the type of delivery from the finger grip of a bowler while the bowler makes a delivery. In this , they build a machine learning based approach to predict bowler's performance in varying conditions by using 6,031 bowling instances of One day International (ODI) matches.

CHAPTER 1: INTRODUCTION

INTRODUCTION:

Sports and statistics go hand in hand. Every professional sport has a scoreboard and stats of an individual or a team. Every team sport has a professional sport analyst who gives insights of the sports to the team coach or management. This not only helps to analyze the game, but also helps in improvement of skills for a particular player. Lately, there have been many sport companies that analyze the relevant sport statistics and numbers before broadcasting the matches.Taking a step further, based on the most crucial factors affecting a sport, several insightful predictions have also been made to improve sport performances. Lastly, analyzing sports and showing it to the viewers in terms of simplified tables and graphs also has been popular and results in increasing revenue for the sports industry.

What is Cricket?
Cricket is a game that originates from England. It was first played in the 16th century and spread globally after the expansion of the British empire. Cricket is played with a bat and a ball, on a cricket field, which is usually oval or circular. Two teams of eleven players each, compete against each other and the winner is decided by comparing the runs scored by each team. Cricket is globally recognised and viewed by more than 2.5 billion people. Its major following comes from South Asia, Australia and England.

There are three current major formats of Cricket, namely One-Day Internationals, Test Cricket and T-20 Cricket. T-20 Cricket is the latest of the three and it has gained popularity due to the entertainment it provides and the glamor it showcases.

What is INNING STARS?
Before getting to know about the “inning stars”, we should have the proper knowledge about the Fantasy Cricket World. There are many apps related to the fantasy cricket world which are very familiar to all of us like Dream11, My11 Circle,etc. .In these apps, we have to participate in various contests that are organized at the platform in which we have to create our team (set of 11 players in cricket from both the teams playing) to participate into the contest and then after we participate with our team, our team is then ranked based on the points awarded to the players according to their performance during the match. Now the teams ranked in the top ranking range(pre-decided) are rewarded with a fixed amount of money.

Here, we have to pay money to participate in the contests. And if we consider the mega contest, there are almost 10 lakh people participating at one time, out of which only few percent(nearly 10000) people were awarded the money as reward , the rest 990000 people have lost their money because of low ranking of their team which may be due to lack of cricket knowledge and analysis. This is the point where our project comes into the picture.

Inning stars will work as an advisor or helper to the people participating on different fantasy cricket platforms. Inning stars will provide the best 11 players combination from the both teams playing in the match. In short it will predict the winning team on the basis of prior data available about the players, venue, weather conditions and many more attributes. It uses a machine learning model to predict the best probable winning team with higher accuracy.

PROBLEM STATEMENT:

This section tells about the problem which can be resolved with the help of our project:

1. Failure in the Fantasy Cricket World: Help to provide economic support to needy people. Provide equal opportunity to win the game.
2. Loss of money in the Fantasy Cricket World: Our proposed model helps to reduce the loss of money due to lack of knowledge of cricket and addiction to Fantasy cricket.

OBJECTIVE:

This section of the report tells about the goals of our project or the areas we are going to cover in this project:

1. Reduce the loss of money due to lack of knowledge of cricket and addiction of Fantasy cricket.
2. Help to provide economic support to needy people.
3. Provide equal opportunity to win the game.

SCOPE:

In this section, the future implementation of the project is described:

1. It can be used by coaches or trainers to improve the player's performance..
2. Also, it can be used in preparation of game plan by knowing the strong and weak points of the opposition team players.
3. Further we can expand to other sports like football, kabaddi,basketball,etc.

