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PREFACE

As a part of the summer training and in order to gain practical Knowledge in the field of data science, we chose to make project on "PLAYING 11 PREDICTOR". The basic Objective behind doing this project is to get knowledge about different tools of machine learning.

In this project report we have included various concepts and algorithms to get desired result.

This project provided us an opportunity to implements our skills, knowledge and competencies gained during the training session. Through this project we came to know about importance of team work and role of devotion toward the work.

ABOUT TEAM

This project is completed by our team consisting of four members of IT 5th semester Vikas Thakur(leader), Shubham , Atul Aman

All the members performed significant amount of work for this project. Collecting data, creating blueprint and real coding session, all of these tasks were divided equally among the members of the team. Devotion toward work and Involvement in the project work by all the four members made this project bit easy.

PROJECT DETAILS

This project is based on cricket. It analyse the IPL stats and analyze the dataset in different aspects effectively.

Various graphs have been plotted to analyze different relations in the IPL stats from season 1(2008) to season 9(2016).

The first dataset used in this project contains details related to the match such as location, contesting teams, umpires, results, etc. and second dataset contains ball-by-ball data of all the IPL matches including data of the batting team, batsman, bowler, non-striker, runs scored, etc.

The project contains:

- Basic Analysis like Teams with maximum matches, wins,etc
- Batsman Analysis
- Bowler Analysis
- 200+ scores analysis

It also predicts the best team or dream team on the basis of players performance in all these seasons.

TARGET AUDIENCE

For this project will be focusing on analyzing the IPL stats. This is because we love cricket and have good knowledge and understanding about cricket as well as its formats. Our target audience are:

- CRICKET FANS: certainly this definitely hit all the audience who are cricket fans, to whom cricket is like a religion. This involves kids, teenagers, elders.
- CRITICIZERS: People usually blame teams for their poor performance, or they even overreact in the selection of players, but the project also hit those criticizers.
- SELECTORS: Team selectors will be benefited from this the most because they could compare the performances of the players easily. It will help them to select the best team.

ALGORITHM USED WITH EXPLANATION

- K-Means

    It is a type of unsupervised algorithm which solves the clustering problem. Its procedure follows a simple and easy way to classify a given data set through a certain number of clusters (assume k clusters). Data points inside a cluster are homogeneous and heterogeneous to peer groups.

- LINEAR REGRESSION

    It is used to estimate real values (cost of houses, number of calls, total sales etc.) based on continuous variable(s). Here, we establish relationship between independent and dependent variables by fitting a best line. This best fit line is known as regression line and represented by a linear equation $Y = a * X + b$.

OUTPUT SCREEN SHOTS

SCREENSHOT 1:

```
('Total Matches Played:', 577)
(' \n\n Venues Played At:', array(['Bangalore', 'Chandigarh', 'Delhi', ..., nan, 'Rajkot', 'Kanpur'], dtype=object))
(' \n\n Teams :', array(['KKR', 'CSK', 'RR', ..., 'SRH', 'RPS', 'GL'], dtype=object))
('\nTotal venues played at:', 30)
('\n\nTotal umpires ', 43)
('CH Gayle', ' : has most man of the match awards')
('MI', ': has the highest number of match wins')
('Toss Decisions in %\n', field    54.592721
bat      45.407279
Name: toss_decision, dtype: float64)
--------------------------------------------------------------------------------
```

SCREENSHOT 2:

```
-----------------------------------------------------------

                    MENU
        1.TOSS DECISION ACROSS SEASONS
        2.MAXIMUM TOSS WINNER
        3.IS TOSS WINNER ALSO A MATCH WINNER
        4.RUNS ACROSS EACH SEASONS
        5.AVERAGE RUNS PER MATCH
        6.FOVOURITE GROUNDS
        7.MAXIMUM MAN OF THE MATCHES
        8.TOP 5 RUN SCORRER
        9.TOP 5 BOWLERS
        10.BEST ALLROUNDER
        11.BEST WICKET KEEPER
        12.DREAM TEAM
        13.EXIT
```

GRAPHS

GRAPH 1:

TOSS DECISION ACROSS SEASONS

GRAPH 2:

MAXIMUM TOSS WINNER

PIE CHART:

LINE GRAPH:

