Problem Statement: **Shashwat Mishra**

USING LOGISTIC REGRESSION. (OUTPUT AND QUERIES)

Predict the match winning outcome of Dhoni for CSK.

Further conditions:

- **It is given that Dhoni has to play the last over is not dismissed.**
- **The last over has to be of the second innings.**

Output of the Problem:

The final table used for Logistical Regression:

	Match_Id	Second_Innings	Played_Last_Over	Not_Out_Last_Over	Matches_Won
0	335988	0	0	0	1
1	335994	0	0	0	1
2	335998	1	0	0	1
3	336001	0	0	0	1
4	336006	0	0	0	0

==**Note: This is just df_final.head(), not the full table and the above is only for MS Dhoni just to give an example of the column names.**==

1. Output when input player is MS Dhoni

```
Enter the name of the Player playing the last over: MS Dhoni
Accuracy:  0.625
     Second_Innings  Played_Last_Over  Not_Out_Last_Over
40                0                 1                  1
24                1                 0                  0
86                1                 0                  0
51                1                 0                  0
8                 0                 0                  0
108               0                 0                  0
127               1                 1                  1
96                0                 0                  0
73                0                 0                  0
7                 0                 0                  0
60                0                 0                  0
10                0                 0                  0
89                0                 0                  0
94                0                 0                  0
30                1                 0                  0
33                0                 0                  0
2                 1                 0                  0
59                0                 0                  0
50                0                 0                  0
26                1                 1                  1
22                0                 0                  0
101               0                 0                  0
48                0                 0                  0
68                0                 0                  0
121               0                 0                  0
122               0                 0                  0
91                0                 0                  0
16                1                 1                  0
90                0                 0                  0
118               0                 0                  0
13                0                 0                  0
99                0                 0                  0
Predicted Data:  [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]
```

2. Output when input player is DJ Bravo

```
Enter the name of the Player playing the last over: DJ Bravo
Accuracy:  0.6666666666666666
     Second_Innings  Played_Last_Over  Not_Out_Last_Over
26                1                 0                  0
35                0                 0                  0
59                1                 0                  0
28                0                 0                  0
11                0                 0                  0
2                 0                 0                  0
34                1                 0                  0
58                0                 0                  0
40                0                 0                  0
22                0                 0                  0
4                 0                 0                  0
10                0                 0                  0
30                0                 0                  0
41                0                 0                  0
33                1                 0                  0
Predicted Data:  [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]
```

3. Output when input player is V Kohli

```
Enter the name of the Player playing the last over: V Kohli
Accuracy:  0.45714285714285713
     Second_Innings  Played_Last_Over  Not_Out_Last_Over
8                 0                 0                  0
68                0                 0                  0
27                1                 0                  0
118               0                 0                  0
24                1                 0                  0
45                0                 0                  0
76                0                 0                  0
73                0                 0                  0
122               0                 0                  0
33                0                 0                  0
136               0                 0                  0
26                0                 0                  0
101               0                 0                  0
92                0                 0                  0
63                0                 0                  0
110               1                 0                  0
50                0                 0                  0
22                1                 0                  0
94                0                 0                  0
48                0                 0                  0
112               0                 0                  0
60                0                 0                  0
18                1                 0                  0
105               1                 0                  0
51                0                 0                  0
96                0                 0                  0
43                1                 0                  0
7                 0                 0                  0
16                0                 0                  0
44                1                 0                  0
10                0                 0                  0
2                 0                 0                  0
```

```
2                 0                 0                  0
54                0                 0                  0
134               0                 0                  0
86                0                 0                  0
Predicted Data:  [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]
```

4. Output when input player is AB de Villiers

```
Enter the name of the Player playing the last over: AB de Villiers
Accuracy:   0.5217391304347826
     Second_Innings   Played_Last_Over   Not_Out_Last_Over
2                 0                  0                   0
13                0                  0                   0
53                0                  0                   0
41                0                  0                   0
86                0                  0                   0
30                0                  0                   0
45                0                  0                   0
43                0                  0                   0
59                0                  0                   0
90                0                  0                   0
7                 0                  0                   0
26                0                  0                   0
33                1                  0                   0
68                0                  0                   0
8                 1                  0                   0
16                0                  0                   0
24                0                  0                   0
79                0                  0                   0
66                0                  0                   0
42                0                  0                   0
22                0                  0                   0
6                 0                  0                   0
62                0                  0                   0
Predicted Data:   [1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]
```

