```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

```
df = pd.read_csv('iplauction2023.csv')
```

```
df.shape
```

```
(309, 7)
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 309 entries, 0 to 308
Data columns (total 7 columns):
 #   Column                 Non-Null Count  Dtype  
---  ------                 --------------  -----  
 0   name                   309 non-null    object 
 1   player style           309 non-null    object 
 2   nationality            309 non-null    object 
 3   base price (in lacs)   151 non-null    float64
 4   final price (in lacs)  238 non-null    float64
 5   franchise              238 non-null    object 
 6   status                 309 non-null    object 
dtypes: float64(2), object(5)
memory usage: 17.0+ KB
```

```
df.describe()
```

```
       base price (in lacs)  final price (in lacs)
count            151.000000             238.000000
mean              59.205298             368.067227
std               59.688337             449.070117
min               20.000000              20.000000
25%               20.000000              21.250000
50%               20.000000             150.000000
75%               75.000000             625.000000
max              200.000000            1850.000000
```

```
df['final price (in lacs)'].describe()
```

```
count     238.000000
mean      368.067227
std       449.070117
min        20.000000
25%        21.250000
50%       150.000000
75%       625.000000
```

```
max      1850.000000
Name: final price (in lacs), dtype: float64
```

```python
df.head()
```

```
              name player style   nationality  base price (in lacs)  \
0     Harshit Rana       Bowler         India                   NaN   
1        Ekant Sen       Batter         India                  20.0   
2    Wayne Parnell   Allrounder  South Africa                  75.0   
3  Shakib Al Hasan   Allrounder    Bangladesh                 150.0   
4         Joe Root       Batter       England                 100.0   

   final price (in lacs) franchise    status
0                   20.0       KKR  RETAINED
1                    NaN       NaN    UNSOLD
2                    NaN       NaN    UNSOLD
3                  150.0       KKR      SOLD
4                  100.0        RR      SOLD
```

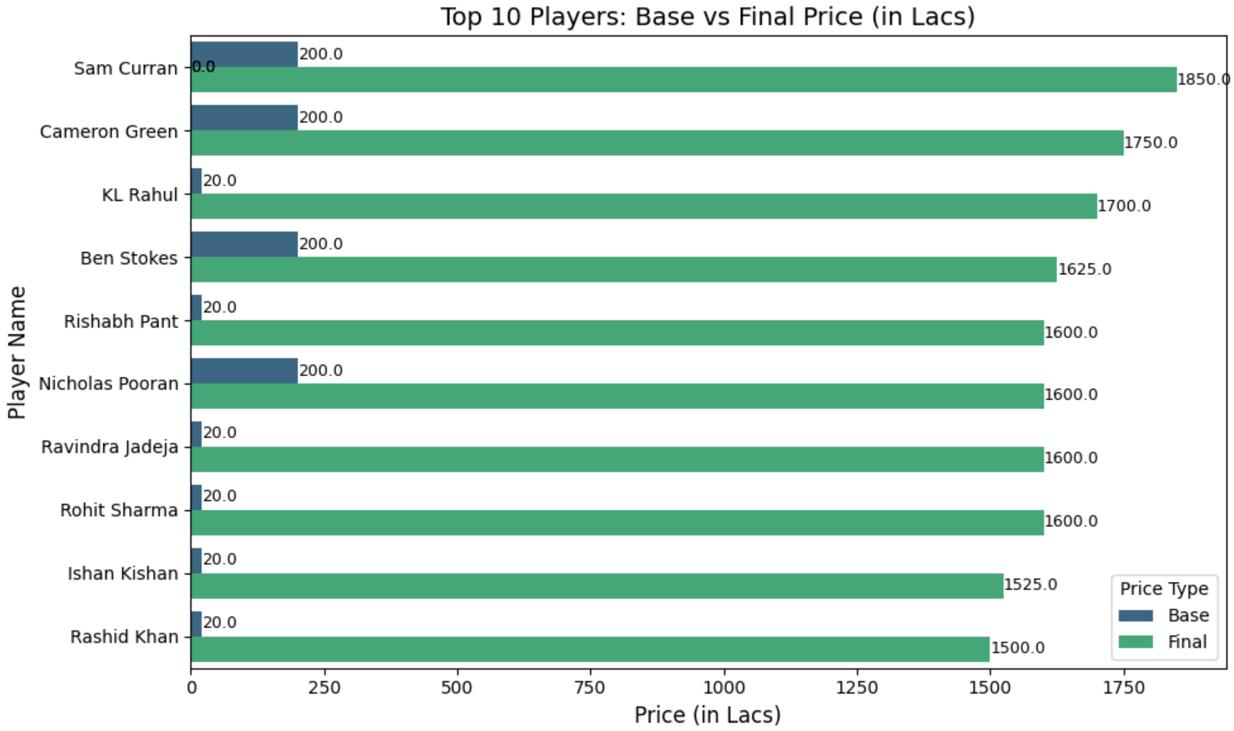
```python
df['final price (in lacs)'] = df['final price (in
lacs)'].fillna(df['final price (in lacs)'].median())
df['base price (in lacs)'] = df['base price (in
lacs)'].fillna(df['base price (in lacs)'].median())
df['franchise'] = df['franchise'].fillna('Unknown')
```

