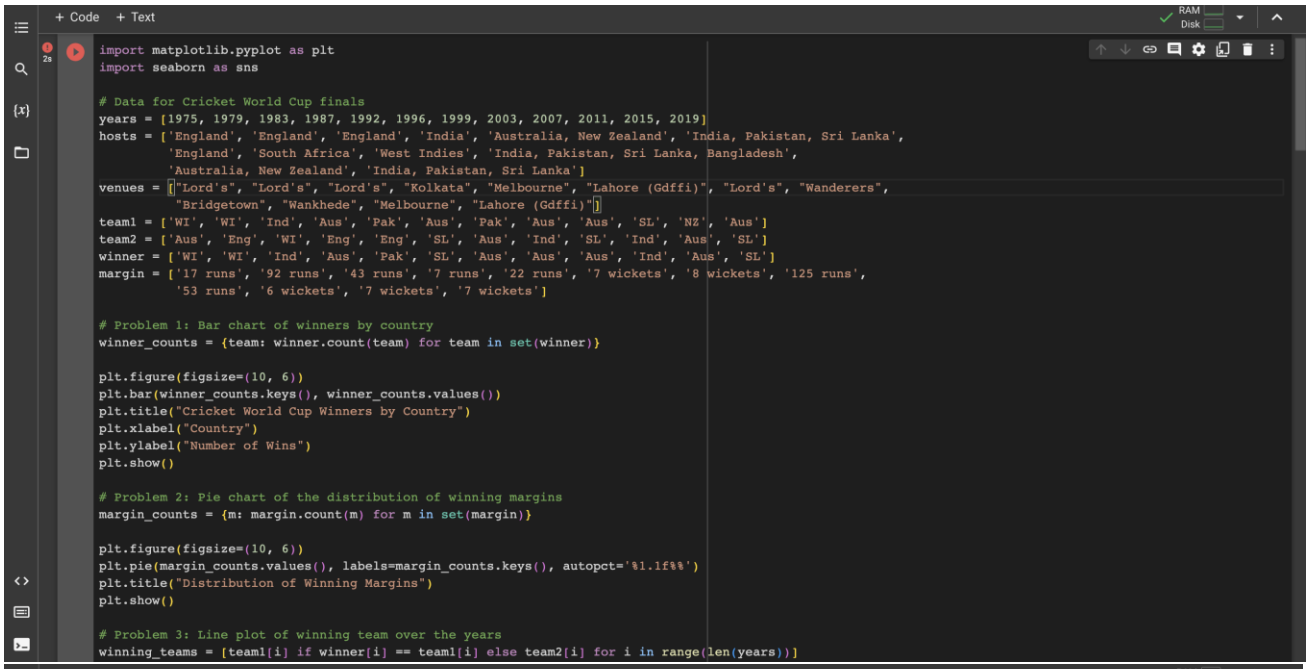
EDS assignment 5



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import matplotlib.pyplot as plt
import seaborn as sns

# Data for Cricket World Cup finals
years = [1975, 1979, 1983, 1987, 1992, 1996, 1999, 2003, 2007, 2011, 2015, 2019]
hosts = ['England', 'England', 'England', 'India', 'Australia, New Zealand', 'India, Pakistan, Sri Lanka',
         'England', 'South Africa', 'West Indies', 'India, Pakistan, Sri Lanka, Bangladesh',
         'Australia, New Zealand', 'India, Pakistan, Sri Lanka']
venues = ["Lord's", "Lord's", "Lord's", "Kolkata", "Melbourne", "Lahore (Gdffi)", "Lord's", "Wanderers",
          "Bridgetown", "Wankhede", "Melbourne", "Lahore (Gdffi)"]
team1 = ['WI', 'WI', 'Ind', 'Aus', 'Pak', 'Aus', 'Pak', 'Aus', 'Aus', 'SL', 'NZ', 'Aus']
team2 = ['Aus', 'Eng', 'WI', 'Eng', 'Eng', 'SL', 'Aus', 'Ind', 'SL', 'Ind', 'Aus', 'SL']
winner = ['WI', 'WI', 'Ind', 'Aus', 'Pak', 'SL', 'Aus', 'Aus', 'Aus', 'Ind', 'Aus', 'SL']
margin = ['17 runs', '92 runs', '43 runs', '7 runs', '22 runs', '7 wickets', '8 wickets', '125 runs',
          '53 runs', '6 wickets', '7 wickets', '7 wickets']

