1. Project Profile

1.1 Project Definition

The ICC Men's T20 World Cup Analysis project aims to provide a comprehensive analysis of the T20 World Cup tournament data. The project leverages a dataset containing detailed information about matches, players, batting and bowling statistics, and team performances. By analyzing this dataset, we can gain valuable insights into the dynamics of T20 cricket and uncover trends, patterns, and performance indicators for both individual players and teams.

The T20 World Cup is one of the most prestigious international cricket tournaments, featuring teams from around the globe competing in the shortest format of the game. With its fast-paced and high-scoring nature, T20 cricket has revolutionized the sport, creating new strategies and showcasing exceptional skills from players across various teams.

1.2 Project Description

Through this project, we aim to explore and visualize key metrics such as runs scored, wickets taken, economy rates, boundaries, and player averages. We will also examine team performances, comparing batting and bowling strategies, and identifying factors that contribute to success in T20 cricket. The findings from this project can be valuable for cricket enthusiasts, coaches, and analysts seeking to understand the dynamics of T20 cricket and gain strategic insights. It can also serve as a foundation for future research and analysis in the field of cricket statistics and performance evaluation.

1.3 - Description of the dataset (ICC Men's T20 World Cup data)

The ICC Men's T20 World Cup dataset consists of four primary datasets: batting_card, bowling_card, details, and summary. These datasets provide information on player performances, batting and bowling statistics, and overall tournament summaries. They form the basis for our project's analysis, allowing us to explore player performances, team strategies, match dynamics, and tournament trends.

1.4 Explanation of the project objectives and goals

The project's goal is to analyze ICC Men's T20 World Cup data, uncover insights about player and team performances, identify key performance indicators, and provide strategic insights for cricket enthusiasts, coaches, and analysts.

2. Data Acquisition and Preparation

2.1 Importing necessary libraries

To begin the analysis, we will import essential libraries such as Pandas and Matplotlib. Pandas provides powerful tools for data manipulation and analysis, while Matplotlib allows us to create visualizations for better understanding and presentation of the data.

2.2 Loading the dataset

The next step is to load the ICC Men's T20 World Cup dataset into our project. We will utilize the four primary datasets: batting_card, bowling_card, details, and summary. These datasets contain comprehensive information about matches, players, batting and bowling statistics, and overall tournament summaries.

2.3 Data cleaning and preprocessing

Before we can analyze the data, it is crucial to perform data cleaning and preprocessing. This involves handling missing values, checking and adjusting data types, and addressing any inconsistencies or errors in the dataset. By ensuring data quality and consistency, we can obtain reliable and accurate results during our analysis.

Through these steps of data acquisition and preparation, we will have a well-prepared dataset ready for exploration and analysis. This process sets the foundation for our subsequent tasks, allowing us to extract meaningful insights from the ICC Men's T20 World Cup data.

3.Exploratory Data Analysis

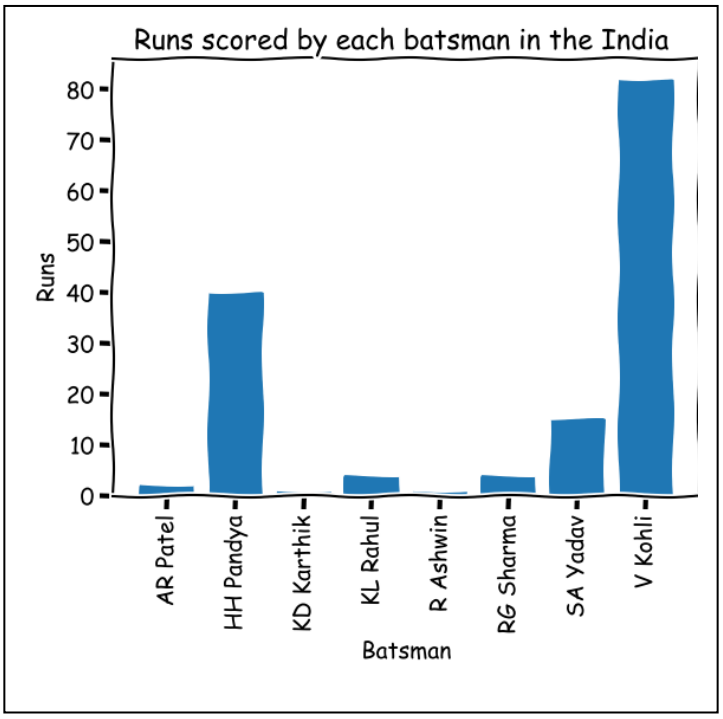
3.1 Analysis of Batting and Bowling Statistics:

