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Cricket World Cup Dataset

Find the total number of matches played.

```python
[1] import pandas as pd
    matches_df=pd.read_csv("/content/matches[1].csv")

[2] total_matches = len(matches_df)
    total_matches
```

```
48
```

Identify all unique teams that participated.

```python
teams = pd.unique(matches_df[['team1', 'team2']].values.ravel())
teams
```

```
array(['England', 'New Zealand', 'Pakistan', 'Netherlands', 'Afghanistan',
       'Bangladesh', 'South Africa', 'Sri Lanka', 'Australia', 'India'],
      dtype=object)
```

Find the number of unique cities where matches were hosted.

```python
unique_cities = matches_df['city'].nunique()
unique_cities
```

```
10
```

List all the venues where matches were played.

```
venues = matches_df['venue'].unique()
venues
```

```
array(['Narendra Modi Stadium', 'Rajiv Gandhi International Stadium',
       'Himachal Pradesh Cricket Association Stadium',
       ... aitley Stadium', 'MA Chidambaram Stadium',
       'Bharat Ratna Shri Atal Bihari Vajpayee Ekana Cricket Stadium',
       'Maharashtra Cricket Association Stadium', 'M Chinnaswamy Stadium',
       'Wankhede Stadium', 'Eden Gardens'], dtype=object)
```

Find the number of matches each team won.

```
matches_won = matches_df['winner'].value_counts()
matches_won
```

winner	count
India	10
Australia	9
South Africa	7
New Zealand	5
Pakistan	4
Afghanistan	4
England	3
Bangladesh	2
Netherlands	2
Sri Lanka	2

dtype: int64

Determine the most common toss decision (bat or field).

```
most_common_toss_decision = matches_df['toss_decision'].mode()[0]
most_common_toss_decision
```

```
'field'
```

Identify the player with the most 'Player of the Match' awards.

```
top_player = matches_df['player_of_match'].value_counts().idxmax()
top_player
```

'Mohammed Shami'

Find the match with the highest winning margin by runs.

```
max_win_runs = matches_df['winner_runs'].max()
match_max_run_win = matches_df[matches_df['winner_runs'] == max_win_runs]
match_max_run_win
```

	season	team1	team2	date	match_number	venue	city	toss_winner	toss_decision	player_of_match	umpire1	umpire2	reserve_umpire	match_referee	winner	winner_runs	winner_wickets	match_type	
23	2023/24	Australia	Netherlands	2023/10/25	24	Arun Jaitley Stadium	Delhi	Australia	bat	GJ Maxwell	MA Gough	Sharfuddoula	Nitin Menon	AJ Pycroft	Australia	309.0	NaN	Group	

Find the match with the highest winning margin by wickets.

```
max_win_wickets = matches_df['winner_wickets'].max()
match_max_wicket_win = matches_df[matches_df['winner_wickets'] == max_win_wickets]
match_max_wicket_win
```

	season	team1	team2	date	match_number	venue	city	toss_winner	toss_decision	player_of_match	umpire1	umpire2	reserve_umpire	match_referee	winner	winner_runs	winner_wickets	match_type	
0	2023/24	England	New Zealand	2023/10/05	1	Narendra Modi Stadium	Ahmedabad	New Zealand	field	R Ravindra	HDPK Dharmasena	Nitin Menon	Sharfuddoula	J Srinath	New Zealand	NaN	9.0	Group	

Count how many matches were decided by runs and how many by wickets.

```
runs_decided = matches_df['winner_runs'].notna().sum()
wickets_decided = matches_df['winner_wickets'].notna().sum()
runs_decided, wickets_decided
```

(np.int64(24), np.int64(24))

Find the city that hosted the most matches.

```
top_city = matches_df['city'].value_counts().idxmax()
top_city
```

'Ahmedabad'

Find how many times the toss winner also won the match.

```
toss_and_match_winner = (matches_df['toss_winner'] == matches_df['winner']).sum()
toss_and_match_winner
```

np.int64(19)

Identify the umpire who officiated the most matches.

```
umpires = pd.concat([matches_df['umpire1'], matches_df['umpire2']])
top_umpire = umpires.value_counts().idxmax()
top_umpire
```

'RK Illingworth'