```python
df.head()
```

```
              name player style   nationality  base price (in lacs)  \
0     Harshit Rana       Bowler         India                  20.0   
1        Ekant Sen       Batter         India                  20.0   
2    Wayne Parnell   Allrounder  South Africa                  75.0   
3  Shakib Al Hasan   Allrounder    Bangladesh                 150.0   
4         Joe Root       Batter       England                 100.0   

   final price (in lacs) franchise    status
0                   20.0       KKR  RETAINED
1                  150.0   Unknown    UNSOLD
2                  150.0   Unknown    UNSOLD
3                  150.0       KKR      SOLD
4                  100.0        RR      SOLD
```

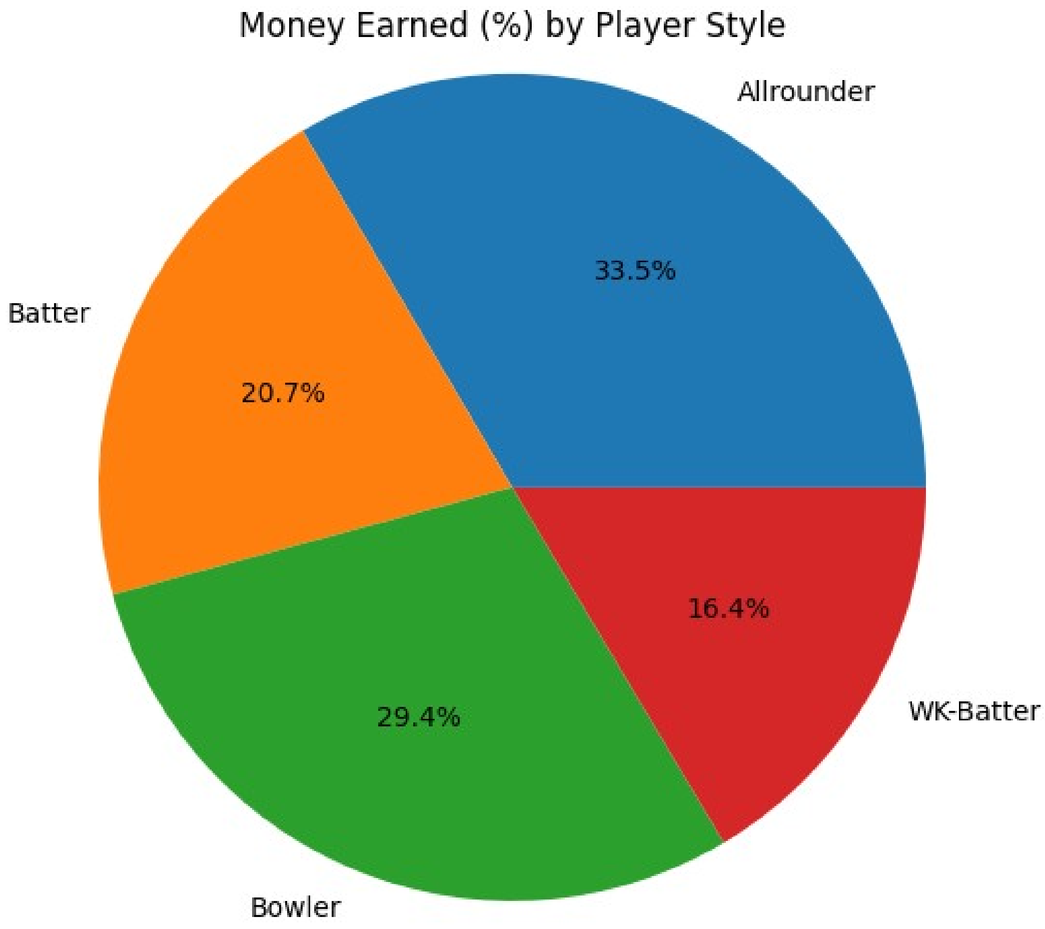
Top_10 Players By highest Price And Base Price