CHAPTER 2: LITERATURE REVIEW

[1]The paper proposed a novel strategy to identify the type of delivery from the finger grip of a bowler while the bowler makes a delivery. The main purpose of this research is to utilize the preliminary CNN architecture and the transfer learning models to perfectly classify the grips of bowlers. Research on this has major positive impacts. Firstly, this system will be beneficial for live cricket match television broadcasters to show the type of grips used by a bowler, during a live match, for their viewers. Secondly, this system will help to analyze the variety of grip used by a new bowler in the opponent team that is difficult to play.In this paper , research was performed where they used a sensor attached cricket ball to study the outcome of grip angle parameters on off-spin bowling performance.

[2]Cricket is the most popular sport on the planet, with a billion-dollar industry. There is a need for a single app that can show live soccer and cricket scores. There is a need for a single app that can display live soccer and cricket matches.In this research paper, they recommended an app that displays live cricket and ball scores in the same window by selecting cricket or ball with today's game. The author states that the application works well without errors and it is user friendly so that the end user can understand how the whole system is implemented by going through the documentation and the system is found to be satisfactory.

[3]The purpose of this paper is to provide the reader with information on the research and methodologies currently in this area. Different tools and approaches were used for speculating the results of the matches and cricket pitch. Naïve Bayes(NB), SVM,Decision Trees classifiers, Random Forest, principle component analysis and cross validation were few techniques that were used. Cricket is a popular sport that is played between two

teams each consisting of 11 players. Home game advantage makes a significant difference in the sports. The activities done while playing all the cricket formats, if analyzed properly with the help of machine learning techniques, can be used in making trivial decisions. Various studies and research has been done for analyzing cricket pitch and predicting the outcomes of the matches.Random Forest (RF), SVM, Naïve Bayes (NB), Decision Trees (DT) and kNN are some of the classification techniques used for outcome prediction. For generating the prediction models, various classification techniques like – Random Forest, Decision Tree, SVM and Naïve Bayes were used.

[4]This paper gives useful IPL data insights for a better rating of a batsman or bowler and his performance. Various attributes of a match are used to analyze what affects the result of a cricket match. With the help of a number of features, the outcome of a cricket match is also predicted. The aim of this paper is to analyze all the insights from data, further moving to match predictions using these insights. Weather: Cricket is a game played outdoors.Weather is a crucial factor in determining the match winner.A Sunny weather is always good for batting, when the weather becomes overcast the ball starts to swing thereby favoring the bowling team.weather plays a crucial role in a match outcome.Most IPL games are played in the month of April and May in India, it's always a favorable weather.

[5]The aim of this paper is to predict bowlers' performance from publicly available data. In this paper, they build a machine learning based approach to predict bowler's performance in varying conditions by using 6,031 bowling instances of One day International (ODI) matches. They predict bowlers' performance by using a machine learning technique from the bowlers' bowling trajectory data and weather conditions. Predicting bowlers' performance and guiding them beforehand may have a number of real life applications. In this paper, they conduct the experiment on the publicly available data(Hawk-Eye information, Soil Information, Weather Information). They conduct a study to construct a model that considers the runs scored per over, number of wickets fallen, and the venue of the match. The model predicts the score of the first innings.

[6]This research paper presents the work related to match outcome and prediction in the Cricket domain. On the basis of the survey, there are 3 main problem domains related with cricket match outcome predictions are: Analysis of player performance , Match simulation and Team selection . Predicting the outcome of a cricket match is a very challenging task. Prediction depends on the performance of the player and performance of the player varies within a few minutes.The two approaches to the problem related to cricket match outcome prediction are: Using of cricket historical data: Using team data and categorical data, Simulation based approach and Using team composition data. Using collective knowledge(Digital platforms): Dealing with lack of data about new players who played few games or making a debut can lead to inaccurate results.

[7]In this paper, they determine the probability of a third umpire decision and umpire signal classification applying softmax. Training a CNN using pre-trained Inception-V3 has showed a great outcome to separate cricket images for proposed tasks. They have exerted seven types of image datasets to train our system and re-trained Inception-V3's final layer. Then tested the re-trained model imparting an image which imparts the probability of the probable decisions. They exerted the cross-validation procedure in this system and improve our trained system that aided to obtain the performance more than expectation. Corresponding to many no ball detection approaches and applications, their approach is more effective and efficient. They have recited the classification techniques which need to take third umpire judgment in the field of cricket.