RUNS ACROSS EACH SEASON
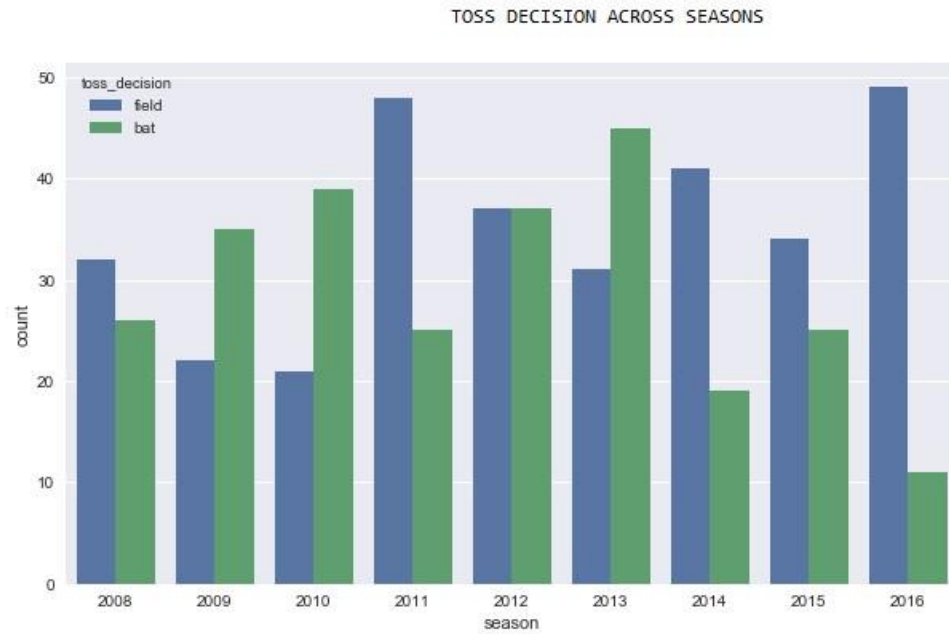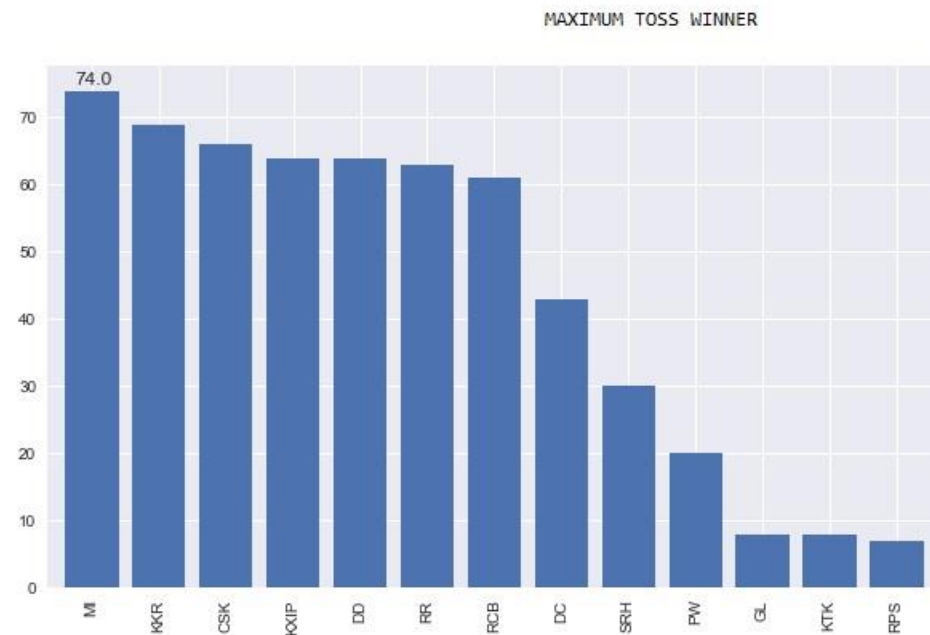