```python
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

# Reshape data for grouped bar plot
melted = top_10[['name', 'base price (in lacs)', 'final price (in
lacs)']].melt(
    id_vars='name',
    value_vars=['base price (in lacs)', 'final price (in lacs)'],
    var_name='Price Type',
    value_name='Price'
)

# Clean the 'Price Type' for better readability
melted['Price Type'] = melted['Price Type'].str.replace(r' price \(in lacs\)', '', regex=True).str.capitalize()


# Plot
plt.figure(figsize=(10, 6))
ax = sns.barplot(
    data=melted,
    x='Price',
    y='name',
    hue='Price Type',
    palette='viridis'
)

# Title and labels
plt.title('Top 10 Players: Base vs Final Price (in Lacs)', fontsize=14)
plt.xlabel('Price (in Lacs)', fontsize=12)
plt.ylabel('Player Name', fontsize=12)

# Annotate bars
for p in ax.patches:
    width = p.get_width()
    ax.text(width + 0.5,               # x position (slightly outside bar)
            p.get_y() + p.get_height() / 2,  # y position (center of bar)
            f'{width:.1f}', va='center', fontsize=9)

plt.legend(title='Price Type')
plt.tight_layout()
plt.show()
```



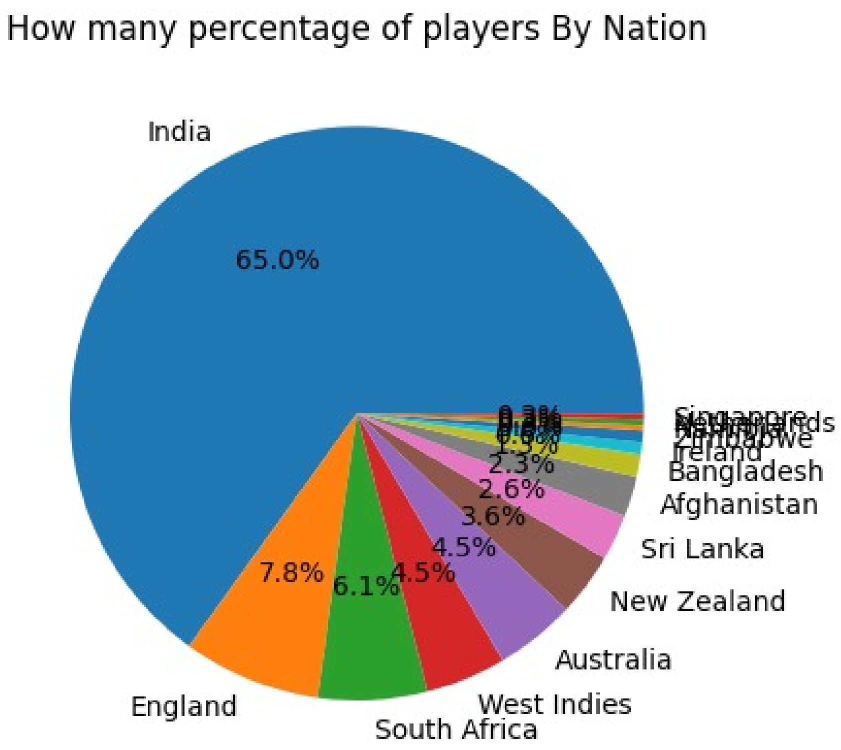
- *Sam Curran* was sold for the highest price of ₹1850 lacs, and all top 10 players were sold for much more than their starting prices.