Calculate the average winning margin by runs.

```
avg_win_runs = matches_df['winner_runs'].mean()
avg_win_runs
```

np.float64(125.91666666666667)
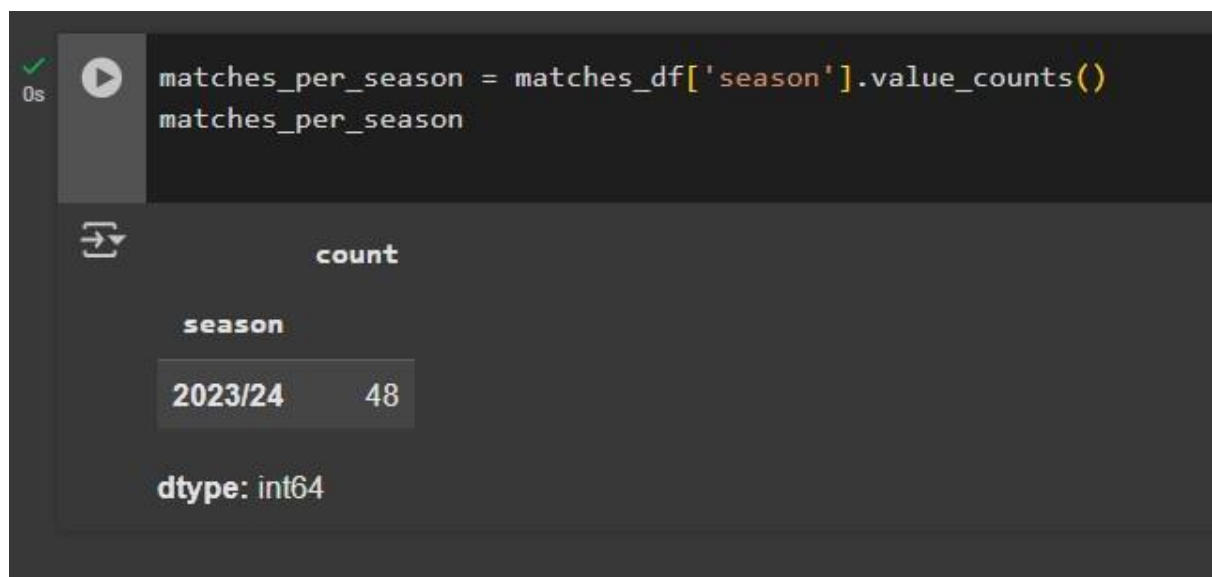
Calculate the average winning margin by wickets.

```
avg_win_wickets = matches_df['winner_wickets'].mean()
avg_win_wickets
```

np.float64(5.916666666666667)

List all matches where the toss winner chose to bat.

```python
bat_decision_matches = matches_df[matches_df['toss_decision'] == 'bat']
bat_decision_matches
```

