



Data Analytics Project

T20-Cricket_Team- Analysis

Problem Statement

In This project we created a Power BI Dashboard which helps to review and compare performances of all the players in T20 Men's Cricket World Cup tournament. This dashboard also enables us to select the best 11 of the tournament based on their performance based on defined selection criteria which is included as a part of problem statement.



Data Transformation

Performed initial data cleaning after scrapping data such as player name correction, handle missing value, match id linking etc. using Pandas. Transformed the final data for dashboard using Power Query of Power BI.

```
T20 World Cup Cricket Data Pre Processing

In [2]: #import necessary libraries
import pandas as pd
import json

(1) Process Match Results

In [3]: with open('C:/Users/HP/Desktop/t20_wc_match_results.json') as f:
        data = json.load(f)

        df_match = pd.DataFrame(data[0]['matchSummary'])
        df_match.head()

Out[3]:
```

	team1	team2	winner	margin	ground	matchDate	scorecard
0	Namibia	Sri Lanka	Namibia	55 runs	Geelong	Oct 16, 2022	T20I # 1823
1	Netherlands	U.A.E.	Netherlands	3 wickets	Geelong	Oct 16, 2022	T20I # 1825
2	Scotland	West Indies	Scotland	42 runs	Hobart	Oct 17, 2022	T20I # 1826
3	Ireland	Zimbabwe	Zimbabwe	31 runs	Hobart	Oct 17, 2022	T20I # 1828
4	Namibia	Netherlands	Netherlands	5 wickets	Geelong	Oct 18, 2022	T20I # 1830

```
In [4]: df_match.shape
```

Data cleaning/transformation in Power Query

1 Match = dim_match_summary[T1 CODE] & " vs " & dim_match_summary[T2 CODE]

match_id	T2 CODE	team1	team2	winner	margin	ground	matchDate	T1 CODE	Match	stage
T20I # 1823	SL	Namibia	Sri Lanka	Namibia	55 runs	Geelong	Sunday, October 16, 2022	NMB	NMB vs SL	Qualifier
T20I # 1825	UAE	Netherlands	U.A.E.	Netherlands	3 wickets	Geelong	Sunday, October 16, 2022	NT	NT vs UAE	Qualifier
T20I # 1826	WI	Scotland	West Indies	Scotland	42 runs	Hobart	Monday, October 17, 2022	SCT	SCT vs WI	Qualifier
T20I # 1828	ZIM	Ireland	Zimbabwe	Zimbabwe	31 runs	Hobart	Monday, October 17, 2022	IRE	IRE vs ZIM	Qualifier
T20I # 1830	NT	Namibia	Netherlands	Netherlands	5 wickets	Geelong	Tuesday, October 18, 2022	NMB	NMB vs NT	Qualifier
T20I # 1832	UAE	Sri Lanka	U.A.E.	Sri Lanka	79 runs	Geelong	Tuesday, October 18, 2022	SL	SL vs UAE	Qualifier
T20I # 1833	SCT	Ireland	Scotland	Ireland	6 wickets	Hobart	Wednesday, October 19, 2022	IRE	IRE vs SCT	Qualifier
T20I # 1834	ZIM	West Indies	Zimbabwe	West Indies	31 runs	Hobart	Wednesday, October 19, 2022	WI	WI vs ZIM	Qualifier
T20I # 1835	SL	Netherlands	Sri Lanka	Sri Lanka	16 runs	Geelong	Thursday, October 20, 2022	NT	NT vs SL	Qualifier
T20I # 1836	UAE	Namibia	U.A.E.	U.A.E.	7 runs	Geelong	Thursday, October 20, 2022	NMB	NMB vs UAE	Qualifier
T20I # 1837	WI	Ireland	West Indies	Ireland	9 wickets	Hobart	Friday, October 21, 2022	IRE	IRE vs WI	Qualifier
T20I # 1838	ZIM	Scotland	Zimbabwe	Zimbabwe	5 wickets	Hobart	Friday, October 21, 2022	SCT	SCT vs ZIM	Qualifier
T20I # 1839	NZ	Australia	New Zealand	New Zealand	89 runs	Sydney	Saturday, October 22, 2022	AUS	AUS vs NZ	Super 12
T20I # 1840	ENG	Afghanistan	England	England	5 wickets	Perth	Saturday, October 22, 2022	AFG	AFG vs ENG	Super 12
T20I # 1841	SL	Ireland	Sri Lanka	Sri Lanka	9 wickets	Hobart	Sunday, October 23, 2022	IRE	IRE vs SL	Super 12
T20I # 1842	PAK	India	Pakistan	India	4 wickets	Melbourne	Sunday, October 23, 2022	IND	IND vs PAK	Super 12
T20I # 1843	NT	Bangladesh	Netherlands	Bangladesh	9 runs	Hobart	Monday, October 24, 2022	BAN	BAN vs NT	Super 12
T20I # 1844	ZIM	South Africa	Zimbabwe	no result		Hobart	Monday, October 24, 2022	SAF	SAF vs ZIM	Super 12
T20I # 1845	SL	Australia	Sri Lanka	Australia	7 wickets	Perth	Tuesday, October 25, 2022	AUS	AUS vs SL	Super 12
T20I # 1846	IRE	England	Ireland	Ireland	5 runs	Melbourne	Wednesday, October 26, 2022	ENG	ENG vs IRE	Super 12
T20I # 1846a	NZ	Afghanistan	New Zealand	abandoned		Melbourne	Wednesday, October 26, 2022	AFG	AFG vs NZ	Super 12