# Problem 1: Bar chart of winners by country
winner_counts = {team: winner.count(team) for team in set(winner)}

plt.figure(figsize=(10, 6))
plt.bar(winner_counts.keys(), winner_counts.values())
plt.title("Cricket World Cup Winners by Country")
plt.xlabel("Country")
plt.ylabel("Number of Wins")
plt.show()

# Problem 2: Pie chart of the distribution of winning margins
margin_counts = {m: margin.count(m) for m in set(margin)}

plt.figure(figsize=(10, 6))
plt.pie(margin_counts.values(), labels=margin_counts.keys(), autopct='%1.1f%%')
plt.title("Distribution of Winning Margins")
plt.show()

# Problem 3: Line plot of winning team over the years
winning_teams = [team1[i] if winner[i] == team1[i] else team2[i] for i in range(len(years))]
```

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winning_teams = [team1[i] if winner[i] == team1[i] else team2[i] for i in range(len(years))]

plt.figure(figsize=(10, 6))
plt.plot(years, winning_teams, marker='o')
plt.title("Winning Team Over the Years")
plt.xlabel("Year")
plt.ylabel("Winning Team")
plt.xticks(rotation=45)
plt.show()

# Problem 4: Count of matches played in each host country
host_counts = {host: hosts.count(host) for host in set(hosts)}

plt.figure(figsize=(10, 6))
plt.bar(host_counts.keys(), host_counts.values())
plt.title("Matches Played in Each Host Country")
plt.xlabel("Country")
plt.ylabel("Number of Matches")
plt.xticks(rotation=45)
plt.show()

# Problem 5: Box plot of winning margins by country
winning_margins_by_country = {team: [int(m.split()[0]) for m, w in zip(margin, winner) if w == team] for team in set(winner)}

plt.figure(figsize=(10, 6))
sns.boxplot(data=list(winning_margins_by_country.values()))
plt.title("Winning Margins by Country")
plt.xlabel("Country")
plt.ylabel("Winning Margin (runs)")
plt.xticks(range(len(set(winner))), set(winner))
plt.show()

# Problem 6: Bar chart of total wins by country
total_wins_by_country = {team: winner.count(team) for team in set(winner)}
```

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# Problem 6: Bar chart of total wins by country
total_wins_by_country = {team: winner.count(team) for team in set(winner)}

plt.figure(figsize=(10, 6))
plt.bar(total_wins_by_country.keys(), total_wins_by_country.values())
plt.title("Total Wins by Country")
plt.xlabel("Country")
plt.ylabel("Total Wins")
plt.show()

# Problem 7: Heatmap of winning teams and venues
venue_teams = [[team1[i] if winner[i] == team1[i] else team2[i] for i in range(len(years))] if v == venue else None for v, venue in enumerate(venues)]

plt.figure(figsize=(10, 6))
sns.heatmap(venue_teams, xticklabels=years, yticklabels=venues, cmap="coolwarm", cbar=False)
plt.title("Winning Teams and Venues")
plt.xlabel("Year")
plt.ylabel("Venue")
plt.xticks(rotation=45)
plt.show()

# Problem 8: Line chart of winning margins over the years
winning_margins_numeric = [int(m.split()[0]) for m in margin]

plt.figure(figsize=(10, 6))
plt.plot(years, winning_margins_numeric, marker='o')
plt.title("Winning Margins Over the Years")
plt.xlabel("Year")
plt.ylabel("Winning Margin (runs)")
plt.xticks(rotation=45)
plt.show()

# Problem 9: Stacked bar chart of winning teams by country and year
winning_teams_by_country = {team: [year if winner[i] == team else None for i, year in enumerate(years)] for team in set(winner)}