	season	team1	team2	date	match_number	venue	city	toss_winner	toss_decision	player_of_match	umpire1	umpire2	reserve_umpire	match_referee	winner	winner_runs	winner_wickets	match_type
4	2023/24	Australia	India	2023/10/08	5	MA Chidambaram Stadium	Chennai	Australia	bat	KL Rahul	CB Gaffaney	RA Kettleborough	AT Holdstock	RB Richardson	India	NaN	6.0	Group
7	2023/24	Sri Lanka	Pakistan	2023/10/10	8	Rajiv Gandhi International Stadium	Hyderabad	Sri Lanka	bat	Mohammad Rizwan	AG Wharf	CB Gaffaney	RJ Tucker	AJ Pycroft	Pakistan	NaN	6.0	Group
8	2023/24	Afghanistan	India	2023/10/11	9	Arun Jaitley Stadium	Delhi	Afghanistan	bat	RG Sharma	MA Gough	PR Reiffel	Sharfuddoula	JJ Crowe	India	NaN	8.0	Group
13	2023/24	Sri Lanka	Australia	2023/10/16	14	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Sri Lanka	bat	A Zampa	CB Gaffaney	JS Wilson	NaN	RB Richardson	Australia	NaN	5.0	Group
16	2023/24	Bangladesh	India	2023/10/19	17	Maharashtra Cricket Association Stadium	Pune	Bangladesh	bat	V Kohli	AT Holdstock	RA Kettleborough	M Erasmus	AJ Pycroft	India	NaN	7.0	Group
18	2023/24	Netherlands	Sri Lanka	2023/10/21	19	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Netherlands	bat	S Samarawickrama	Ahsan Raza	M Erasmus	CB Gaffaney	JJ Crowe	Sri Lanka	NaN	5.0	Group
21	2023/24	Pakistan	Afghanistan	2023/10/23	22	MA Chidambaram Stadium	Chennai	Pakistan	bat	Ibrahim Zadran	PR Reiffel	RJ Tucker	HDPK Dharmasena	RB Richardson	Afghanistan	NaN	8.0	Group
22	2023/24	South Africa	Bangladesh	2023/10/24	23	Wankhede Stadium	Mumbai	South Africa	bat	Q de Kock	Ahsan Raza	JS Wilson	KN Ananthapadmanabhan	JJ Crowe	South Africa	149.0	NaN	Group
23	2023/24	Australia	Netherlands	2023/10/25	24	Arun Jaitley Stadium	Delhi	Australia	bat	GJ Maxwell	MA Gough	Sharfuddoula	Nitin Menon	AJ Pycroft	Australia	309.0	NaN	Group
24	2023/24	England	Sri Lanka	2023/10/26	25	M Chinnaswamy Stadium	Bengaluru	England	bat	CBRLS Kumara	AT Holdstock	CM Brown	RJ Tucker	J Srinath	Sri Lanka	NaN	8.0	Group
26	2023/24	Pakistan	South Africa	2023/10/27	26	MA Chidambaram Stadium	Chennai	Pakistan	bat	T Shamsi	AG Wharf	PR Reiffel	RA Kettleborough	RB Richardson	South Africa	NaN	1.0	Group
27	2023/24	Netherlands	Bangladesh	2023/10/28	28	Eden Gardens	Kolkata	Netherlands	bat	PA van Meekeren	JS Wilson	P Wilson	CB Gaffaney	JJ Crowe	Netherlands	87.0	NaN	Group
30	2023/24	Bangladesh	Pakistan	2023/10/31	31	Eden Gardens	Kolkata	Bangladesh	bat	Fakhar Zaman	Nitin Menon	RA Kettleborough	PR Reiffel	AJ Pycroft	Pakistan	NaN	7.0	Group
33	2023/24	Netherlands	Afghanistan	2023/11/03	34	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Netherlands	bat	Mohammad Nabi	Nitin Menon	Sharfuddoula	HDPK Dharmasena	J Srinath	Afghanistan	NaN	7.0	Group
36	2023/24	India	South Africa	2023/11/05	37	Eden Gardens	Kolkata	India	bat	V Kohli	HDPK Dharmasena	PR Reiffel	AG Wharf	AJ Pycroft	India	243.0	NaN	Group
38	2023/24	Afghanistan	Australia	2023/11/07	39	Wankhede Stadium	Mumbai	Afghanistan	bat	GJ Maxwell	AG Wharf	MA Gough	Sharfuddoula	JJ Crowe	Australia	NaN	3.0	Group
39	2023/24	England	Netherlands	2023/11/08	40	Maharashtra Cricket Association Stadium	Pune	England	bat	BA Stokes	Ahsan Raza	RJ Tucker	P Wilson	AJ Pycroft	England	160.0	NaN	Group
41	2023/24	Afghanistan	South Africa	2023/11/10	42	Narendra Modi Stadium	Ahmedabad	Afghanistan	bat	HE van der Dussen	CM Brown	Nitin Menon	CB Gaffaney	JJ Crowe	South Africa	NaN	5.0	Group
43	2023/24	England	Pakistan	2023/11/11	44	Eden Gardens	Kolkata	England	bat	DJ Willey	P Wilson	RJ Tucker	PR Reiffel	J Srinath	England	93.0	NaN	Group
44	2023/24	India	Netherlands	2023/11/12	45	M Chinnaswamy Stadium	Bengaluru	India	bat	SS Iyer	CB Gaffaney	MA Gough	CM Brown	RB Richardson	India	160.0	NaN	Group
46	2023/24	India	New Zealand	2023/11/15	46	Wankhede Stadium	Mumbai	India	bat	Mohammed Shami	RK Illingworth	RJ Tucker	AT Holdstock	AJ Pycroft	India	70.0	NaN	Semi Final
48	2023/24	South Africa	Australia	2023/11/16	47	Eden Gardens	Kolkata	South Africa	bat	TM Head	Nitin Menon	RA Kettleborough	MA Gough	J Srinath	Australia	NaN	3.0	Semi Final

Find the number of matches played in each season.

```python
matches_per_season = matches_df['season'].value_counts()
matches_per_season
```

	count
season	
2023/24	48

dtype: int64

Find how many matches were played at each venue.

```python
matches_per_venue = matches_df['venue'].value_counts()
matches_per_venue
```

venue	count
Narendra Modi Stadium	5
Himachal Pradesh Cricket Association Stadium	5
Maharashtra Cricket Association Stadium	5
Arun Jaitley Stadium	5
MA Chidambaram Stadium	5
Bharat Ratna Shri Atal Bihari Vajpayee Ekana Cricket Stadium	5
Wankhede Stadium	5
M Chinnaswamy Stadium	5
Eden Gardens	5
Rajiv Gandhi International Stadium	3

