

# PyTech Titans



## **Team members:**

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# Player Performance Analysis

Performance Analysis is a specialized discipline that provides athletes and coaches with objective information that helps them understand performance. This process is underpinned by systematic observation, which provides valid, reliable and detailed information relating to performance.

## To Analyze a Player Performance:

- 1. Define Metrics:** Determine which metrics are most important for evaluating player performance in the specific sport or activity.
- 2. Collect Data:** Gather relevant data on each player's performance.
- 3. Statistical Analysis:** Apply statistical methods to analyze the data collected.

# Problem Statement

- Analyze player performance data to identify key factors that contribute to individual and team success.
- By using Python, we aim to uncover patterns, trends, and predictive insights that can guide player development, team strategies, and performance optimization.

# Objective

- To analyze player performance data using Python
- To gain insights into the factors that contribute to successful performance
- To identify top-performing players based on statistical analysis.
- To provide data-driven insights that can help improve team performance and player development strategies.

# Algorithm

1. Create class Player and define functions to update the player stats, batting average, bowling average, and to display the player's stats.
2. Create another class Team and define functions to add players, update player details, delete player, and display players.
3. Create object team and calling class Team
4. Asking the user to add, update , delete, display or exit the input.



# Implementing CRUD Operations

- **Create:** Allow users to add new players to the system, with options to specify their details and attributes.
- **Read:** Provide methods to retrieve player information, such as their statistics, performance metrics, and biographical data.
- **Update:** Enable users to modify player data, such as updating their stats or changing their team affiliation
- **Delete:** Allows user to delete player's information.

# Output

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 1
Enter player's name: KL Rahul
Enter matches played: 50
Enter runs scored: 880
Enter wickets taken: 0
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 1
Enter player's name: Virat Kohli
Enter matches played: 60
Enter runs scored: 900
Enter wickets taken: 5
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 4
KL Rahul | Matches: 50, Runs: 880, Wickets: 0
Batting Avg: 17.60, Bowling Avg: inf
```

```
Virat Kohli | Matches: 60, Runs: 900, Wickets: 5
Batting Avg: 15.00, Bowling Avg: 12.00
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 2
Enter player's name to update: KL Rahul
Enter new matches (leave blank to keep current):
Enter new runs (leave blank to keep current):
Enter new wickets (leave blank to keep current): 3
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 4
KL Rahul | Matches: 50, Runs: 880, Wickets: 3
Batting Avg: 17.60, Bowling Avg: 16.67
```

```
Virat Kohli | Matches: 60, Runs: 900, Wickets: 5
Batting Avg: 15.00, Bowling Avg: 12.00
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 3
Enter player's name to delete: Virat Kohli
Player Virat Kohli deleted.
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 4
KL Rahul | Matches: 50, Runs: 880, Wickets: 3
Batting Avg: 17.60, Bowling Avg: 16.67
```

```
1. Add Player
2. Update Player
3. Delete Player
4. Display Players
5. Exit
Choose an option: 5
```

# Conclusion

- This project effectively analyzed player performance data without the use of external libraries or modules, relying on core Python functionalities.
- Through custom-built functions and manual data manipulation, we explored key performance metrics such as batting and bowling average.
- Future work could involve incorporating Python libraries such as Pandas or Matplotlib to automate and enhance the analysis, enabling more efficient handling of larger datasets and deeper insights.



# Future Enhancement

## **AI-Based Predictive Modeling:**

- Implement machine learning algorithms to predict future player performance trends, injury risks, or player fatigue based on historical data and real-time match conditions.
- Helps coaches make proactive decisions regarding player rotation, rest periods, and strategic planning for future matches.

## **Incorporation of Wearable Technology Data:**

- Integrate data from wearable devices (e.g., GPS trackers, heart rate monitors) that provide real-time information on player movements, speed, stamina, and recovery.

A stylized illustration of a cricket player in a batting stance on a field. The player is depicted in a reddish-brown silhouette, wearing a helmet and holding a bat. The background features a bright, hazy sky with a large white cloud, and a green field with a white boundary line. A small, dark, trapezoidal object is visible on the right side of the field. The text "Thank you" is centered in the middle of the image in a bold, black, serif font.

**Thank you**