[8]This paper deals with identifying and categorizing various batting shots from cricket videos. Proposed method is based on deep convolutional neural networks. They deal with detecting the type of shot played. The former used camera motion parameters for trajectories and then classifying the shot into two categories; pull and drive. However, the team trained their system using a 3D MACH filter for detecting four shots; square cut, hook, flick, off-drive, according to angle ranges. The dataset they used are real matches videos and eight famous shot categories have been considered simultaneously.

[9]This research work aims to predict the winner of the 12th version of ICC world cup using Business Intelligence (BI) and K Nearest Neighbors KNN big data approach. The

concept of Big Data is used to predict the winner of the 2019 ICC Cricket World Cup. Sports teams are creating Big Data in the form of tracking and collecting player performance statistics. This BigData is very useful for devising team strategies, e.g. who are the best players in certain varying conditions. This research will focus on the ICC Cricket World Cup 2019. Machine learning is a method of datasets analysis/analytic that automates analytical model building. Association is to discover the probability of the co-occurrence of items in a collection, clustering is to group datasets such that objects within the same cluster are more similar to each other than to the objects from another cluster, and dimensionality reduction is to reduce the number of variables of a dataset while ensuring that important information is still conveyed.

[10]This paper describes the design and development of a prototype electronic training system for the game of cricket . There are many other technologies available for the cricket game. For example, Hawkeye system , Snicko_meter , Hotspot where Hawkeye system is very expensive and is typically used to make umpiring decisions. In SETUP, a player or coach configures a watch with the learning application running on a laptop, and enters the names of the player and the bowler. The laptop communicates with the watch using a USB dongle. The player wears the watch and executes various strokes. Accelerometer data from each stroke is recorded and sent back to the laptop. The learning application running on the laptop analyzes the data and provides real-time feedback to the player on their watch.

CHAPTER 3 PROPOSED METHODOLOGY:

This section tells about the methodology used by our model. Our model uses the previous available data or records of the players from different websites like cricbuzz.com, espncricinfo.com,etc. And based on our predefined "point-reward system" it rewards the players with some points according to the various parameters like runs scored, wickets, strike rate, etc. After the points are rewarded, each Player is associated with some number i.e. points rewarded and now our model will be ready to make the prediction(selection). During the cricket match, it now focuses on the data and points of the players playing in the match and ranks the players according to the points awarded by our system. Now the top 11 players combination will be selected and delivered to the user.