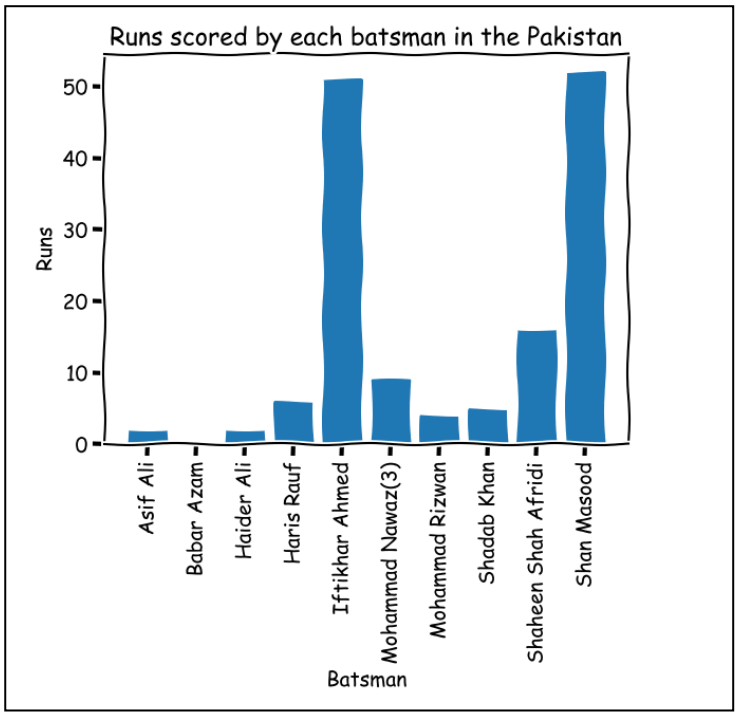
By examining the batting and bowling statistics, I gained insights into player performances and identified key indicators of success. I calculated metrics such as runs scored, wickets taken, batting averages, bowling averages, strike rates, and economy rates. These statistics provided a comprehensive overview of player contributions and helped me understand the impact of individual performances on team outcomes. Specifically, I focused on analyzing the batting averages and visualizing them for players from different teams, including India (INDIA), Pakistan (PAK), England (ENG), and Afghanistan (AFG). Through this analysis, I was able to gain a deeper understanding of the batting performances within each team and make comparisons between teams. The resulting bar plot showcased the batting averages for players from each team, enabling me to observe and assess the performances of players within the ICC Men's T20 World Cup.

