

# Innovative Idea for Playerelection using Support Vector Machine (SVM)

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**Abstract:** Player Selection is one of the most important tasks for any sport. The success or failure of any team lies in the skills and abilities of the players that comprise the team. The performance of the players depends on various factors and characteristics of a player. The team management select required players for each match from a squad of 7-20 players. Depending on different sports they analyze different characteristics and the statistics of the players to select the best players for each match who can shine on international stage. The process of player selection and team formation in multilayer sports is a complex multi-criteria problem where the ultimate success is determined by how the collection of individual players forms an effective team. The proposed system is formulated that takes into account various available performance data of players gives an optimize and balance team without any human interference which is limited to entering performance data. This system proposes Machine learning technology by implementing Support Vector Machine(SVM) algorithm for efficient player selection. Our system thus can effectively take into account all factors involved and give the optimal team, without human interference.

**Keywords:** Machine Learning, SVM (SUPPORT VECTOR MACHINE), Player Selection.

## I. INTRODUCTION

One of the common Machine Learning (ML) function, involves anticipate a target variable in previously unseen data, is arrangement. The aim of arranging of data is to predict a target attribute (class) by creating a classification model based on a training dataset, and then making use of that model to predict the value of the class of test data. This type of data processing is termed as Supervised Learning. Some common applications for classification include loan approval, medical diagnoses, email filtering, among others.

Sport prediction is usually conducted as a classification problem, with one class (win, lose, or draw) to be predicted. Although some analyst e.g., have also mark at the numeral prediction problem, where they predict the winning edge – a numeral value. In sport prediction, input attributes like historical data of past achievements of the team, past results of matches played so far and also individual data of players help different stakeholders to predict the results of winning or losing the upcoming matches. . Once a predicted result for the match is obtained, an additional problem is to then decide which player made the Team wins was it a batsman or bowler? for different stakeholders and media these prediction of results is of keen Interest. The increasing amount of data related to sports that is now electronically (and often publicly) available, has meant that there has been an increasing interest in developing rational models and prediction systems to forecast the results of matches. **The Support Vector**

**Machine(SVM) was introduced** by Vapnik and has since attracted a high degree of interest in the machine learning research society [2].It is capable of making fine distinctions formally defined by a separating hyperplane and also delivering higher performance in terms of classification accuracy than other data classification algorithms.SVMs have become popular because of their success in handwritten digit recognition.SVMs are important for all Machine Learning Research.

## II. PROPOSED SYSTEM

Many techniques to predict the outcome of professional cricket competition have traditionally used the number of runs scored by each crew, batting average, bowling average, strike rate, most Fifties, most Centuries, most wickets taken by player as a base quantify for evaluating a team's performance and estimating future results. However, the number of runs scored during a match possesses an important random element which leads to large inconsistencies in many games between a team's performance and numbers of matches win or loss.

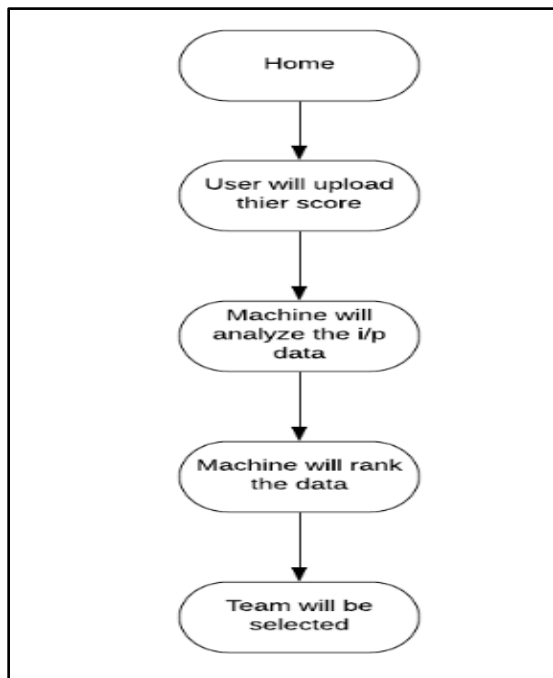


Fig: 1. Flowchart of Activities

The main objective of this project is to explore different Machine Learning approaches to predict which player is best based on their performance and outcome of matches, using in-game match events other than the number of runs scored and number of wickets taken by each team. We will explore distinguish model design hypotheses and assess our models' performance against benchmark techniques.