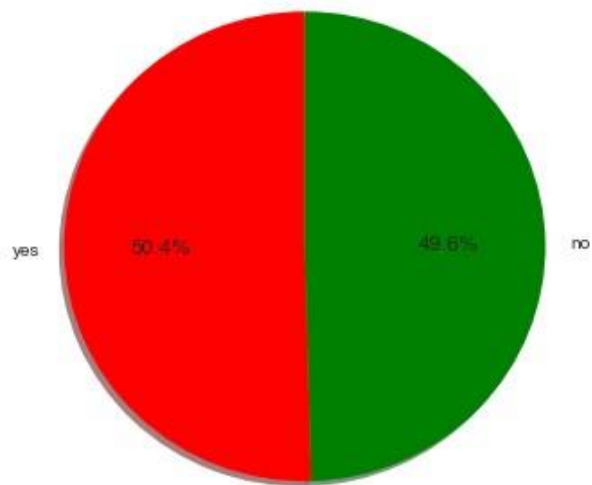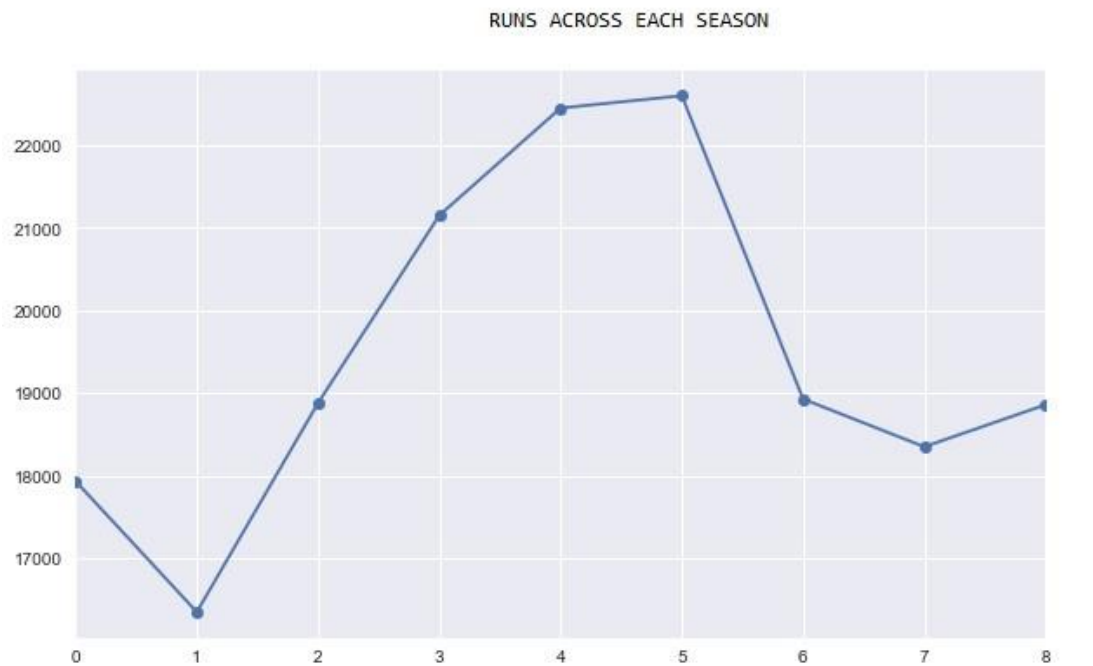
EXCEL FILE