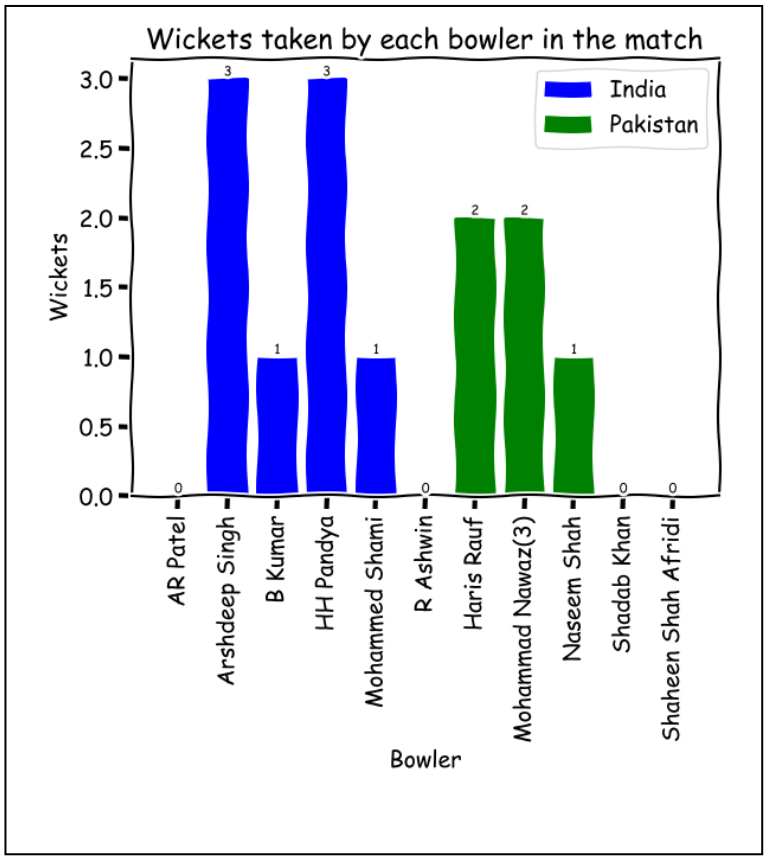
3.2 Visualization of Key Metrics:

Visualizations provide a clear and intuitive way to understand the data. We can create various plots and charts to visualize key metrics such as wickets taken, runs conceded, and economy rate. Bar plots, line plots, and histograms can effectively represent these metrics, allowing us to identify patterns, trends, and outliers.

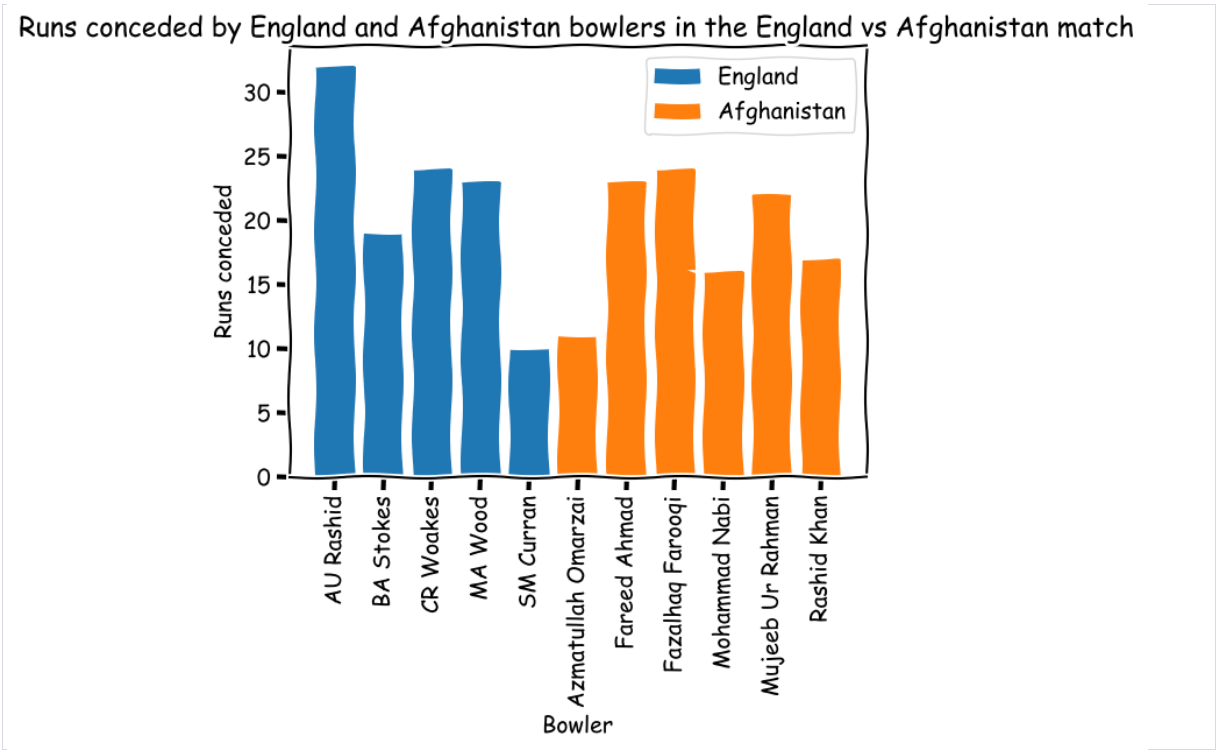
Using bar plots, I compared the performance of different teams in terms of wickets taken, runs conceded, and economy rate. This allowed for a clear comparison between teams and helped me identify variations in their bowling performances