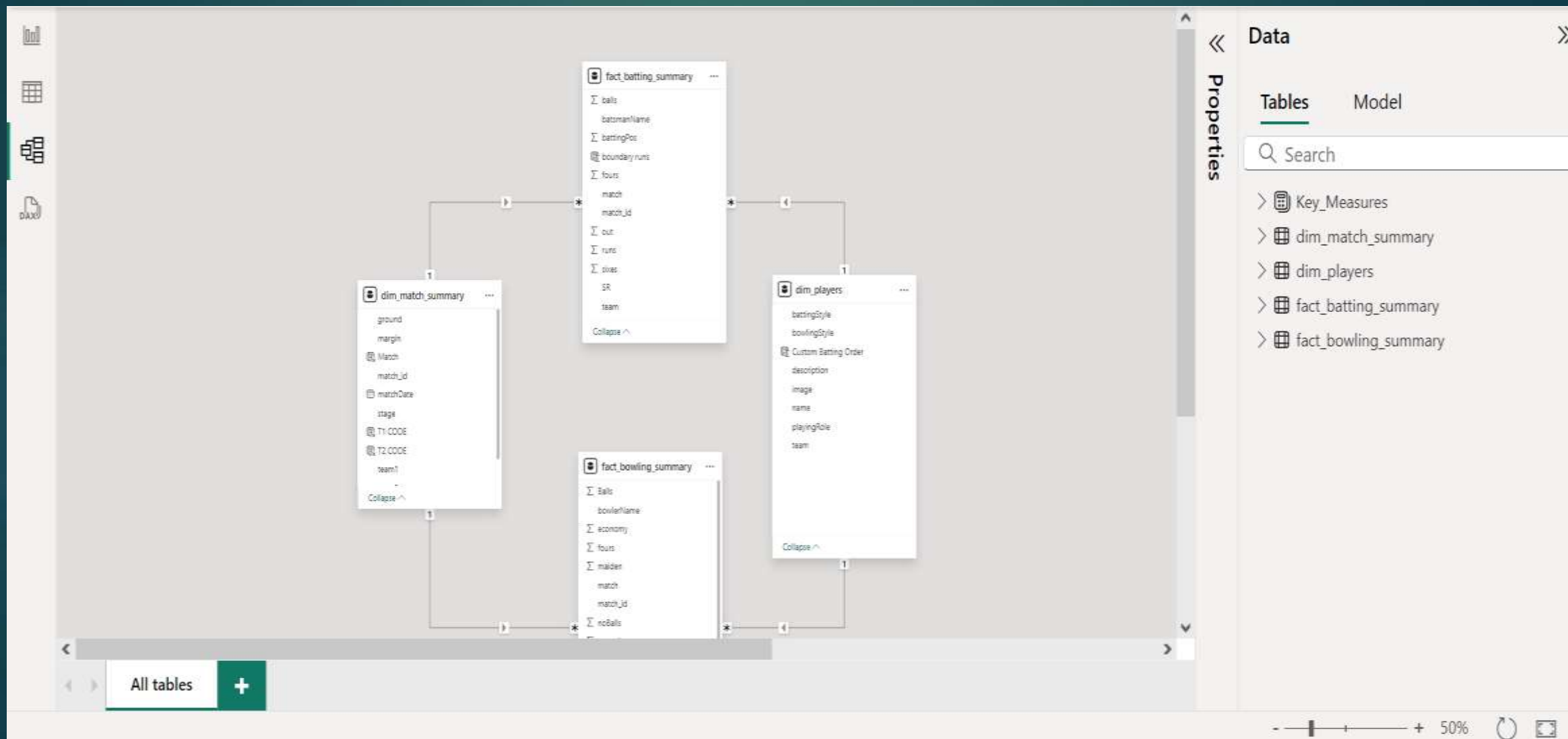
Table: dim_match_summary (45 rows) Column: Match (45 distinct values)