```python
earnings_by_style = df.groupby('player style')['final price (in
lacs)'].sum()

# Plot the pie chart
plt.figure(figsize=(6,5))
plt.pie(earnings_by_style,
        labels=earnings_by_style.index,
        autopct='%1.1f%%' ,)

plt.title('Money Earned (%) by Player Style')
plt.axis('equal')  # Make it a circle
plt.tight_layout()
plt.show()
```



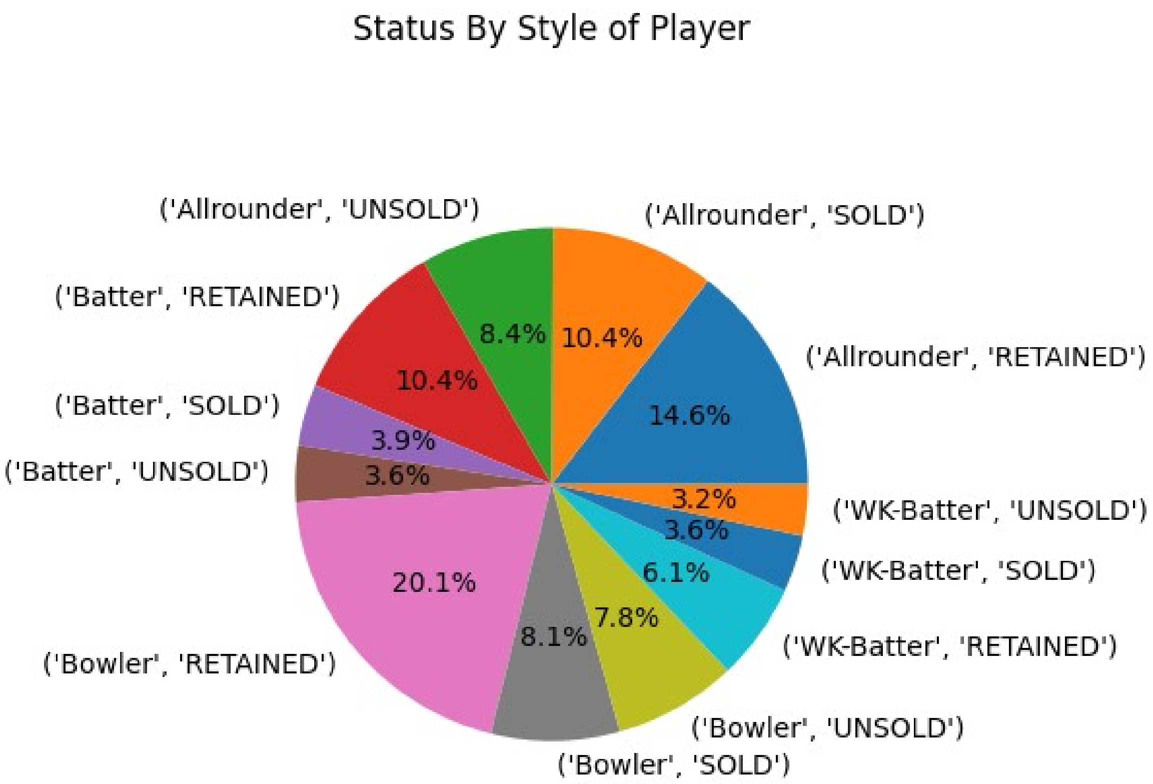
Allrounders earned the highest share of total money at 33.5%, followed by Bowlers (29.4%), Batters (20.7%), and WK-Batters (16.4%) in the auction.

```
nation = df['nationality'].value_counts()

plt.pie(nation, labels = nation.index ,  autopct='%1.1f%%')
plt.title('How many percentage of players By Nation')
plt.plot()