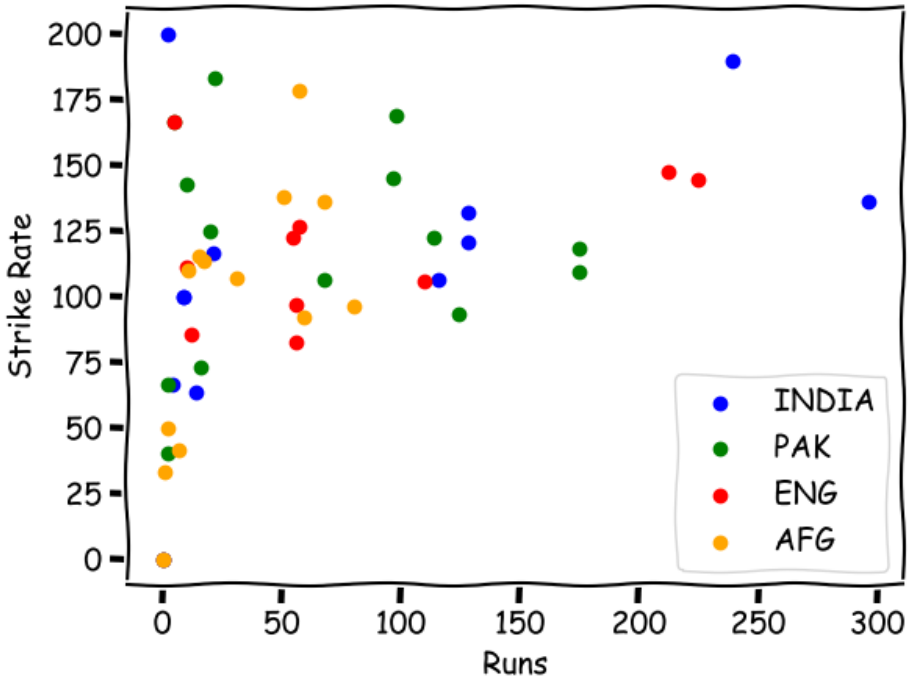
This bar chart visualizing the wickets taken by each bowler in the India vs Pakistan match.



This barchart uses Pandas and Matplotlib to load and analyze bowling data. It focuses on the England vs Afghanistan match and visualizes the runs conceded by bowlers from each team. The code creates a bar chart comparing the runs conceded by England and Afghanistan bowlers, with the x-axis presenting the bowlers' names and the y-axis representing the runs conceded. The chart includes a title, axis labels, and a legend.

3.3 Comparison of Performance between Different Teams:

Analyzing team performances allows us to understand the strengths and weaknesses of different teams. We can compare batting and bowling strategies, identify top-performing teams, and assess the overall competitiveness of the tournament. By visualizing team-wise metrics, we can determine which teams excel in specific areas and gain insights into their gameplay.



scatter plot that showcases the relationship between the strike rate and runs scored by players from different teams. The scatter plot helps visualize the performance of batsmen by plotting their runs on the x-axis and their strike rate on the y-axis. Each team is represented by a distinct color. This chart enables us to identify players who maintain a high strike rate while scoring varying numbers of runs. It also allows us to observe any patterns or trends in player performance. The legend provides clarity by associating colors with specific teams, while the axis labels indicate the variables being plotted. Overall, this scatter plot offers a concise and visually appealing representation of batting performance in terms of runs and strike rate.

