ASN SR. SEC. SCHOOL
MAYUR VIHAR-I, DELHI

COMPUTER SCIENCE PRACTICAL FILE (O83)

SESSION: 2021-22


A PROJECT REPORT ON
CRICKET ANALYSIS THROUGH PYTHON

SUBMITTED TO:

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P.G.T. (COMP. SC) BOARD - CBSE

SUBMITTED BY:
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ROLL NO.14602915

CERTIFICATE

This is to certify that Kartik Prasad of class XII-C of ASN Senior Secondary School, Mayur Vihar – I, Delhi has successfully completed Computer Science project on Cricket analysis through Python' under my supervision, during the academic session 2021-22. He has taken keen interest and has shown utmost sincerity in completion of this project.

I certify this project is up to my expectation & as per guidelines issued by Central Board of Secondary Education, New Delhi.

_____ _____

Internal Examiner *External Examiner*

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School Stamp

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to our Principal Ms. Swarnima Luthra and my teacher Ms. Suneeta Jena who gave me this golden opportunity to do this project which also helped me in doing a lot of research work. Their constructive advice and constant motivation have been responsible for the successful completion of this project. I am grateful to them for their continuous guidance and encouragement.

I would also like to thank my parents and friends who helped me a lot in finalising this project within the given time frame.

Kartik Prasad

12-C

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INSTRODUCTION TO THE PROJECT

This project's aim is to manage data and perform some functions on IPL data for example:probability of a team winning,calculating no of games played by two teams,calculating probability of a team winning by runs or wickets,etc.

ABOUT THE PROGRAM: The program is made so as to easily apply some functions on the IPL data . It makes life easy to calculate probability of a team winning as all the work is done by the computer instead of doing it manually . New data can easily be entered and managed .

This is the type of program which can get you a job as an analyst at a IPL franchise .

Most of the franchise uses an advanced version of these kind of codes in making teams and important decisions like what to choose after winning a toss .

HARDWARE AND SOFTWARE REQUIREMENTS

HARDWARE-AMD RYZEN 5 3500U WITH RADEON GRAPHICS(EQUIVALENT TO INTEL CORE I5)

SOFTWARE-ONE OF THE FOLLOWING OPERATING SYSTEMS:

- MICROSOFT WINDOWS 8,8.1
- MICROSOFT WINDOWS 10
- MICROSOFT WINDOWS 11

INSTALL EACH OF THESE COMPULSORILY:

- PYTHON3.9
- MYSQL COMMAND LINE CLIENT
- MICROSOFT EXCEL

CODING

#Computer science project on "CRICKET ANALYSIS THROUGH PYTHON"

```
import csv
```

#Creating a list of data

```
with open ('ipldata.csv') as myfile:
    myreader=csv.reader(myfile,delimiter=',')
    l=[]
    for row in myreader:
        l1=list()
        l1.append(row[2])
        l1.append(row[3])
        l1.append(row[6])
        l1.append(row[1])
        l1.append(row[7])
        l.append(l1)
```

Importing the records from the CSV and storing the records in the form of list

#Code for calculating probablity of a team winning against another team

```
def gmplayed(c1=0,c2=0,t1w=0,t2w=0):
    a=input("Enter the name of team 1 :")
    b=input("Enter the name of team 2 :")
    for i in l :
        if i[0]==a and i[1]==b:
            c1 =c1+1
        elif i[0]==b and i[1]==a:
            c2 =c2+1
    t=c1+c2
    for j in l:
        if j[0]==a and j[1]==b:
            if j[2]==a:
                t1w =t1w+1
            elif j[2]==b:
                t2w =t2w+1
        elif j[0]==b and j[1]==a:
            if j[2]==a:
                t1w =t1w+1
            if j[2]==b:
                t2w =t2w+1
```

```
    if t>0:
        print("The total number of games played with each other
are " ,t)
        print("Probability of ",a," winning is ", t1w/t)
        print("Probability of ",b," winning is ", t2w/t)
    else :
        print("No matches played between them")
```

First ,we calculated the number of matches played by the two teams with each other.Then we calculated the matches won by team 1 and matches won by team 2 and then calculated the probability of team one and team two winning by dividing the matches won by a team by total number of matches played against another team.

#code for calculating no of games played by two teams at a venue

```
def venuesearch():
    b1=0
    b2=0
    x=input("specify venue")
```

```
    a1=input("specify team1")
    a2=input("specify team2")
    for i in l:
        if i[3]==x and i[0]==a1 and i[1]==a2:
            b1=b1+1
        if i[3]==x and i[0]==a2 and i[1]==a1:
            b2=b2+1
    t1=b1+b2
    print(t1)
```

We define a function which first asks for a venue,team1 and then team 2.Then it searches though the records from CSV file in order to find the records which matches the condition.Everytime it does this,it adds 1 to user defined variable which is first kept at 0.