plt.figure(figsize=(10, 6))
```

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# Problem 9: Stacked bar chart of winning teams by country and year
winning_teams_by_country = {team: [year if winner[i] == team else None for i, year in enumerate(years)] for team in set(winner)}

plt.figure(figsize=(10, 6))
for team, years_list in winning_teams_by_country.items():
    plt.bar(years, years_list, label=team)

plt.title("Winning Teams by Country and Year")
plt.xlabel("Year")
plt.ylabel("Winning Team")
plt.xticks(rotation=45)
plt.legend()
plt.show()

# Problem 10: Scatter plot of winning margins by year
winning_margins_numeric = [int(m.split()[0]) for m in margin]

plt.figure(figsize=(10, 6))
plt.scatter(years, winning_margins_numeric, c=winning_margins_numeric, cmap="coolwarm")
plt.colorbar(label="Winning Margin (runs)")
plt.title("Winning Margins by Year")
plt.xlabel("Year")
plt.ylabel("Winning Margin (runs)")
plt.xticks(rotation=45)
plt.show()
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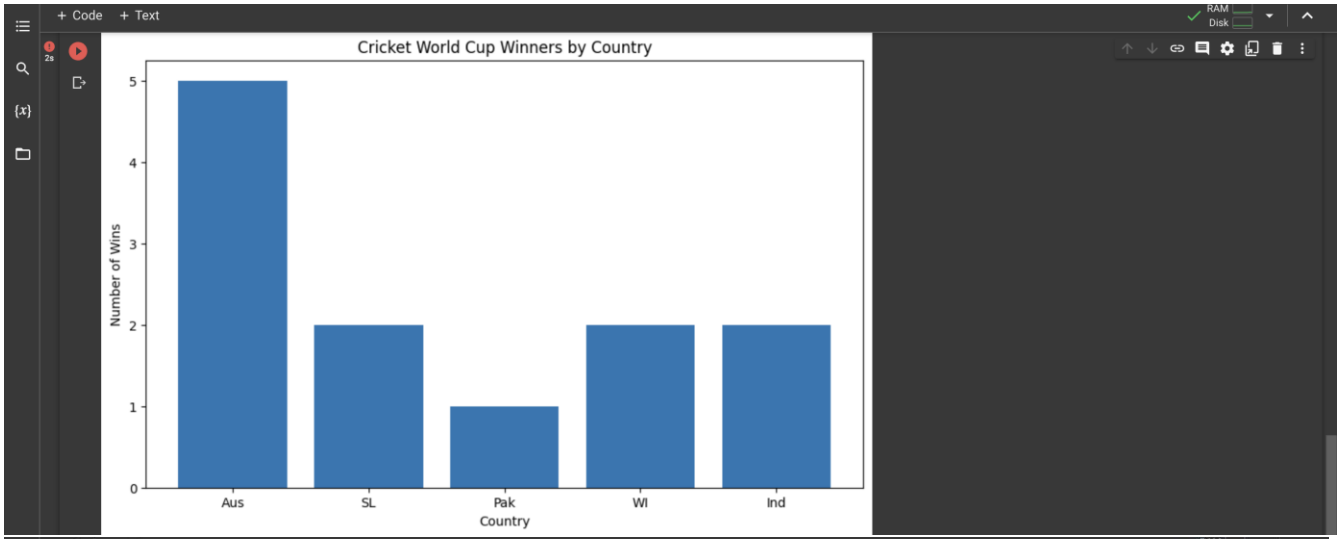
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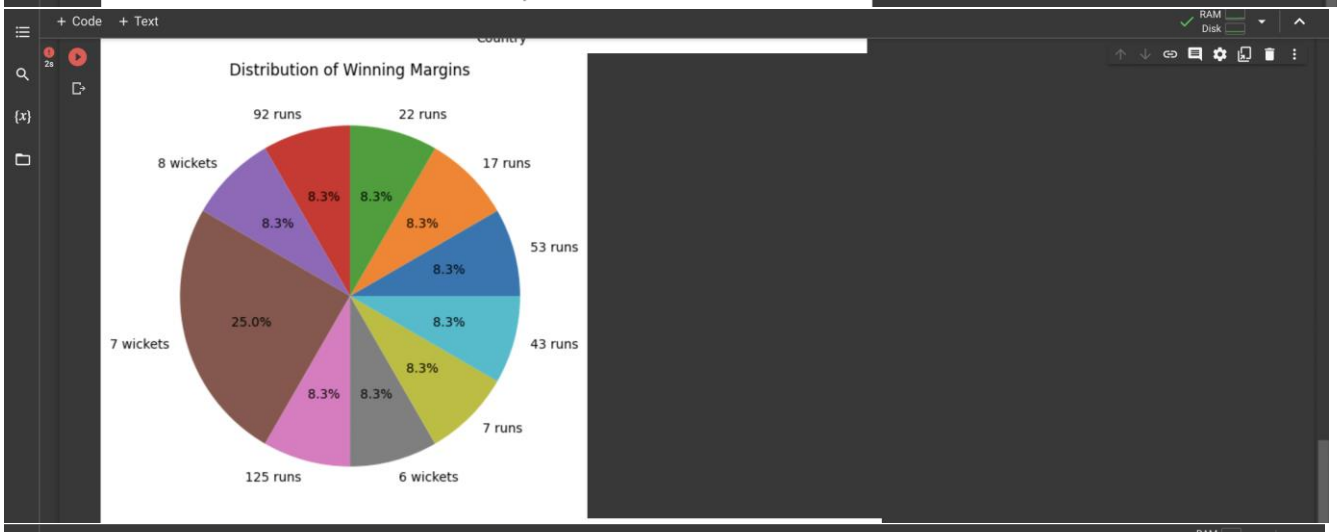
Cricket World Cup Winners by Country
Number of Wins
0
1
2
3
4
5
Aus
SL
Pak
WI
Ind