Data

Search

- Key_Measures
- dim_match_summary
 - ground
 - margin
 - Match
 - match_id
- matchDate
 - stage
- T1 CODE
- T2 CODE
 - team1
 - team2
 - winner
- dim_players
- fact_batting_summary
- fact_bowling_summary

Data modelling in Power Pivot



Solution approach

- ▶ A few measures were created to calculate the KPIs as shown below:
- ▶ Total Runs = `SUM(fact_batting_summary[runs])`
- ▶ Total Innings Batted = `COUNT(fact_batting_summary[match_id])`
- ▶ Batting Avg = `DIVIDE([Total Runs],[Total Innings Dismissed],0)`
- ▶ Total balls faced = `SUM(fact_batting_summary[balls])`
- ▶ Strike rate = `DIVIDE([Total Runs],[total balls faced],0)*100`
- ▶ Batting Position = `ROUNDUP(AVERAGE(fact_batting_summary[batting_pos]),0)`
- ▶ Boundary % = `DIVIDE(SUM(fact_batting_summary[Boundary runs]),[Total Runs],0)`
- ▶ Avg. balls faced = `AVERAGE(fact_batting_summary[balls])`
- ▶ Wickets = `SUM(fact_bowling_summary[wickets])`
- ▶ Balls Bowled = `SUM(fact_bowling_summary[balls])`

Solution approach

- ▶ A few measures were created to measure the KPIs as shown below:
- ▶ $\text{Runs Conceded} = \text{SUM}(\text{fact_bowling_summary}[\text{runs}])$
- ▶ $\text{Economy} = \text{DIVIDE}(\text{[Runs Conceded]}, ([\text{balls Bowled}]/6), 0)$
- ▶ $\text{Bowling Strike Rate} = \text{DIVIDE}([\text{balls Bowled}], [\text{wickets}], 0)$
- ▶ $\text{Bowling Average} = \text{DIVIDE}([\text{Runs Conceded}], [\text{wickets}], 0)$
- ▶ $\text{Total Innings Bowled} = \text{DISTINCTCOUNT}(\text{fact_bowling_summary}[\text{match_id}])$
- ▶ $\text{Dot ball \%} = \text{DIVIDE}(\text{SUM}(\text{fact_bowling_summary}[\text{zeros}]), \text{SUM}(\text{fact_bowling_summary}[\text{balls}]), 0)$
- ▶ $\text{Player Selection} = \text{if}(\text{ISFILTERED}(\text{dim_player}[\text{name}]), "1", "0")$

DAX formula

- ▶ $\text{boundary runs} = \text{fact_batting_summary}[\text{fours}] * 4 + \text{fact_batting_summary}[\text{sixes}] * 6$
- ▶ $\text{Boundary runs} = \text{fact_bowling_summary}[\text{fours}] * 4 + \text{fact_bowling_summary}[\text{Sixes}] * 6$