#code for writing data into the csv file

```
def wrtdata ():
    with open ('ipldata.csv' ,mode='a') as file :
        wr=csv.writer(file, delimiter=',')
        ans='y'
        while ans.lower()=='y':
            mid=int(input("Enter match id"))
```

```
        ven=input("Enter match venue")
        team1=input("Enter name of team1")
        team2=input("Enter name of team2")
        tw=input("Enter name of the team which won the
toss")
        td=input("What did they choose ? Bat or Field.....")
        win=input("Who won the match ? ")
        res=input("By what method they won the match ?
Runs or Wickets")
        wr.writerow([mid,ven,team1,team2,tw,td,win,res])
        ans=input("Do you want to add more records? Type y
or n....")
```

First, we open the CSV file in append mode.Then we ask the user to input the match id,venue,etc.Then we add the data in the CSV file in form of a list.

#code for calculating probability of a team winning by runs or wickets

```
def runswickets(r=0,w=0,tot=0):
   a=input("Enter the name of team :")
   for i in l :
```

```
    if i[0]==a or i[1]==a:
        if i[2]==a:
            tot= tot + 1
            if i[4]== "runs":
                r+=1
            elif i[4]== "wickets":
                w+=1
if tot != 0:
    pr=r/tot
    pw=w/tot
    print("Probability of team winning by runs is :", pr)
    print("Probability of team winning by wickets is :", pw)

else:
    print("No matches played till yet ")
```

First we calculated the total number of matches won by a team and then by using if statement we calculated if it is winning then we calculated how many times it is winning by runs or wickets.Then we calculated the probability if a team winning by runs or wickets by dividing the number of matches won by runs or wickets by total number of matches won.

#list of teams

```
t=["Royal Challengers Bangalore","Kings XI Punjab","Delhi Daredevils","Mumbai Indians","Kolkata Knight Riders","Rajasthan Royals","Deccan Chargers","Chennai Super Kings","Pune Warriors","Kochi Tuskers Kerala","Sunrisers Hyderabad","Gujarat Lions","Rising Pune Supergiants","Delhi Capitals"]
```

The above are the teams you are allowed to choose from.

#Menu driven program

```
menu="y"
while menu=="y":
    print("Select an option :")
    print("1) Probability of a team winning a match against another team")
    print("2) Number of times two teams have played a match at a venue")
    print("3) Probability of a team winning by runs or wickets ")
    print("4) Enter data into the table")
    print("Caution!")
```

```
    print("Write the team names in proper format : First letter of each name should be capital ")
    print("Teams from which you can chose from")
    for i in t:
        print(i,";")
    m=int(input("Enter the option number: "))
```

#running of previosly made functions by a menu driven program

```
    if m==1:
        gmplayed()
    elif m==2:
        venuesearch()
    elif m==3:
        runswickets()
    elif m==4:
        wrtdata()
    else :
        print("Enter a valid option")
    menu=input("Do you want to search for another option y or n .....")
```

We gave the user the option for running the various function we created.We also gave the name of all the teams the user can choose from.Then we run the previously made functions.

OUTPUT

SAMPLE FOR THE IPL/CRICKET DATABASE

id	city	team1	team2	toss_winn	toss_decis	winner	result
335982	Bangalore	Royal Chal	Kolkata Kn	Royal Chal	field	Kolkata Kn	runs
335983	Chandigarl	Kings XI Pu	Chennai Su	Chennai Su	bat	Chennai Su	runs
335984	Delhi	Delhi Dare	Rajasthan	Rajasthan	bat	Delhi Dare	wickets
335985	Mumbai	Mumbai In	Royal Chal	Mumbai In	bat	Royal Chal	wickets
335986	Kolkata	Kolkata Kn	Deccan Ch	Deccan Ch	bat	Kolkata Kn	wickets
335987	Jaipur	Rajasthan	Kings XI Pu	Kings XI Pu	bat	Rajasthan	wickets
335988	Hyderabac	Deccan Ch	Delhi Dare	Deccan Ch	bat	Delhi Dare	wickets
335989	Chennai	Chennai Su	Mumbai In	Mumbai In	field	Chennai Su	runs
335990	Hyderabac	Deccan Ch	Rajasthan	Rajasthan	field	Rajasthan	wickets
335991	Chandigarl	Kings XI Pu	Mumbai In	Mumbai In	field	Kings XI Pu	runs
335992	Bangalore	Royal Chal	Rajasthan	Rajasthan	field	Rajasthan	wickets
335993	Chennai	Chennai Su	Kolkata Kn	Kolkata Kn	bat	Chennai Su	wickets
335994	Mumbai	Mumbai In	Deccan Ch	Deccan Ch	field	Deccan Ch	wickets
335995	Chandigarl	Kings XI Pu	Delhi Dare	Delhi Dare	bat	Kings XI Pu	wickets
335996	Bangalore	Royal Chal	Chennai Su	Chennai Su	bat	Chennai Su	runs
335997	Kolkata	Kolkata Kn	Mumbai In	Kolkata Kn	bat	Mumbai In	wickets
335998	Delhi	Delhi Dare	Royal Chal	Royal Chal	field	Delhi Dare	runs
335999	Hyderabac	Deccan Ch	Kings XI Pu	Kings XI Pu	field	Kings XI Pu	wickets
336000	Jaipur	Rajasthan	Kolkata Kn	Rajasthan	bat	Rajasthan	runs
336001	Chennai	Chennai Su	Delhi Dare	Chennai Su	bat	Delhi Dare	wickets
336002	Hyderabac	Deccan Ch	Royal Chal	Deccan Ch	bat	Royal Chal	wickets
336003	Chandigarl	Kings XI Pu	Kolkata Kn	Kings XI Pu	bat	Kings XI Pu	runs
336004	Mumbai	Mumbai In	Delhi Dare	Delhi Dare	field	Mumbai In	runs