Country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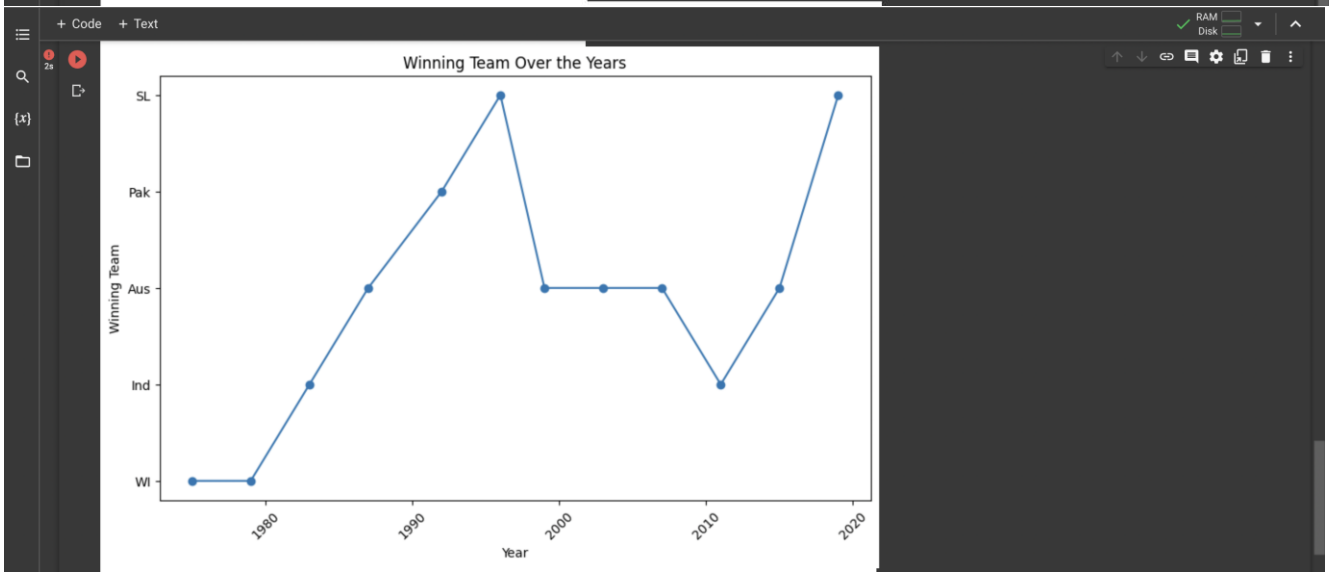
RAM
Disk
Distribution of Winning Margins
92 runs
22 runs
8 wickets
17 runs
53 runs
7 wickets
43 runs
7 runs
125 runs
6 wickets
8.3%
25.0%


+ Code
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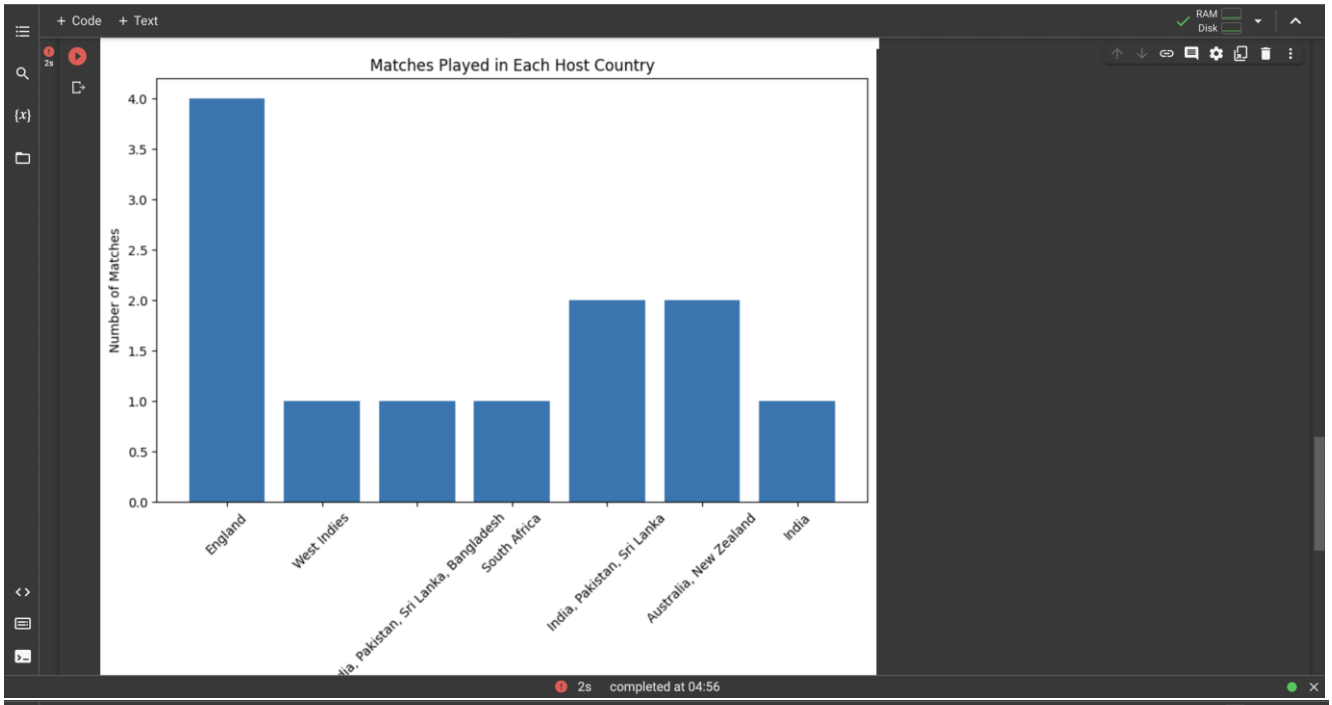
RAM
Disk
Winning Team Over the Years
Winning Team
SL
Pak
Aus
Ind
WI
1980
1990
2000
2010
2020
Year


+ Code
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RAM
Disk
Matches Played in Each Host Country
Number of Matches
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