Dashboard Openers



Dashboard Middle Order

Player Analysis

Final 11



Power Hitters

Anchors

Finishers

All Rounders

Specialist Fast Bowlers



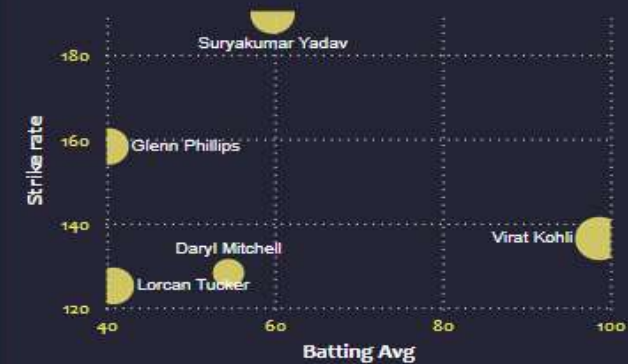
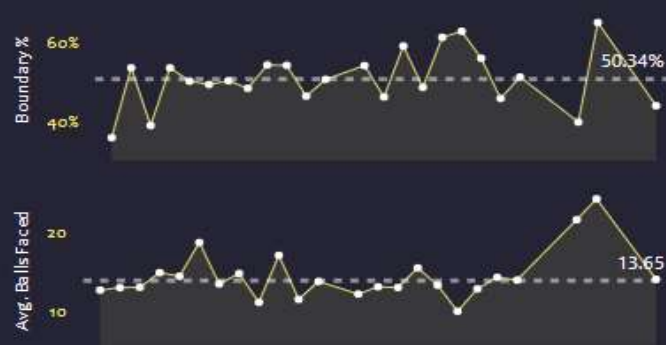
Anchors / Middle Order

Qualifier

Super 12

Select Player(s) by clicking the player's name to see their individual or combined strength.

Name	Team	battingStyle	Innings Batted	Runs	Balls faced	Strike rate	Batting Average	Batting Position	Boundary %
Virat Kohli	India	Right hand Bat	6	296	217	136.41	98.67	3	50.00%
Suryakumar Yadav	India	Right hand Bat	6	239	126	189.68	59.75	4	66.11%
Lorcan Tucker	Ireland	Right hand Bat	7	204	163	125.15	40.80	3	49.02%
Glenn Phillips	New Zealand	Right hand Bat	5	201	127	158.27	40.20	4	61.69%
Daryl Mitchell	New Zealand	Right hand Bat	4	109	85	128.24	54.50	6	23.85%



Dashboard Finishers



Player Analysis

Final 11

Power Hitters

Anchors

Finishers

All Rounders

Specialist Fast Bowlers



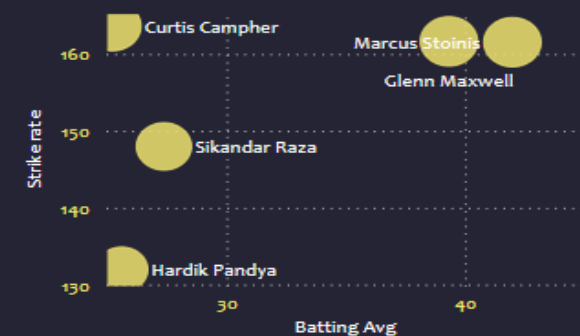
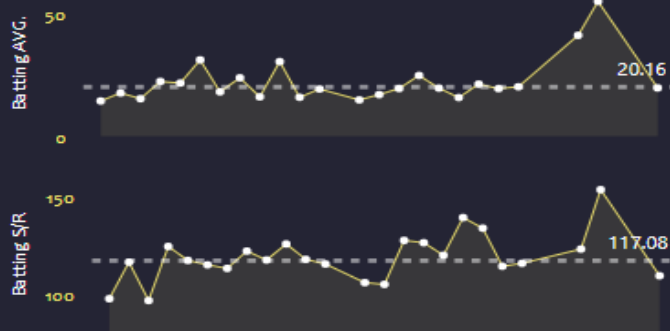
Finisher / Lower Order Anchor

Qualifier

Super 12

Select Player(s) by clicking the player's name to see their individual or combined strength.

Name	Team	Batting Style	Bowling Style	Innings Batted	Runs	Avg. Balls Faced	Batting Avg	Strike rate	Innings Bowled	Wickets	Economy	Bowling Strike Rate	Maidens
Curtis Campher	Ireland	Right hand Bat	Right arm Medium fast	6	126	12.83	25.20	163.64	4	2	9.25	24.00	0
Glenn Maxwell	Australia	Right hand Bat	Right arm Offbreak	4	118	18.25	39.33	161.64	2	3	6.00	6.33	0
Marcus Stoinis	Australia	Right hand Bat	Right arm Medium	4	126	19.50	42.00	161.54	4	1	9.67	54.00	0
Sikandar Raza	Zimbabwe	Right hand Bat	Right arm Offbreak	8	219	18.50	27.38	147.97	8	10	6.50	14.40	0
Hardik Pandya	India	Right hand Bat	Right arm Medium fast	5	128	19.40	25.60	131.96	6	8	8.11	13.50	0