MENU DRIVEN PROGRAM

```
Select an option :
1) Probability of a team winning a match against another team
2) Number of times two teams have played a match at a venue
3) Probability of a team winning by runs or wickets
4) Enter data into the table
Caution!
Write the team names in proper format : First letter of each name should be capital
Teams from which you can chose from
Royal Challengers Bangalore ;
Kings XI Punjab ;
Delhi Daredevils ;
Mumbai Indians ;
Kolkata Knight Riders ;
Rajasthan Royals ;
Deccan Chargers ;
Chennai Super Kings ;
Pune Warriors ;
Kochi Tuskers Kerala ;
Sunrisers Hyderabad ;
Gujarat Lions ;
Rising Pune Supergiants ;
Delhi Capitals ;
Enter the option number:
```

CODE FOR CALCULATING PROBABILITY OF A TEAM WINNING AGAINST ANOTHER TEAM

```
Enter the option number: 1
Enter the name of team 1 :Delhi Daredevils
Enter the name of team 2 :Deccan Chargers
The total number of games played with each other are  11
Probability of  Delhi Daredevils  winning is  0.63636363636364
Probability of  Deccan Chargers  winning is  0.363636363636365
Do you want to search for another option y or n .....n
```

CODE FOR CALCULATING NO OF GAMES PLAYED BY TWO TEAMS AT A VENUE

```
Enter the option number: 2
specify venueKolkata
specify team1Kolkata Knight Riders
specify team2Mumbai Indians
10
Do you want to search for another option y or n .....n
```

CODE FOR CALCULATING PROBABILITY OF A TEAM WINNING BY RUNS OR WICKETS

```
Enter the option number: 3
Enter the name of team :Kings XI Punjab
Probability of team winning by runs is : 0.45454545454545453
Probability of team winning by wickets is : 0.5113636363636364
Do you want to search for another option y or n .....
```

CODE FOR WRITING DATA INTO THE CSV FILE

```
Enter the option number: 4
Enter match id1237182
Enter match venuePune
Enter name of team1Royal Challengers Bangalore
Enter name of team2Mumbai Indians
Enter name of the team which won the tossRoyal Challengers Bangalore
What did they choose ? Bat or Field.....Bat
Who won the match ? Royal Challengers Bangalore
By what method they won the match ? Runs or WicketsRuns
Do you want to add more records? Type y or n....n
Do you want to search for another option y or n .............n
>>>
```

1237177	Dubai	Mumbai In	Delhi Capit	Delhi Capit	field	Mumbai In	runs
1237178	Abu Dhabi	Royal Chal	Sunrisers H	Sunrisers H	field	Sunrisers H	wickets
1237180	Abu Dhabi	Delhi Capit	Sunrisers H	Delhi Capit	bat	Delhi Capit	runs
1237181	Dubai	Delhi Capit	Mumbai In	Delhi Capit	bat	Mumbai In	wickets
1237182	Pune	Royal Chal	Mumbai In	Royal Chal	Bat	Royal Chal	Runs

CONCLUSION

The entire project that has been displayed before this page, represents many hours of teamwork, research corresponding to the IPL database and energy spent by the group has successfully borne fruit and the program works quite well.

The project shows how to a certain extent we can predict the outcome for a certain event by using a CSV file and Python. In this case we used it to calculate which team would most likely win given certain conditions from an IPL database.

FURTHER IMPROVEMENTS

Due to constraint on knowledge,we weren’t able to add graphical user interface.We were not able to add more functions like selecting a team with specific players by taking in consideration their trivial performances, due to lack of appropriate database.

BIBILOGRAPHY

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  (LINK FOR THE IPL DATABASE)