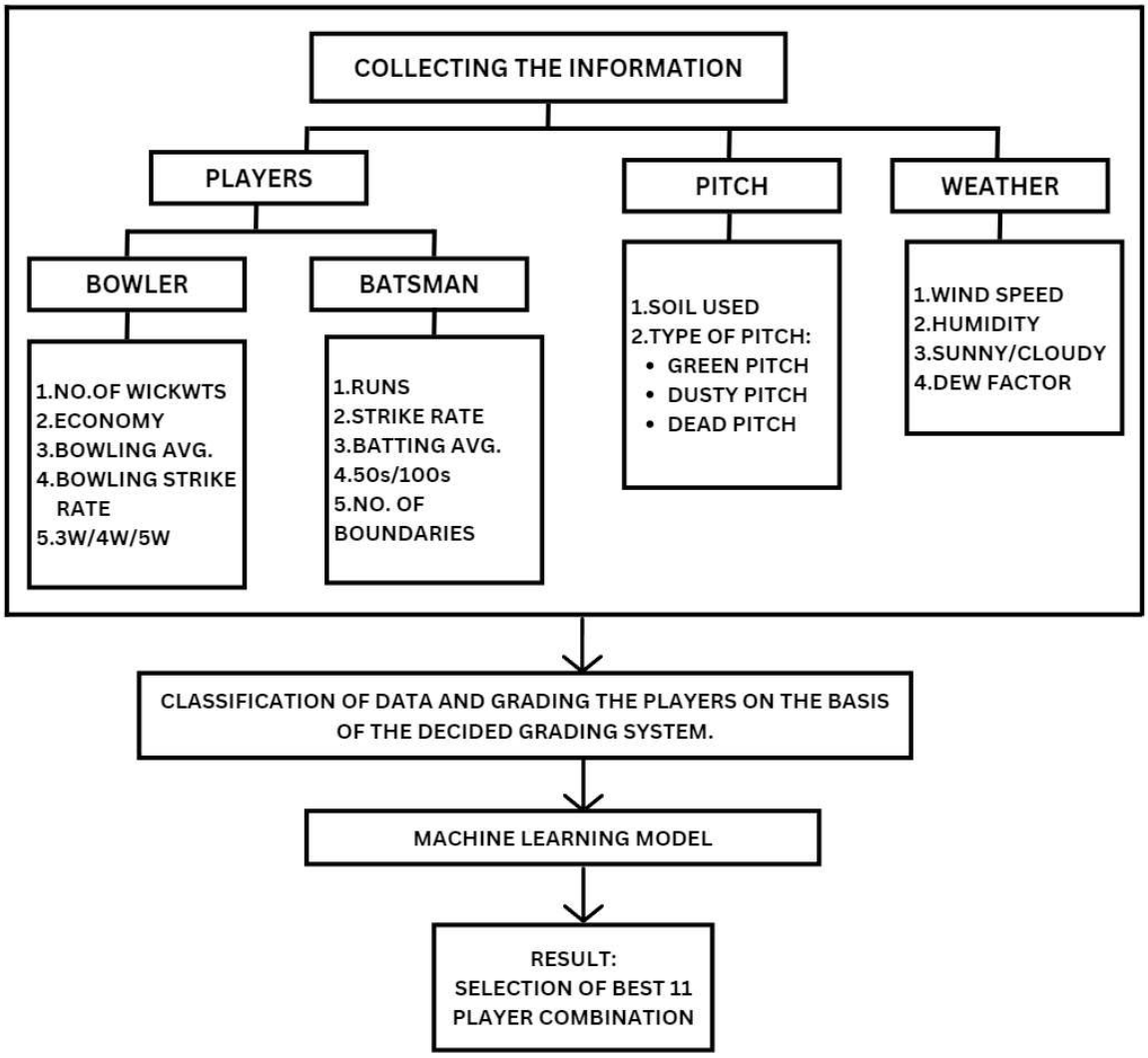
Algorithm:

1. Data Acquisition //Collecting the previous data or records about the players.
2. Data Preprocessing //Classification of data & Dealing with Imbalanced Data.
3. Pre-defined Point Reward System //points awarded to the players on the Basis of different parameters like:
   Batsmen: Runs,strike rate, batting average,50s/100s,etc.
   Bowler: No. of wickets, economy, bowling average, bowling SR, 3W/5W, etc.
4. Machine learning model making the use of following algorithms:
   i. Naive Bayes
   ii. Deep-CNN

iii. Decision Tree // Data classification and decision-making.