Dashboard All Rounder

Player Analysis

Final 11



Power Hitters

Anchors

Finishers

All Rounders

Specialist Fast Bowlers



All Rounder / Lower Middle Order

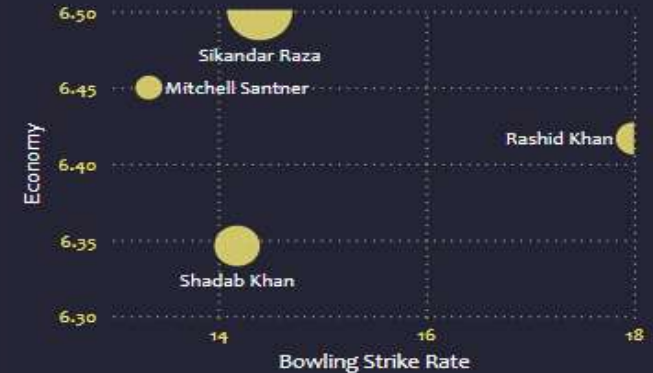
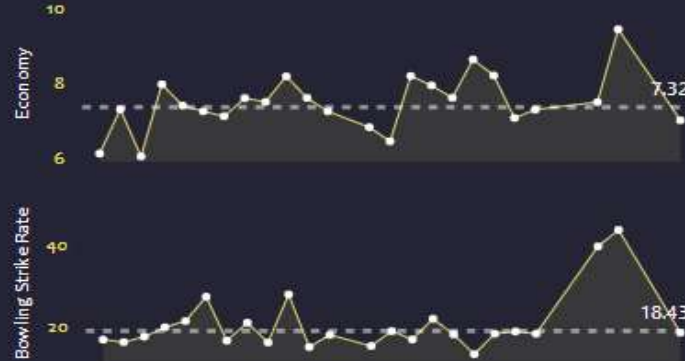
Qualifier

Super 12

Select Player(s) by clicking the player's name to see their individual or combined strength.



Name	Team	Batting Style	Bowling Style	Innings Batted	Runs	Batting Avg	Strike rate	Innings Bowled	Balls Bowled	Wickets	Economy	Bowling Strike Rate	Maidens
Rashid Khan	Afghanistan	Right hand Bat	Legbreak Googly	3	57	28.50	178.13	3	72	4	6.42	18.00	0
Shadab Khan	Pakistan	Right hand Bat	Legbreak	6	98	24.50	168.97	7	156	11	6.35	14.18	0
Mitchell Santner	New Zealand	Left hand Bat	Slow Left arm Orthodox	3	27	27.00	168.75	5	120	9	6.45	13.33	0
Sikandar Raza	Zimbabwe	Right hand Bat	Right arm Offbreak	8	219	27.38	147.97	8	144	10	6.50	14.40	0



Dashboard

Specialist Fast Bowlers



Dashboard

Final Best-11 Players

Player Analysis

Final 11

Select your Final 11

Search

☐ Aaron Finch
☐ Aayan Afzal Khan
☐ Adam Zampa
☐ Adil Rashid
☐ Afif Hossain
☐ Ahmed Raza
☐ Aiden Markram
☐ Akeal Hosein
☐ Alex Hales
☐ Alishan Sharafu
☐ Alzarri Joseph
☐ Andy Balbirnie
☒ Anrich Nortje
☐ Arshdeep Singh
☐ Aryan Lakra
☐ Ashton Agar
☐ Asif Ali

Player's Name	Image	Team	Batting Style	Playing Role	Bowling Style	Batting AVG.	Batting S/R	Economy	Bowling S/R	Bowling AVG.	Custom Batting Order
Jos Buttler		England	Right hand Bat	Wicketkeeper Batter		45.00	144.23				1
Rilee Rossouw		South Africa	Left hand Bat	Top order Batter	Right arm Offbreak	35.25	169.88				2
Virat Kohli		India	Right hand Bat	Top order Batter	Right arm Medium	98.67	136.41				3
Suryakumar Yadav		India	Right hand Bat	Batter	Right arm Medium, Right arm Offbreak	59.75	189.68				4
Glenn Phillips		New Zealand	Right hand Bat	Wicketkeeper Batter	Right arm Offbreak	40.20	158.27				5

Team Performance

39.60

Batting Avg

154.54

Strike rate

19.71

Average Balls Faced

14.12

Bowling Avg.

13.09

Bowling S/R

6.47

Economy

41.15%

Dot ball %

Conclusion

The outcome was a detailed dashboard that provided clear insights into players performances. It helped the decision makers in selecting the best team for T20 World Cup based on solid data analysis.

Thank you!