[]
```



Highest Amount of players are part of Auction from India

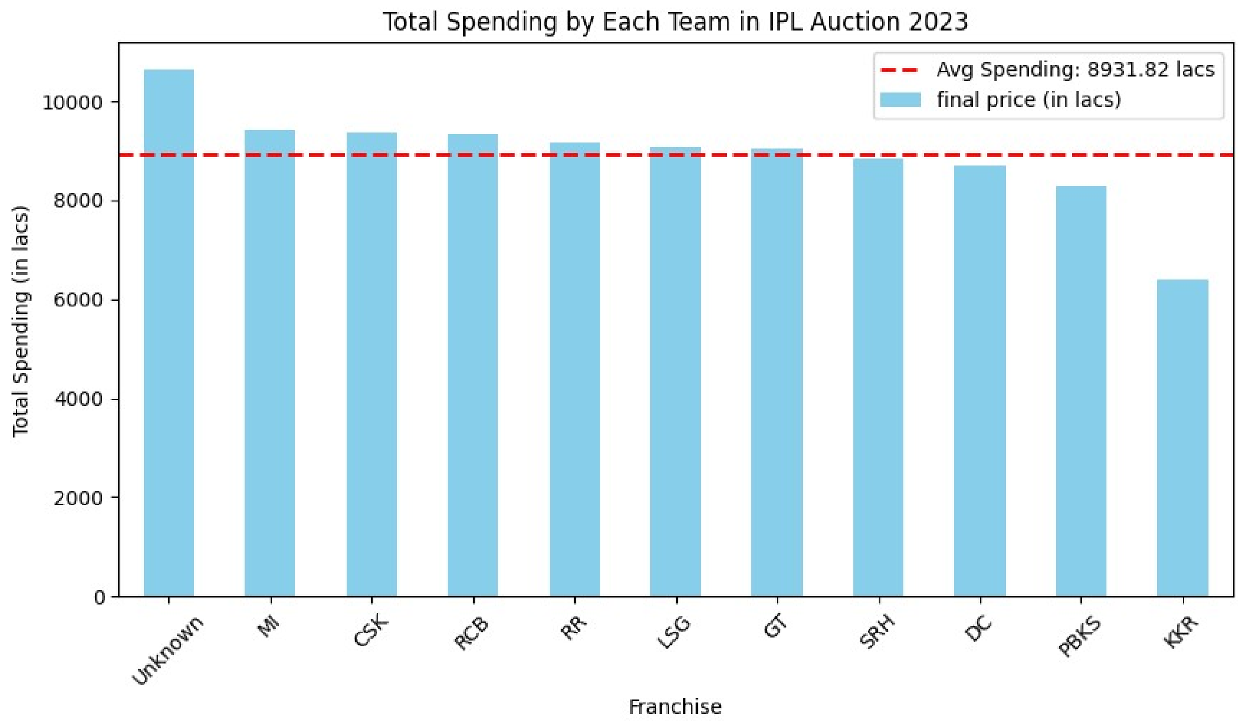
```
earnings_by_style = df.groupby('player style')
['status'].value_counts()

# Plot the pie chart
plt.figure(figsize=(6,5))
plt.pie(earnings_by_style,
        labels=earnings_by_style.index,
        autopct='%1.1f%%')

plt.title('Status By Style of Player')
plt.axis('equal')  # Make it a circle
plt.tight_layout()
plt.show()
```



The highest earning group was Retained Bowlers (20.1%), followed by Retained Allrounders (14.6%), while Unsold WK-Batters (3.2%) contributed the least to the total final price distribution.

```
df.head()

              name player style   nationality  base price (in lacs)  \
0     Harshit Rana       Bowler         India                  20.0
1        Ekant Sen       Batter         India                  20.0
2    Wayne Parnell   Allrounder  South Africa                  75.0
3  Shakib Al Hasan   Allrounder    Bangladesh                 150.0
4         Joe Root       Batter       England                 100.0