Further wok and Queries:

Further work:

Further this ML algorithm can be used in many other different ways. Here, it was a new challenge for me so there might have been something of a problem for me but now I am very much familiar with coding with logistical regression and I have already learned a lot and found many possibilities to solve it through even more new ways.

Queries:

The only major query I have is I am unsure if the confusion matrix is completely correct anf I had some difficulties representing it as well. Therefore, maybe some help in this area or further learning is required for me.
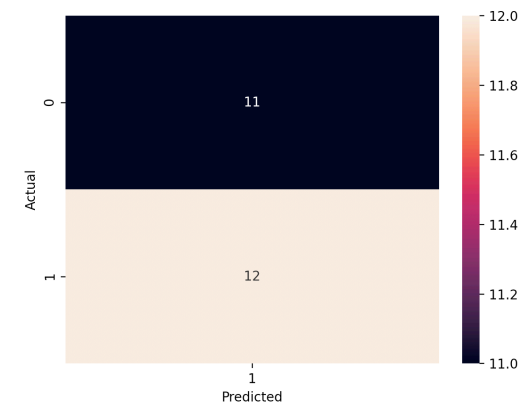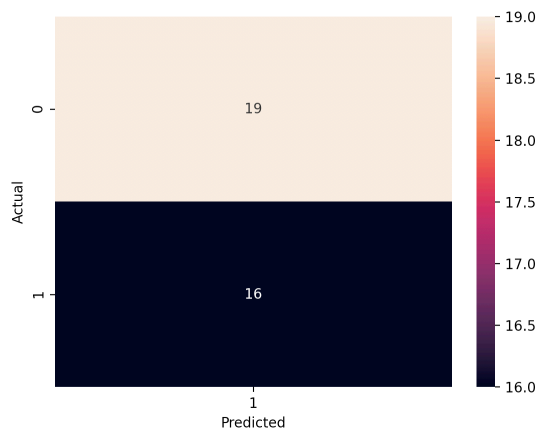
Representing the confusion matrix was not the problem but the outcome was not as I wanted it to be.

However, below I have attached the screenshots of the confusion matrix representation I was able to get from this problem.

Confusion Matrix for all the player's included:
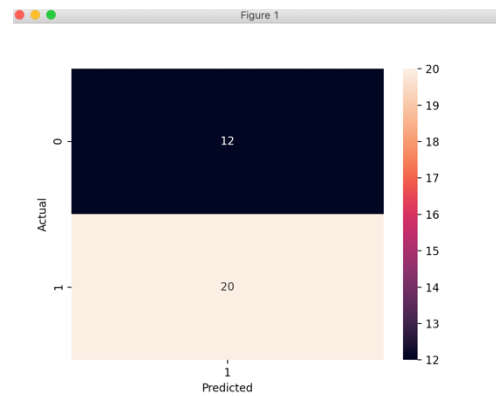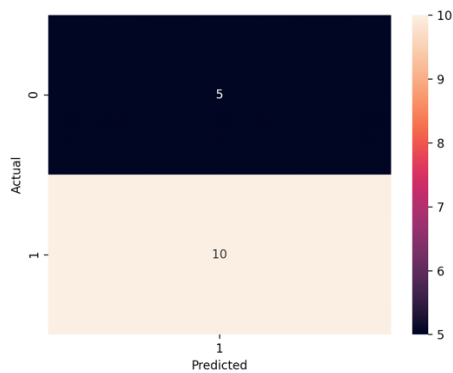
Above are Confusion Matrix for DJ Bravo and MS Dhoni.

Above are Confusion Matrix for V Kohli and AB de Villiers

Note: Explanation is in another document in the folder.