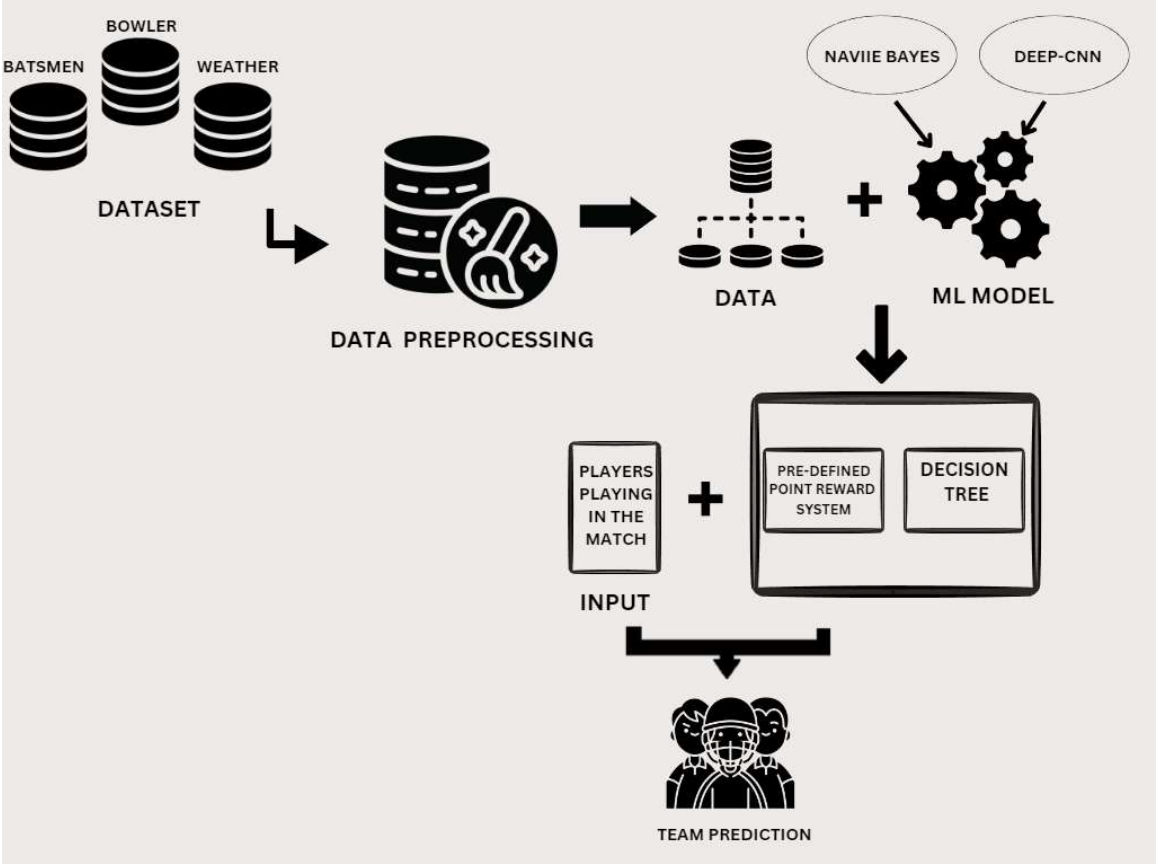
5. Predicting the winning fantasy cricket team.

WORK FLOW CHART:



CHAPTER 4 DIAGRAMS :

This section includes the pictorial representation of our project, defining how our project basically works and what are the steps that are performed in between to reach the desired result.



CHAPTER 5 CONCLUSION

Inning stars work as an advisor or helper to the people participating on different fantasy cricket platforms. Inning stars provide the best 11 players combination from the both teams playing in the match. In short it will predict the winning team on the basis of prior data available about the players, venue, weather conditions and many more attributes. It uses a machine learning model to predict the best probable winning team with higher accuracy. Basically in this firstly, past data of bowlers and batsman is collected and then points are allotted in such a way that for batsman 100 runs is equal to 100 points and for bowlers 1 wicket is equal to 25 points. Then, algorithms like Decision tree, Naïve Bayes are applied for selection of top 11 players with maximum points for formation of the team. Top 11 players team is formed as output which can be used for prediction of the match with 90-99% accuracy. The objective of this is to reduce the loss of money due to lack of knowledge of cricket and addiction of Fantasy cricket. Help to provide economic support to needy people. Provide equal opportunity to win the game. Future scope of Inning stars is that it can be used by coaches or trainers to improve the player's performance.Also, it can be used in preparation of game plan by knowing the strong and weak points of the opposition team players.Further we can expand to other sports like football, kabaddi,basketball,etc.

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