dtype: int64

Find matches where toss winner and match winner were different.

```python
toss_not_match_winner = matches_df[matches_df['toss_winner'] != matches_df['winner']]
toss_not_match_winner
```

	season	team1	team2	date	match_number	venue	city	toss_winner	toss_decision	player_of_match	umpire1	umpire2	reserve_umpire	match_referee	winner	winner_runs	winner_wickets	match_type
1	2023/24	Pakistan	Netherlands	2023/10/06	2	Rajiv Gandhi International Stadium	Hyderabad	Netherlands	field	Saud Shakeel	AT Holdstock	CM Brown	PR Reiffel	JJ Crowe	Pakistan	81.0	NaN	Group
3	2023/24	South Africa	Sri Lanka	2023/10/07	4	Arun Jaitley Stadium	Delhi	Sri Lanka	field	AK Markram	RK Illingworth	Sharfuddoula	AG Wharf	J Srinath	South Africa	102.0	NaN	Group
4	2023/24	Australia	India	2023/10/08	5	MA Chidambaram Stadium	Chennai	Australia	bat	KL Rahul	CB Gaffaney	RA Kettleborough	AT Holdstock	RB Richardson	India	NaN	6.0	Group
6	2023/24	New Zealand	Netherlands	2023/10/09	6	Rajiv Gandhi International Stadium	Hyderabad	Netherlands	field	MJ Santner	PR Reiffel	RJ Tucker	Nitin Menon	AJ Pycroft	New Zealand	99.0	NaN	Group
6	2023/24	England	Bangladesh	2023/10/10	7	Himachal Pradesh Cricket Association Stadium	Dharamsala	Bangladesh	field	DJ Malan	Ahsan Raza	P Wilson	HDPK Dharmasena	J Srinath	England	137.0	NaN	Group
7	2023/24	Sri Lanka	Pakistan	2023/10/10	8	Rajiv Gandhi International Stadium	Hyderabad	Sri Lanka	bat	Mohammad Rizwan	AG Wharf	CB Gaffaney	RJ Tucker	AJ Pycroft	Pakistan	NaN	6.0	Group
8	2023/24	Afghanistan	India	2023/10/11	9	Arun Jaitley Stadium	Delhi	Afghanistan	bat	RG Sharma	MA Gough	PR Reiffel	Sharfuddoula	JJ Crowe	India	NaN	8.0	Group
9	2023/24	South Africa	Australia	2023/10/12	10	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Australia	field	Q de Kock	JS Wilson	RK Illingworth	CM Brown	J Srinath	South Africa	134.0	NaN	Group
12	2023/24	Afghanistan	England	2023/10/15	13	Arun Jaitley Stadium	Delhi	England	field	Mujeeb Ur Rahman	RJ Tucker	Sharfuddoula	P Wilson	JJ Crowe	Afghanistan	69.0	NaN	Group
13	2023/24	Sri Lanka	Australia	2023/10/16	14	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Sri Lanka	bat	A Zampa	CB Gaffaney	JS Wilson	NaN	RB Richardson	Australia	NaN	5.0	Group
14	2023/24	Netherlands	South Africa	2023/10/17	15	Himachal Pradesh Cricket Association Stadium	Dharamsala	South Africa	field	SA Edwards	MA Gough	RA Kettleborough	Ahsan Raza	JJ Crowe	Netherlands	38.0	NaN	Group
16	2023/24	New Zealand	Afghanistan	2023/10/18	16	MA Chidambaram Stadium	Chennai	Afghanistan	field	GD Phillips	JS Wilson	P Wilson	J Madanagopal	J Srinath	New Zealand	149.0	NaN	Group
16	2023/24	Bangladesh	India	2023/10/19	17	Maharashtra Cricket Association Stadium	Pune	India	bat	V Kohli	AT Holdstock	RA Kettleborough	M Erasmus	AJ Pycroft	India	NaN	7.0	Group
17	2023/24	Australia	Pakistan	2023/10/20	18	M Chinnaswamy Stadium	Bengaluru	Pakistan	field	DA Warner	CM Brown	RK Illingworth	J Madanagopal	RB Richardson	Australia	62.0	NaN	Group
18	2023/24	Netherlands	Sri Lanka	2023/10/21	19	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Netherlands	bat	S Samarawickrama	Ahsan Raza	M Erasmus	CB Gaffaney	JJ Crowe	Sri Lanka	NaN	5.0	Group
19	2023/24	South Africa	England	2023/10/21	20	Wankhede Stadium	Mumbai	England	field	H Klaasen	HDPK Dharmasena	Nitin Menon	JS Wilson	J Srinath	South Africa	229.0	NaN	Group