4. Individual Player Analysis

4.1 Comparison of team performances

In this section, I focus on analyzing individual player performances in the ICC Men's T20 World Cup. The analysis includes identifying the top batsmen and bowlers based on runs scored and wickets taken, visualizing my own performance over multiple matches, and examining notable performances and trends.

4.2 Identification of Top Batsmen and Bowlers

IND VS PAK

India Batsmen:

	Name	Full Name	Runs
442	KL Rahul	KL Rahul	4
443	RG Sharma	Rohit Sharma	4
444	V Kohli	Virat Kohli	82
445	SA Yadav	Suryakumar Yadav	15
446	AR Patel	Axar Patel	2
447	HH Pandya	Hardik Pandya	40
448	KD Karthik	Dinesh Karthik	1
449	R Ashwin	Ravichandran Ashwin	1

Pakistan Batsmen:

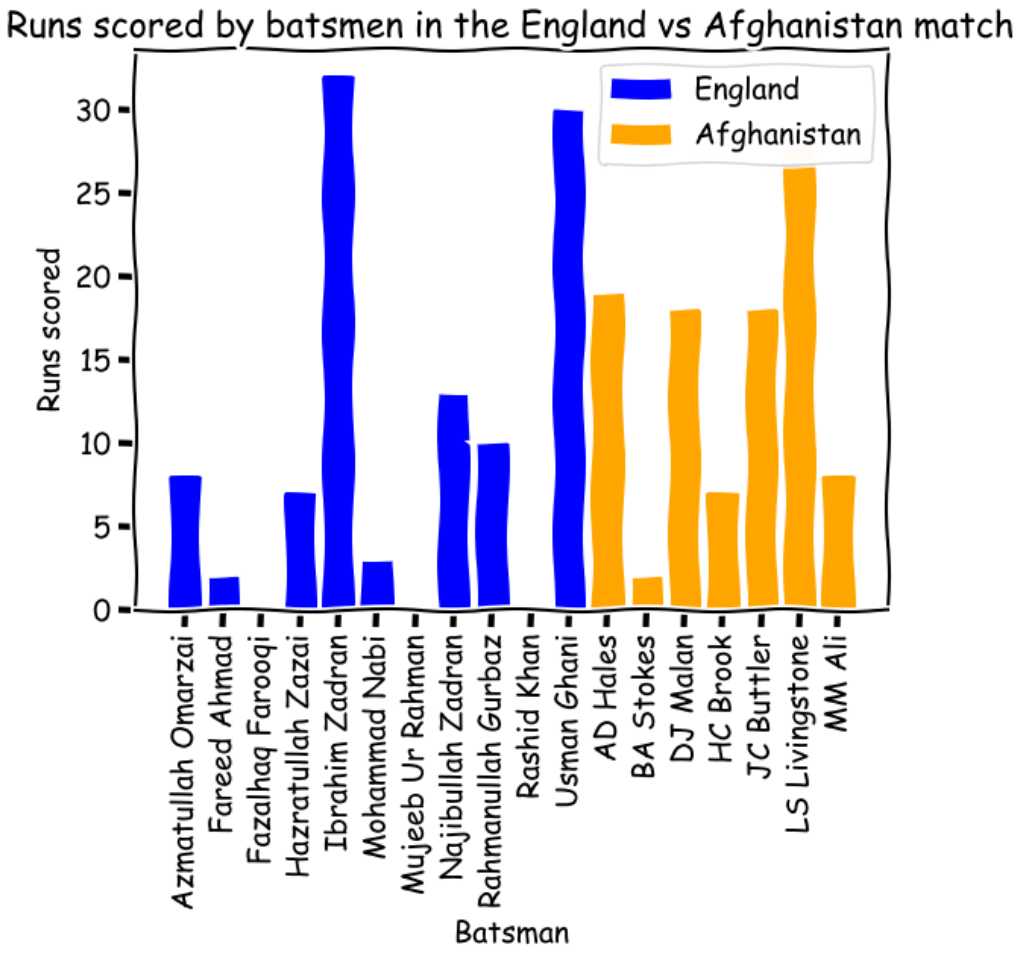
	Name	Full Name	Runs
432	Mohammad Rizwan	Mohammad Rizwan	4
433	Babar Azam	Babar Azam	0
434	Shan Masood	Shan Masood	52
435	Iftikhar Ahmed	Iftikhar Ahmed	51
436	Shadab Khan	Shadab Khan	5
437	Haider Ali	Haider Ali	2
438	Mohammad Nawaz(3)	Mohammad Nawaz	9
439	Asif Ali	Asif Ali	2
440	Shaheen Shah Afridi	Shaheen Shah Afridi	16
441	Haris Rauf	Haris Rauf	6