PREVIEW 1:

PREVIEW 1:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	id	season	city	date	team1	team2	toss_winn	toss_deci	result	dl_applie	winner	win_by_r	win_by_w	player_of	venue	umpire1	umpire2	umpire3
2	1	2008	Bangalore	########	Kolkata Kr	Royal Cha	Royal Cha	field	normal	0	Kolkata Kr	140	0	BB McCull	M Chinnas	Asad Rauf	RE Koertzen	
3	2	2008	Chandigar	########	Chennai S	Kings XI P	Chennai S	bat	normal	0	Chennai S	33	0	MEK Huss	Punjab Cri	MR Benso	SL Shastri	
4	3	2008	Delhi	########	Rajasthan	Delhi Dare	Rajasthan	bat	normal	0	Delhi Dare	0	9	MF Mahar	Feroz Sha	Aleem Da	GA Pratapkumar	
5	4	2008	Mumbai	########	Mumbai I	Royal Cha	Mumbai I	bat	normal	0	Royal Cha	0	5	MV Bouch	Wankhed	SJ Davis	DJ Harper	
6	5	2008	Kolkata	########	Deccan Ch	Kolkata Kr	Deccan Ch	bat	normal	0	Kolkata Kr	0	5	DJ Hussey	Eden Gard	BF Bowde	K Hariharan	
7	6	2008	Jaipur	########	Kings XI P	Rajasthan	Kings XI P	bat	normal	0	Rajasthan	0	6	SR Watsor	Sawai Mai	Aleem Da	RB Tiffin	
8	7	2008	Hyderaba	########	Deccan Ch	Delhi Dare	Deccan Ch	bat	normal	0	Delhi Dare	0	9	V Sehwag	Rajiv Gand	IL Howell	AM Saheba	
9	8	2008	Chennai	########	Chennai S	Mumbai I	Mumbai I	field	normal	0	Chennai S	6	0	ML Hayde	MA Chida	DJ Harper	GA Pratapkumar	
10	9	2008	Hyderaba	########	Deccan Ch	Rajasthan	Rajasthan	field	normal	0	Rajasthan	0	3	YK Pathan	Rajiv Gand	Asad Rauf	MR Benson	
11	10	2008	Chandigar	########	Kings XI P	Mumbai I	Mumbai I	field	normal	0	Kings XI P	66	0	KC Sangak	Punjab Cri	Aleem Da	AM Saheba	
12	11	2008	Bangalore	########	Royal Cha	Rajasthan	Rajasthan	field	normal	0	Rajasthan	0	7	SR Watsor	M Chinnas	MR Benso	IL Howell	
13	12	2008	Chennai	########	Kolkata Kr	Chennai S	Kolkata Kr	bat	normal	0	Chennai S	0	9	JDP Oram	MA Chida	BF Bowde	AV Jayaprakash	
14	13	2008	Mumbai	########	Mumbai I	Deccan Ch	Deccan Ch	field	normal	0	Deccan Ch	0	10	AC Gilchri	Dr DY Pati	Asad Rauf	SL Shastri	
15	14	2008	Chandigar	########	Delhi Dare	Kings XI P	Delhi Dare	bat	normal	0	Kings XI P	0	4	SM Katich	Punjab Cri	RE Koertz	I Shivram	
16	15	2008	Bangalore	########	Chennai S	Royal Cha	Chennai S	bat	normal	0	Chennai S	13	0	MS Dhoni	M Chinnas	BR Doctro	RB Tiffin	
17	16	2008	Kolkata	########	Kolkata Kr	Mumbai I	Kolkata Kr	bat	normal	0	Mumbai I	0	7	ST Jayasur	Eden Gard	BF Bowde	AV Jayaprakash	
18	17	2008	Delhi	########	Delhi Dare	Royal Cha	Royal Cha	field	normal	0	Delhi Dare	10	0	GD McGra	Feroz Sha	Aleem Da	I Shivram	
19	18	2008	Hyderaba	5/1/2008	Deccan Ch	Kings XI P	Kings XI P	field	normal	0	Kings XI P	0	7	SE Marsh	Rajiv Gand	BR Doctro	RB Tiffin	
20	19	2008	Jaipur	5/1/2008	Rajasthan	Kolkata Kr	Rajasthan	bat	normal	0	Rajasthan	45	0	SA Asnodi	Sawai Mai	RE Koertz	GA Pratapkumar	
21	20	2008	Chennai	5/2/2008	Chennai S	Delhi Dare	Chennai S	bat	normal	0	Delhi Dare	0	8	V Sehwag	MA Chida	BF Bowde	K Hariharan	
22	21	2008	Hyderaba	########	Deccan Ch	Royal Cha	Deccan Ch	bat	normal	0	Royal Cha	0	5	R Vinay Ku	Rajiv Gand	Asad Rauf	RE Koertzen	
23	22	2008	Chandigar	5/3/2008	Kings XI P	Kolkata Kr	Kings XI P	bat	normal	0	Kings XI P	9	0	IK Pathan	Punjab Cri	DJ Harper	I Shivram	

