Experiment -40

Scenario: You are a data analyst working for a sports analytics company. The company has collected data on various soccer players, including their names, ages, positions, number of goals scored, and weekly salaries. Create dataset on your own and store in a CSV file.

Question: Develop a Python program to read the data from the CSV file into a pandas data frame, to find the top 5 players with the highest number of goals scored and the top 5 players with the highest salaries. Also calculate the average age of players and display the names of players who are above the average age and visualize the distribution of players based on their positions using a bar chart.

Code

```
import pandas as pd

import matplotlib.pyplot as plt

df = pd.read_csv("players.csv")

top_goals = df.sort_values(by="Goals", ascending=False).head(5)

print("Top 5 Players by Goals:\n", top_goals, "\n")

top_salary = df.sort_values(by="Salary", ascending=False).head(5)

print("Top 5 Players by Salary:\n", top_salary, "\n")

avg_age = df["Age"].mean()

print("Average Age of Players:", avg_age)

above_avg_age = df[df["Age"] > avg_age]

print("\nPlayers Above Average Age:\n", above_avg_age)

plt.figure(figsize=(6,4))

df["Position"].value_counts().plot(kind="bar")

plt.title("Player Distribution by Position")

plt.xlabel("Position")

plt.ylabel("Number of Players")

plt.tight_layout()

plt.show()
```

Output:

```
Top 5 Players by Goals:
        Name   Age     Position  Goals  Salary
3     Mbappe    24      Forward     30  600000
0    Ronaldo    38      Forward     25  500000
1      Messi    36      Forward     22  450000
2     Neymar    31      Forward     18  420000
4     Modric    37   Midfielder      5  350000

Top 5 Players by Salary:
        Name   Age     Position  Goals  Salary
3     Mbappe    24      Forward     30  600000
0    Ronaldo    38      Forward     25  500000
1      Messi    36      Forward     22  450000
2     Neymar    31      Forward     18  420000
4     Modric    37   Midfielder      5  350000

Average Age of Players: 32.9

Players Above Average Age:
        Name   Age     Position  Goals  Salary
0    Ronaldo    38      Forward     25  500000
1      Messi    36      Forward     22  450000
4     Modric    37   Midfielder      5  350000
5      Kroos    34   Midfielder      4  300000
8      Ramos    36     Defender      4  300000
```

Player Distribution by Position