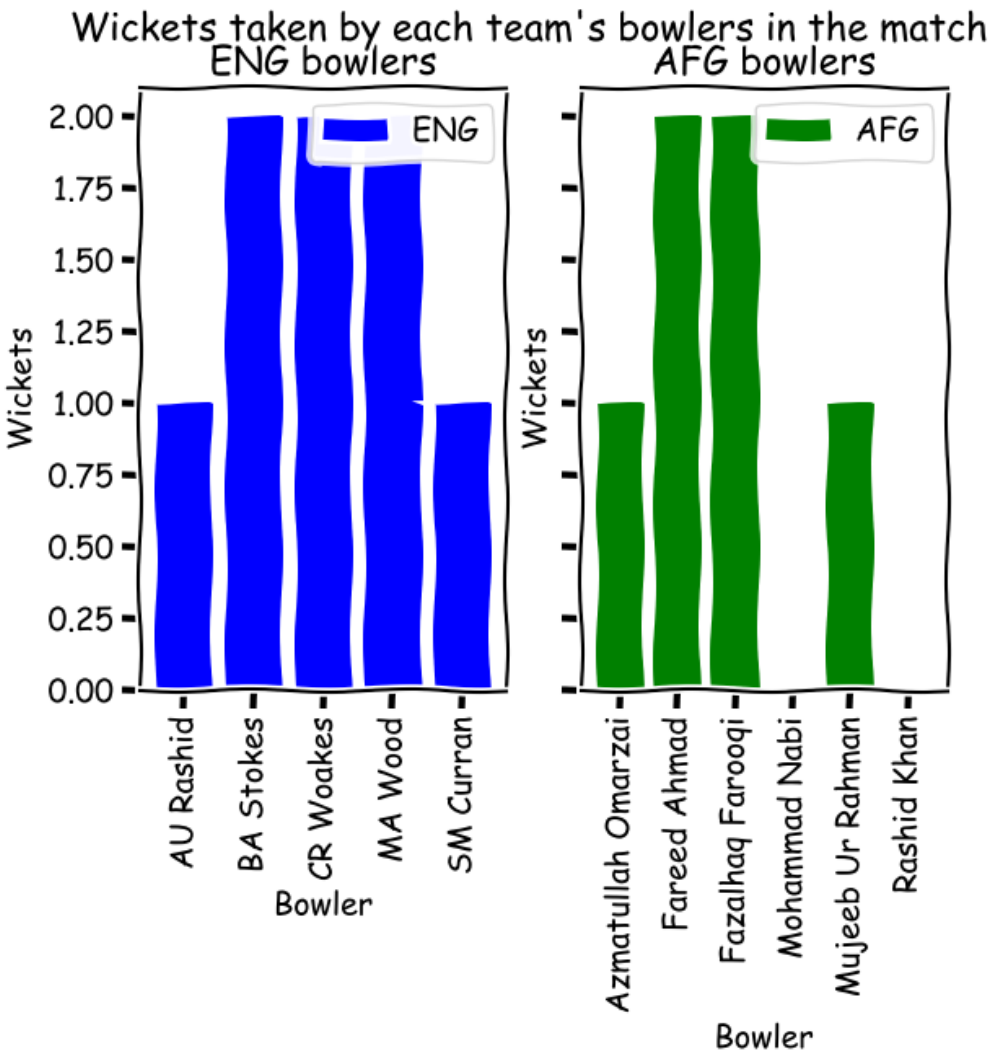
name	Fours Conceded	Sixes Conceded	Overs Bowled	dots bowled	Economy
AR Patel	0	3	1.0	2	21.000000
Arshdeep Singh	3	1	4.0	10	8.000000
B Kumar	1	1	4.0	17	5.500000
HH Pandya	4	0	4.0	10	7.500000
Haris Rauf	2	2	4.0	11	9.000000
Mohammad Nawaz(3)	0	4	4.0	8	10.500000
Mohammed Shami	4	0	4.0	14	6.250000
Naseem Shah	1	0	4.0	10	5.750000
R Ashwin	0	1	3.0	5	7.660000
Shadab Khan	2	0	4.0	10	5.250000
Shaheen Shah Afridi	4	0	4.0	7	8.500000