   final price (in lacs) franchise    status
```

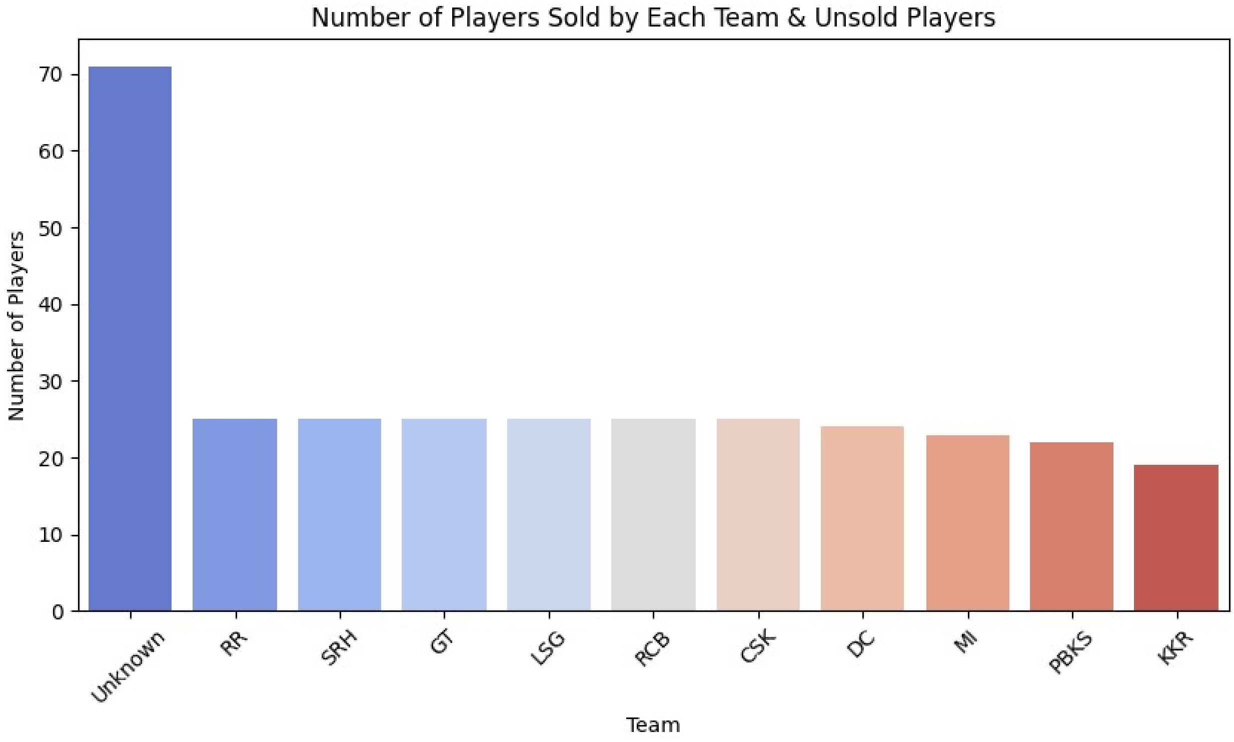
```
0                    20.0       KKR  RETAINED
1                   150.0   Unknown    UNSOLD
2                   150.0   Unknown    UNSOLD
3                   150.0       KKR      SOLD
4                   100.0        RR      SOLD

team_spending = df[df["franchise"] != "UNSOLD"].groupby("franchise")
["final price (in lacs)"].sum().sort_values(ascending=False)

avg_spending = np.mean(team_spending)
plt.figure(figsize=(10,5))
team_spending.plot(kind="bar", color="skyblue")


plt.axhline(avg_spending, color="red", linestyle="dashed",
linewidth=2, label=f"Avg Spending: {avg_spending:.2f} lacs")

plt.title("Total Spending by Each Team in IPL Auction 2023")
plt.xlabel("Franchise")
plt.ylabel("Total Spending (in lacs)")
plt.xticks(rotation=45)
plt.legend()
plt.show()
```



- If the unsold section is large, it suggests that many players went unsold due to factors like high base prices or lack of team interest.
- If the sold section dominates, it indicates that most players found a team in the auction.

```
team_counts = df["franchise"].value_counts()

plt.figure(figsize=(10,5))
sns.barplot(x=team_counts.index, y=team_counts.values,
palette="coolwarm")

plt.title("Number of Players Sold by Each Team & Unsold Players")
plt.xlabel("Team")
plt.ylabel("Number of Players")
plt.xticks(rotation=45)
plt.show()
```

```
C:\Users\Sarvadnya\AppData\Local\Temp\ipykernel_12948\1194991061.py:4:
FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be
removed in v0.14.0. Assign the `x` variable to `hue` and set
`legend=False` for the same effect.

  sns.barplot(x=team_counts.index, y=team_counts.values,
palette="coolwarm")
```


Number of Players Sold by Each Team & Unsold Players
Number of Players
Unknown
RR
SRH
GT
LSG
RCB
CSK
DC
MI
PBKS
KKR
Team