Name :- Aniket Ashok Mhase

PRN :- 202401050017

Roll No :- CC-06

Topic :- FIFA Dataset

Theory Activity No. 1

🧠 **Problem Statements and Solutions Using Numpy and Pandas :**

1. Find the average age of all players.

```
avg_overall = fifa['Overall'].mean()
print(avg_overall)
```

2. Find the player with the highest overall rating.

```
best_potential_player =
fifa.loc[fifa['Potential'].idxmax(),
'Name']
print(best_potential_player)
```

3. List all players from Brazil.

```
brazil_players =
fifa[fifa['Nationality'] == 'Brazil']
print(brazil_players[['Name', 'Club']])
```

4. Find the club with the maximum number of players.

```
top_club =
fifa['Club'].value_counts().idxmax()
print(top_club)
```

5. Calculate the median age of all players.

```
median_age = fifa['Age'].median()
print(median_age)
```

6. Identify players who are younger than 20 and have an overall rating above 80.

```
young_stars = fifa[(fifa['Age'] < 20) &
(fifa['Overall'] > 80)]
print(young_stars[['Name', 'Age',
'Overall']])
```

7. Find out how many players are valued above €100M.

```
fifa['Value_num'] =
fifa['Value'].replace('[\€M,K]', '',
regex=True).astype(float)
rich_players_count = (fifa['Value_num']
> 100).sum()
print(rich_players_count)
```

8. Determine the most common position played.

```
common_position =
fifa['Position'].mode()[0]
print(common_position)
```

9. Find the nationality with the highest number of players.

```
top_nationality =
fifa['Nationality'].value_counts().idxma
x()
print(top_nationality)
```

10. Find the correlation between 'Overall' and 'Potential'.

```
correlation =
fifa['Overall'].corr(fifa['Potential'])
print(correlation)
```

11. Identify players who are free agents (no club).

```
free_agents = fifa[fifa['Club'].isna()]
print(free_agents[['Name',
'Nationality']])
```

12. Calculate the standard deviation of player ages.

```
std_age = fifa['Age'].std()
print(std_age)
```

13. Find the top 5 players with the highest wage.

```
top5_wages = fifa[['Name',
'Wage']].sort_values(by='Wage',
ascending=False).head(5)
print(top5_wages)
```

14. Identify how many goalkeepers (Position = 'GK') are there.

```
gk_count = (fifa['Position'] ==
'GK').sum()
print(gk_count)
```

15. Find players who have a release clause (if available) over €150M.

```
fifa['ReleaseClause_num'] =
fifa['Release Clause'].replace('[\
€M,K]', '', regex=True).astype(float)
high_release_players =
fifa[fifa['ReleaseClause_num'] > 150]
print(high_release_players[['Name',
'Release Clause']])
```

16. Group players by Club and find average 'Overall' rating per club.

```
club_avg_overall = fifa.groupby('Club')
['Overall'].mean().sort_values(ascending
=False)
print(club_avg_overall)
```

17. Find the nationality with the highest average player value.

```
nationality_value =
fifa.groupby('Nationality')
['Value_num'].mean().sort_values(ascendi
ng=False)
print(nationality_value.head(1))
```

18. Identify players who have a 'Sprint Speed' above 90.

```
fast_players = fifa[fifa['SprintSpeed']
> 90]
print(fast_players[['Name',
'SprintSpeed']])
```

19. Determine the average wage of players under 25 years old.

```
under25_avg_wage = fifa[fifa['Age'] <
25]['Wage'].mean()
print(under25_avg_wage)
```

20. Find the total market value of all players from 'Argentina'.

```
argentina_value =
fifa[fifa['Nationality'] == 'Argentina']
['Value_num'].sum()
print(argentina_value)
```