matches

PREVIEW 2:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
313	312	2012	Dharamsa	########	Chennai S	Kings XI P	Kings XI P	field	normal	0	Kings XI P	0	6	AC Gilchri	Himachal	VA Kulkar	SK Tarapore	
314	313	2012	Delhi	########	Royal Cha	Delhi Dare	Delhi Dare	field	normal	0	Royal Cha	21	0	CH Gayle	Feroz Sha	HDPK Dha	C Shamshuddin	
315	314	2012	Hyderaba	########	Rajasthan	Deccan Ch	Rajasthan	bat	normal	0	Deccan Ch	0	5	DW Steyn	Rajiv Gand	S Ravi	SJA Taufel	
316	315	2012	Dharamsa	########	Kings XI P	Delhi Dare	Delhi Dare	field	normal	0	Delhi Dare	0	6	UT Yadav	Himachal	BF Bowde	VA Kulkarni	
317	316	2012	Pune	########	Kolkata Kr	Pune War	Kolkata Kr	bat	normal	0	Kolkata Kr	34	0	Shakib Al	Subrata R	S Asnani	BR Doctrove	
318	317	2012	Hyderaba	########	Deccan Ch	Royal Cha	Royal Cha	field	normal	0	Deccan Ch	9	0	DW Steyn	Rajiv Gand	S Ravi	SJA Taufel	
319	318	2012	Jaipur	########	Rajasthan	Mumbai I	Rajasthan	bat	normal	0	Mumbai I	0	10	DR Smith	Sawai Mai	HDPK Dha	C Shamshuddin	
320	319	2012	Pune	########	Kolkata Kr	Delhi Dare	Kolkata Kr	bat	normal	0	Kolkata Kr	18	0	YK Pathan	Subrata R	BR Doctro	SJA Taufel	
321	320	2012	Bangalore	########	Chennai S	Mumbai I	Mumbai I	field	normal	0	Chennai S	38	0	MS Dhoni	M Chinnas	BF Bowde	HDPK Dharmasena	
322	321	2012	Chennai	########	Chennai S	Delhi Dare	Delhi Dare	field	normal	0	Chennai S	86	0	M Vijay	MA Chida	BR Doctro	SJA Taufel	
323	322	2012	Chennai	########	Chennai S	Kolkata Kr	Chennai S	bat	normal	0	Kolkata Kr	0	5	MS Bisla	MA Chida	BF Bowde	SJA Taufel	
324	323	2013	Kolkata	4/3/2013	Delhi Dare	Kolkata Kr	Kolkata Kr	field	normal	0	Kolkata Kr	0	6	SP Narine	Eden Gard	S Ravi	SJA Taufel	
325	324	2013	Bangalore	4/4/2013	Royal Cha	Mumbai I	Mumbai I	field	normal	0	Royal Cha	2	0	CH Gayle	M Chinnas	VA Kulkar	C Shamshuddin	
326	325	2013	Hyderaba	4/5/2013	Sunrisers	Pune War	Pune War	field	normal	0	Sunrisers	22	0	A Mishra	Rajiv Gand	S Ravi	SJA Taufel	
327	326	2013	Delhi	4/6/2013	Rajasthan	Delhi Dare	Rajasthan	bat	normal	0	Rajasthan	5	0	R Dravid	Feroz Sha	S Das	C Shamshuddin	
328	327	2013	Chennai	4/6/2013	Mumbai I	Chennai S	Mumbai I	bat	normal	0	Mumbai I	9	0	KA Pollar	MA Chida	M Erasmu	VA Kulkarni	
329	328	2013	Pune	4/7/2013	Pune War	Kings XI P	Pune War	bat	normal	0	Kings XI P	0	8	M Vohra	Subrata R	S Asnani	SJA Taufel	
330	329	2013	Hyderaba	4/7/2013	Royal Cha	Sunrisers	Royal Cha	bat	tie	0	Sunrisers	0	0	GH Vihari	Rajiv Gand	AK Chowd	S Ravi	
331	330	2013	Jaipur	4/8/2013	Rajasthan	Kolkata Kr	Kolkata Kr	field	normal	0	Rajasthan	19	0	SK Trivedi	Sawai Mai	Aleem Da	S Das	
332	331	2013	Mumbai	4/9/2013	Mumbai I	Delhi Dare	Mumbai I	bat	normal	0	Mumbai I	44	0	KD Karthik	Wankhed	M Erasmu	VA Kulkarni	
333	332	2013	Chandigar	########	Kings XI P	Chennai S	Chennai S	field	normal	0	Chennai S	0	10	MEK Huss	Punjab Cri	Aleem Da	C Shamshuddin	
334	333	2013	Bangalore	########	Kolkata Kr	Royal Cha	Royal Cha	field	normal	0	Royal Cha	0	8	CH Gayle	M Chinnas	Asad Rauf	AK Chowdhary	
335	334	2013	Pune	########	Rajasthan	Pune War	Rajasthan	bat	normal	0	Pune War	0	7	AJ Finch	Subrata R	M Erasmu	K Srinivam	