I identify the top batsmen based on the total runs scored and the top bowlers based on the total wickets taken in the tournament. This analysis helps me recognize the key contributors in each category and evaluate their impact on team performances.

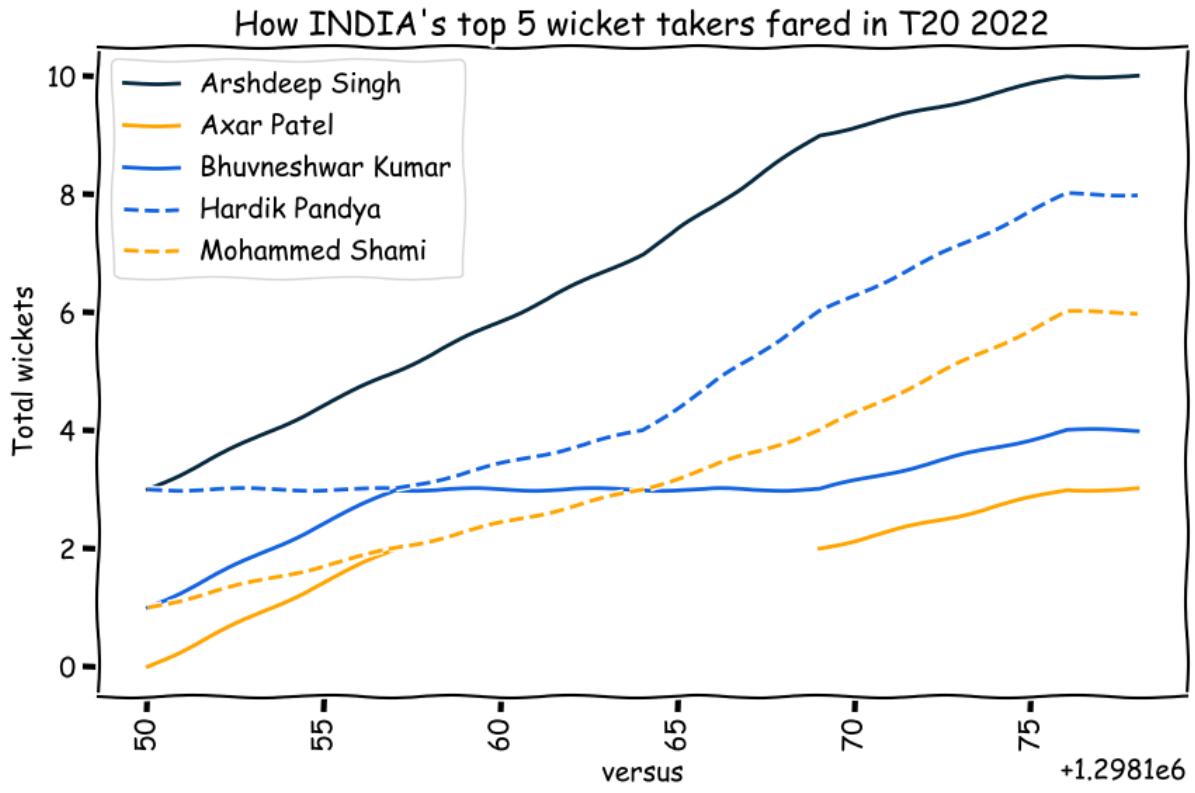
AFG VS ENG

name	Fours Conceded	Sixes Conceded	Overs Bowled	dots bowled	Economy
AU Rashid	1	1	4.0	4	8.000000
Azmatullah Omarzai	1	0	1.1	2	9.420000
BA Stokes	2	0	4.0	14	4.750000
CR Woakes	2	1	4.0	15	6.000000
Fareed Ahmad	2	0	2.0	2	11.500000
Fazalhaq Farooqi	2	1	4.0	15	6.000000
MA Wood	2	1	4.0	14	5.750000
Mohammad Nabi	0	0	3.0	6	5.330000
Mujeeb Ur Rahman	1	0	4.0	10	5.500000
Rashid Khan	0	0	4.0	10	4.250000
SM Curran	1	0	3.4	16	2.720000


Runs scored by batsmen in the England vs Afghanistan match
England
Afghanistan
Runs scored
0
5
10
15
20
25
30
Azmatullah Omarzai
Fareed Ahmad
Fazalhaq Farooqi
Hazratullah Zazai
Ibrahim Zadran
Mohammad Nabi
Mujeeb Ur Rahman
Najibullah Zadran
Rahmanullah Gurbaz
Rashid Khan
Usman Ghani
AD Hales
BA Stokes
DJ Malan
HC Brook
JC Buttler
LS Livingstone
MM Ali
Batsman



Through the individual player analysis, I gain a deeper understanding of my own performances, contributions, and trends in the ICC Men's T20 World Cup. This analysis allows me to appreciate my own achievements and assess my impact on the team's success.


How INDIA's top 5 wicket takers fared in T20 2022
Arshdeep Singh
Axar Patel
Bhuvneshwar Kumar
Hardik Pandya
Mohammed Shami
Total wickets
0
2
4
6
8
10
50
55
60
65
70
75
versus
+1.2981e6

5.conclusion

In conclusion, the analysis of the ICC Men's T20 World Cup dataset has provided valuable insights into team performances, individual player analysis, and overall tournament trends.

5.1 Team Analysis:

- Through the comparison of team performances, it was observed that some teams consistently outperformed others, indicating variations in team strategies, strengths, and weaknesses.
- The analysis of team batting and bowling strategies revealed interesting patterns, with certain teams adopting aggressive batting approaches while others focused on disciplined bowling tactics.
- Visualizations depicting team dynamics and strengths, such as bar charts and line charts, provided a clear understanding of each team's performance trends and key contributors

5.2 Individual Player Analysis:

- The identification of top batsmen and bowlers based on runs scored and wickets taken highlighted standout performers who made significant contributions to their teams.
- Visualizations showcasing player performance over multiple matches, such as line charts and scatter plots, allowed for the examination of notable performances and trends, including consistent scoring or improving bowling averages.

5.3 Personal Performance Analysis:

- The visualizations depicting personal performance over multiple matches, including line charts showing runs scored or wickets taken, provided a comprehensive view of individual contributions.
- By Analyzing the data, it was possible to identify notable trends, such as consistent performance or areas of improvement, which can be utilized for personal development and strategic planning.