As one of the most popular sports on the planet, cricket has always been followed very closely by many people. In recent years, new types of data have been collected for many games in various countries, such as play-by-play data including information on each shot or pass made in a match. The collection of these data have placed Data Science on the forefront of the cricket industry with many possible uses and applications:

- Match strategy, tactics, and analysis
- Identifying players' playing styles
- Batting Average, Bowling Average, Strike Rate, Most 50s Most 100's.
- Training regimens and focus

To generate predictions, there are some objectives that we need to fulfil: Firstly, we need to find good-quality data(Training data set) and pre process it to be used in our models. To do so, we will need to find suitable data sources. For This we have trained our model by using the following

Past Historical Data set of Cricket Players of 10000 Players for our Model and Trained them Accordingly.

Rank	Player	Team	ches_Pla	INNS	Not_Out	hundreds	Fifties	Sixes	Fours	Best_Score	Run	Avg	alls	Facetime	Rate
1	Swapnil Pradhan	M I G CC	3	3	1	2	0	0	51	179	402	201	487	82.55	
2	Vinit Indulkar	CRICKET CLUB OF INDIA (CCI)	3	3	0	2	0	3	38	137	288	99.33	338	88.17	
3	Mayuresh Tandel	YOUNG COMRAD ECC	3	3	0	1	2	7	33	155	288	99.33	308	96.75	
4	Karan More	DADAR UNION	2	2	1	1	0	4	40	274	286	286	259	114.29	
5	Subramanian D	DR D Y PATIL SPORTS ACADEMY	3	3	2	2	0	0	41	160	283	283	373	75.87	
6	Ajinkya Patil	CRICKET CLUB OF INDIA (CCI)	3	3	0	2	0	1	27	136	268	89.33	393	68.19	
7	Sumit Meher	NATIONAL CRICKET CLUB	2	2	0	1	1	1	40	158	228	114	249	91.57	
8	Prasad Pawar	PARKOPH ENE CRICKET ERS	3	3	0	1	1	1	23	131	218	72.67	242	90.88	
9	ISHAN MULCHAN DANI	SIND SC	2	2	0	1	0	3	19	175	203	101.5	195	104.1	

Fig: 2. Training Data set

These features also called as attributes of players like strike rates, Bowling Rates, wickets\_earned etc will allow us to have accessed to a high number of various statistics to use, compared to most of the past researching that have been done on the subject where only the final result of each match is taken into account.

After cleaning of the Data I.e pre-processing These attributes will then be given to SVM Algorithm for the prediction of players Team. SVM first assigns Ranks to each players using Permutation & Combination based on the scores of the attributes. Then the team of best 11 players is predicted using SVM algorithm.

Here is your Perfect Team											
Player	MP	NO	100s	50s	5s	4s	HS	TR	Avg	BF	SR
Prasad Pawar	2.0	1.0	0.0	2.0	0.0	19.0	86.0	147.0	147.0	179.0	82.12
Mind Kadam	1.0	0.0	1.0	0.0	5.0	13.0	129.0	129.0	129.0	124.0	104.03
Prasad Pawar	3.0	0.0	1.0	1.0	1.0	23.0	191.0	218.0	72.67	242.0	90.88
Pratik Mhatre	1.0	0.0	0.0	1.0	0.0	4.0	60.0	60.0	60.0	81.0	74.07
Pratik Chitambar	1.0	0.0	1.0	0.0	0.0	11.0	104.0	104.0	104.0	180.0	54.74
Pratik Athawale	2.0	0.0	0.0	1.0	0.0	15.0	63.0	108.0	54.0	151.0	71.52
Player	MP	BB	R	W	SWI	10WNI	Avg	SR	Econ		
SARIN GHOSH	5.0	120.0	197.0	12.0	0.0	0.0	16.42	10.0	9.83		
Yash Arora	5.0	108.0	196.0	9.0	0.0	0.0	11.78	12.0	5.89		

Fig: Predicted output (Players Team)

**Key Features:**

1. Data from more than 500 men's professional Cricket games.
2. More than 10,000 players.
3. From Past Few Years Betting odds from various popular bookmakers.
4. Team formations.
5. Player Details (Batting Average, Bowling Average, Number of Centuries Scored, Number of Wicket Taken, Etc.) with additional information to extract such as event location on the pitch (with coordinates) and event time during the match.

**III. CONCLUSION**

A new solution to the world of prediction in sports is Hence Generated based for Selection of Players using SVM in machine Learning. Proposed model is based on past Data (Records, results of matches, performance of players etc.). A web based solution is thus proposed for the Findings. Our Future direction of research would be to make this work for formation of a team with all its possibilities. Also working on the methodology to work on Finding New players whose previous records aren't present., to help predict their future performance.

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