matches

PREVIEW 3:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	match_id	inning	batting_team	bowling_team	over	ball	batsman	non_strike	bowler	is_super_	wide_runs	bye_runs	legbye_run	noball_ru	penalty_r	batsman_	extra_run	total_runs	player_di
2	1	1	Kolkata Knight Ri	Royal Challen	1	1	SC Gangul	BB McCull	P Kumar	0	0	0	1	0	0	0	1	1	
3	1	1	Kolkata Knight Ri	Royal Challen	1	2	BB McCull	SC Gangul	P Kumar	0	0	0	0	0	0	0	0	0	
4	1	1	Kolkata Knight Ri	Royal Challen	1	3	BB McCull	SC Gangul	P Kumar	0	1	0	0	0	0	0	1	1	
5	1	1	Kolkata Knight Ri	Royal Challen	1	4	BB McCull	SC Gangul	P Kumar	0	0	0	0	0	0	0	0	0	
6	1	1	Kolkata Knight Ri	Royal Challen	1	5	BB McCull	SC Gangul	P Kumar	0	0	0	0	0	0	0	0	0	
7	1	1	Kolkata Knight Ri	Royal Challen	1	6	BB McCull	SC Gangul	P Kumar	0	0	0	0	0	0	0	0	0	
8	1	1	Kolkata Knight Ri	Royal Challen	1	7	BB McCull	SC Gangul	P Kumar	0	0	0	1	0	0	0	1	1	
9	1	1	Kolkata Knight Ri	Royal Challen	2	1	BB McCull	SC Gangul	Z Khan	0	0	0	0	0	0	0	0	0	
10	1	1	Kolkata Knight Ri	Royal Challen	2	2	BB McCull	SC Gangul	Z Khan	0	0	0	0	0	0	4	0	4	
11	1	1	Kolkata Knight Ri	Royal Challen	2	3	BB McCull	SC Gangul	Z Khan	0	0	0	0	0	0	4	0	4	
12	1	1	Kolkata Knight Ri	Royal Challen	2	4	BB McCull	SC Gangul	Z Khan	0	0	0	0	0	0	6	0	6	
13	1	1	Kolkata Knight Ri	Royal Challen	2	5	BB McCull	SC Gangul	Z Khan	0	0	0	0	0	0	4	0	4	
14	1	1	Kolkata Knight Ri	Royal Challen	2	6	BB McCull	SC Gangul	Z Khan	0	0	0	0	0	0	0	0	0	
15	1	1	Kolkata Knight Ri	Royal Challen	3	1	SC Gangul	BB McCull	P Kumar	0	0	0	0	0	0	0	0	0	
16	1	1	Kolkata Knight Ri	Royal Challen	3	2	SC Gangul	BB McCull	P Kumar	0	0	0	0	0	0	0	0	0	
17	1	1	Kolkata Knight Ri	Royal Challen	3	3	SC Gangul	BB McCull	P Kumar	0	0	0	1	0	0	0	1	1	
18	1	1	Kolkata Knight Ri	Royal Challen	3	4	BB McCull	SC Gangul	P Kumar	0	0	0	0	0	0	4	0	4	
19	1	1	Kolkata Knight Ri	Royal Challen	3	5	BB McCull	SC Gangul	P Kumar	0	0	0	0	0	0	1	0	1	
20	1	1	Kolkata Knight Ri	Royal Challen	3	6	SC Gangul	BB McCull	P Kumar	0	0	0	0	0	0	0	0	0	
21	1	1	Kolkata Knight Ri	Royal Challen	4	1	BB McCull	SC Gangul	AA Noffke	0	5	0	0	0	0	0	5	5	
22	1	1	Kolkata Knight Ri	Royal Challen	4	2	BB McCull	SC Gangul	AA Noffke	0	0	0	0	0	0	6	0	6	
23	1	1	Kolkata Knight Ri	Royal Challen	4	3	BB McCull	SC Gangul	AA Noffke	0	0	0	1	0	0	0	1	1	