England
West Indies
India, Pakistan, Sri Lanka, Bangladesh
South Africa
India, Pakistan, Sri Lanka
Australia, New Zealand
India
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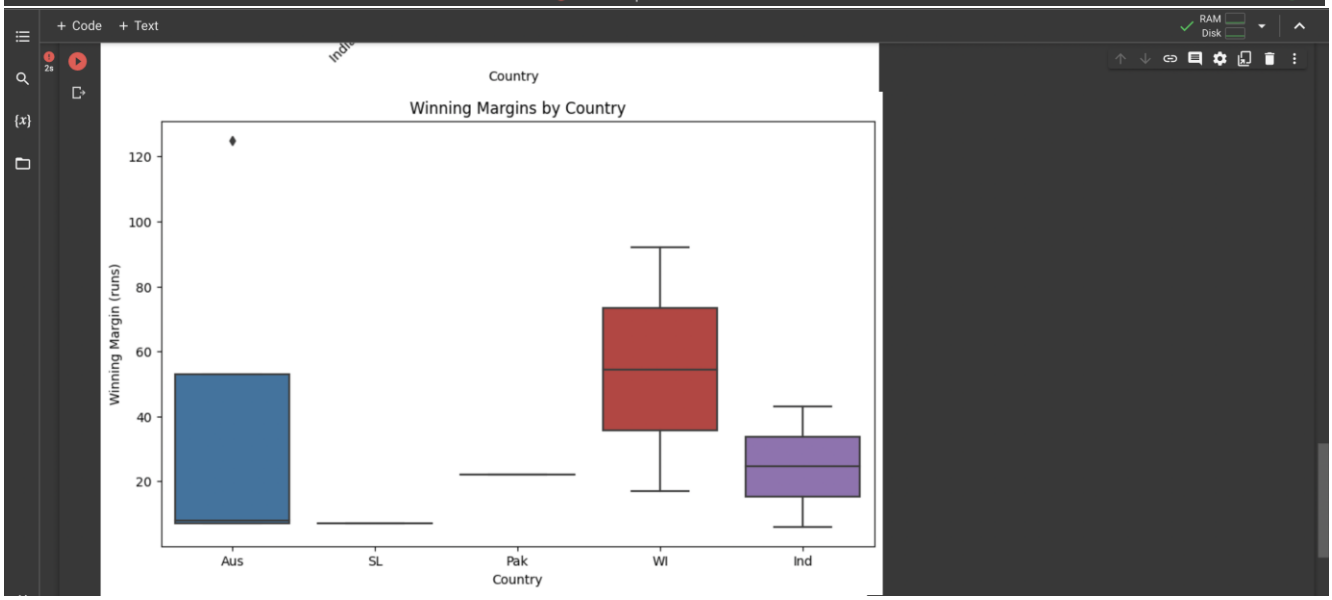
+ Code
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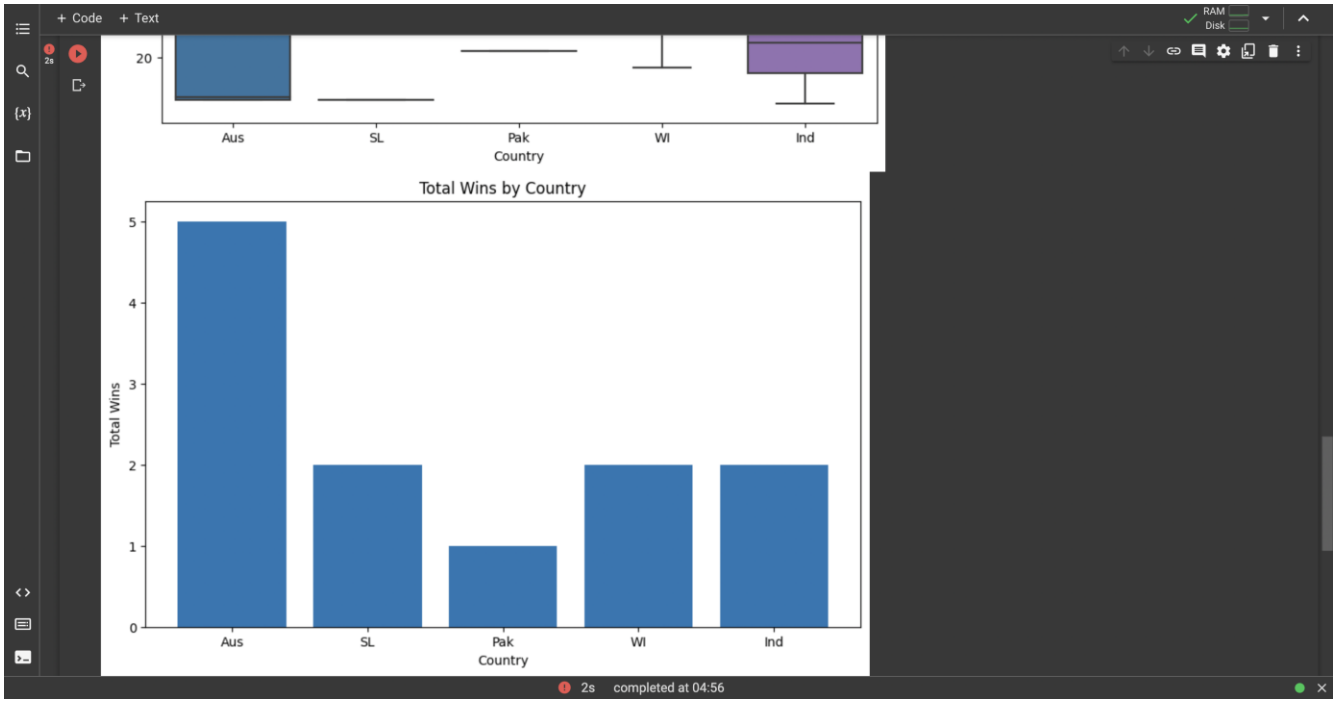
RAM
Disk
Country
Winning Margins by Country
Winning Margin (runs)
120
100
80
60
40
20
Aus
SL
Pak
WI
Ind
Country


+ Code
+ Text
RAM
Disk
20
Aus
SL
Pak
WI
Ind
Country
Total Wins by Country
Total Wins
5
4
3
2
1
0
Aus
SL
Pak
WI
Ind
Country
2s
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