21	2023/24	Pakistan	Afghanistan	2023/10/23	22	MA Chidambaram Stadium	Chennai	Pakistan	bat	Ibrahim Zadran	PR Reiffel	RJ Tucker	HDPK Dharmasena	RB Richardson	Afghanistan	NaN	8.0	Group
24	2023/24	England	Sri Lanka	2023/10/26	25	M Chinnaswamy Stadium	Bengaluru	Sri Lanka	bat	CBRLS Kumara	AT Holdstock	CM Brown	RJ Tucker	Sri Lanka	Sri Lanka	NaN	8.0	Group
25	2023/24	Pakistan	South Africa	2023/10/27	26	MA Chidambaram Stadium	Chennai	Pakistan	bat	T Shamsi	AG Wharf	PR Reiffel	RA Kettleborough	RB Richardson	South Africa	NaN	1.0	Group
26	2023/24	Australia	New Zealand	2023/10/28	27	Himachal Pradesh Cricket Association Stadium	Dharamsala	New Zealand	field	TM Head	M Erasmus	Sharfuddoula	MA Gough	AJ Pycroft	Australia	5.0	NaN	Group
28	2023/24	India	England	2023/10/29	29	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	England	field	RG Sharma	AT Holdstock	RJ Tucker	CM Brown	RB Richardson	India	100.0	NaN	Group
30	2023/24	Bangladesh	Pakistan	2023/10/31	31	Eden Gardens	Kolkata	Bangladesh	bat	Fakhar Zaman	Nitin Menon	RA Kettleborough	PR Reiffel	AJ Pycroft	Pakistan	NaN	7.0	Group
31	2023/24	South Africa	New Zealand	2023/11/01	32	Maharashtra Cricket Association Stadium	Pune	New Zealand	field	HE van der Dussen	Ahsan Raza	HDPK Dharmasena	P Wilson	RB Richardson	South Africa	190.0	NaN	Group
32	2023/24	India	Sri Lanka	2023/11/02	33	Wankhede Stadium	Mumbai	Sri Lanka	field	Mohammed Shami	CM Brown	PR Reiffel	RK Illingworth	JJ Crowe	India	302.0	NaN	Group
33	2023/24	Netherlands	Afghanistan	2023/11/03	34	Bharat Ratna Shri Atal Bihari Vajpayee Ekana C...	Lucknow	Netherlands	bat	Mohammad Nabi	Nitin Menon	Sharfuddoula	HDPK Dharmasena	J Crowe	Afghanistan	NaN	7.0	Group
35	2023/24	Australia	England	2023/11/04	36	Narendra Modi Stadium	Ahmedabad	England	field	A Zampa	CB Gaffaney	M Erasmus	Ahsan Raza	JJ Crowe	Australia	33.0	NaN	Group
38	2023/24	Afghanistan	Australia	2023/11/07	39	Wankhede Stadium	Mumbai	Afghanistan	bat	GJ Maxwell	AG Wharf	MA Gough	Sharfuddoula	J Crowe	Australia	NaN	3.0	Group
41	2023/24	Afghanistan	South Africa	2023/11/10	42	Narendra Modi Stadium	Ahmedabad	Afghanistan	bat	HE van der Dussen	CM Brown	Nitin Menon	CB Gaffaney	JJ Crowe	South Africa	NaN	5.0	Group
46	2023/24	South Africa	Australia	2023/11/16	47	Eden Gardens	Kolkata	South Africa	bat	TM Head	Nitin Menon	RA Kettleborough	MA Gough	J Srinath	Australia	NaN	3.0	Semi Final

Find how many matches were "Group" matches.

```python
group_matches = (matches_df['match_type'] == 'Group').sum()
group_matches
```

```
np.int64(45)
```

Find all cities that hosted more than 3 matches.

```python
popular_cities = matches_df['city'].value_counts()
cities_more_than_3 = popular_cities[popular_cities > 3].index.tolist()
cities_more_than_3
```

```
['Ahmedabad',
 'Dharamsala',
 'Pune',
 'Delhi',
 'Chennai',
 'Lucknow',
 'Mumbai',
 'Bengaluru',
 'Kolkata']
```

Find how many matches were played in Mumbai city.

```python
matches_in_mumbai = (matches_df['city'] == 'Mumbai').sum()
matches_in_mumbai
```

```
np.int64(5)
```

List all unique team names (no duplicates)

```python
unique_teams = pd.unique(matches_df[['team1', 'team2']].values.ravel())
unique_teams
```

```
array(['England', 'New Zealand', 'Pakistan', 'Netherlands', 'Afghanistan',
       'Bangladesh', 'South Africa', 'Sri Lanka', 'Australia', 'India'],
      dtype=object)
```