PREVIEW 4:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
39836	168	2	Kolkata Knight Ri	Rajasthan Roy	2	4	SC Gangul	BB McCull	SR Watson	0	0	0	0	0	0	0	0	0	
39837	168	2	Kolkata Knight Ri	Rajasthan Roy	2	5	SC Gangul	BB McCull	SR Watson	0	0	0	0	0	0	0	0	0	
39838	168	2	Kolkata Knight Ri	Rajasthan Roy	2	6	SC Gangul	BB McCull	SR Watson	0	0	0	0	0	0	4	0	4	
39839	168	2	Kolkata Knight Ri	Rajasthan Roy	3	1	BB McCull	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	
39840	168	2	Kolkata Knight Ri	Rajasthan Roy	3	2	BB McCull	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	
39841	168	2	Kolkata Knight Ri	Rajasthan Roy	3	3	BB McCull	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	BB McCull ca
39842	168	2	Kolkata Knight Ri	Rajasthan Roy	3	4	CH Gayle	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	
39843	168	2	Kolkata Knight Ri	Rajasthan Roy	3	5	CH Gayle	SC Gangul	Kamran Kh	0	1	0	0	0	0	0	1	1	
39844	168	2	Kolkata Knight Ri	Rajasthan Roy	3	6	CH Gayle	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	CH Gayle b
39845	168	2	Kolkata Knight Ri	Rajasthan Roy	3	7	CA Pujara	SC Gangul	Kamran Kh	0	0	0	0	0	0	4	0	4	
39846	168	2	Kolkata Knight Ri	Rajasthan Roy	4	1	SC Gangul	CA Pujara	SR Watson	0	0	0	0	0	0	0	0	0	
39847	168	2	Kolkata Knight Ri	Rajasthan Roy	4	2	SC Gangul	CA Pujara	SR Watson	0	0	0	0	0	0	0	0	0	
39848	168	2	Kolkata Knight Ri	Rajasthan Roy	4	3	SC Gangul	CA Pujara	SR Watson	0	0	0	0	0	0	0	0	0	
39849	168	2	Kolkata Knight Ri	Rajasthan Roy	4	4	SC Gangul	CA Pujara	SR Watson	0	0	0	0	0	0	4	0	4	
39850	168	2	Kolkata Knight Ri	Rajasthan Roy	4	5	SC Gangul	CA Pujara	SR Watson	0	0	0	0	0	0	0	0	0	
39851	168	2	Kolkata Knight Ri	Rajasthan Roy	4	6	SC Gangul	CA Pujara	SR Watson	0	0	0	0	0	0	0	0	0	
39852	168	2	Kolkata Knight Ri	Rajasthan Roy	5	1	CA Pujara	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	
39853	168	2	Kolkata Knight Ri	Rajasthan Roy	5	2	CA Pujara	SC Gangul	Kamran Kh	0	0	0	0	0	0	1	0	1	
39854	168	2	Kolkata Knight Ri	Rajasthan Roy	5	3	SC Gangul	CA Pujara	Kamran Kh	0	0	0	0	0	0	1	0	1	
39855	168	2	Kolkata Knight Ri	Rajasthan Roy	5	4	CA Pujara	SC Gangul	Kamran Kh	0	0	0	0	0	0	0	0	0	
39856	168	2	Kolkata Knight Ri	Rajasthan Roy	5	5	CA Pujara	SC Gangul	Kamran Kh	0	0	0	0	0	0	1	0	1	
39857	168	2	Kolkata Knight Ri	Rajasthan Roy	5	6	SC Gangul	CA Pujara	Kamran Kh	0	1	0	0	0	0	0	1	1	
39858	168	2	Kolkata Knight Ri	Rajasthan Roy	5	7	SC Gangul	CA Pujara	Kamran Kh	0	0	0	0	0	0	4		4	

SUMMARY

Every individual whether a student, an employee or a businessman ideally finds some leisure time in a day.

What if we let you know the certain secrets of the game. Though we are not gonna find that who will be the winner or loser, but we can find who will lead their teams to victory.

The output includes:-

- **PLAYING 11 OF INDIA IN ANY FORMAT**

- **CURRENT RECORDS WITH BAT & BOWL**

- **GRAPHICAL REPRESENTATION OF PERFORMANCES**

- **COMPARISON OF PLAYERS PERFORMANCES**

Certainly this definitely hit all the audience who are cricket fans, to whom cricket is like a religion. This involves kids, teenagers, elders.