Player Rating after a Cricket Match

Batsman Rating

Importing all the required libraries

In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import seaborn as sns
```

In [2]:
```
df = pd.read_csv('match.csv') # Reading the dataset
```

In [3]:
```
df.head() # Extracting the top 5 rows of the dataframe!
```

Out[3]:

	match_id	season	start_date	venue	innings	ball	batting_team	bowling_team	strik
0	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.1	England	India	JJ R
1	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.2	England	India	JJ R
2	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.3	England	India	JJ R
3	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.4	England	India	JJ R
4	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.5	England	India	JJ R

5 rows × 22 columns

In [4]:
```
df.info() # Getting the info about the dataframe
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 542 entries, 0 to 541
Data columns (total 22 columns):
 #   Column                  Non-Null Count  Dtype  
---  ------                  --------------  -----  
 0   match_id                542 non-null    int64  
 1   season                  542 non-null    int64  
 2   start_date              542 non-null    object 
 3   venue                   542 non-null    object 
 4   innings                 542 non-null    int64  
 5   ball                    542 non-null    float64
 6   batting_team            542 non-null    object 
 7   bowling_team            542 non-null    object 
 8   striker                 542 non-null    object 
 9   non_striker             542 non-null    object 
 10  bowler                  542 non-null    object 
 11  runs_off_bat            542 non-null    int64  
 12  extras                  542 non-null    int64  
 13  wides                   12 non-null     float64
 14  noballs                 2 non-null      float64
 15  byes                    1 non-null      float64
 16  legbyes                 5 non-null      float64
 17  penalty                 0 non-null      float64
 18  wicket_type             15 non-null     object 
 19  player_dismissed        15 non-null     object 
 20  other_wicket_type       0 non-null      float64
 21  other_player_dismissed  0 non-null      float64
dtypes: float64(8), int64(5), object(9)
memory usage: 93.3+ KB
```

In [5]:

```
df.describe() # Statistical info about the dataframe
```

Out[5]:

	match_id	season	innings	ball	runs_off_bat	extras	wides	nob
count	542.0	542.0	542.000000	542.000000	542.000000	542.000000	12.000000	
mean	1276909.0	2022.0	1.472325	22.005720	0.915129	0.044280	1.333333	
std	0.0	0.0	0.499695	12.804588	1.398505	0.281721	1.154701	
min	1276909.0	2022.0	1.000000	0.100000	0.000000	0.000000	1.000000	
25%	1276909.0	2022.0	1.000000	11.125000	0.000000	0.000000	1.000000	
50%	1276909.0	2022.0	1.000000	22.150000	0.000000	0.000000	1.000000	
75%	1276909.0	2022.0	2.000000	33.100000	1.000000	0.000000	1.000000	
max	1276909.0	2022.0	2.000000	45.600000	6.000000	5.000000	5.000000	

In [6]:

```
df.columns # Names of all columns
```

Out[6]:
```
Index(['match_id', 'season', 'start_date', 'venue', 'innings', 'ball',
       'batting_team', 'bowling_team', 'striker', 'non_striker', 'bowler',
       'runs_off_bat', 'extras', 'wides', 'noballs', 'byes', 'legbyes',
       'penalty', 'wicket_type', 'player_dismissed', 'other_wicket_type',
       'other_player_dismissed'],
      dtype='object')
```

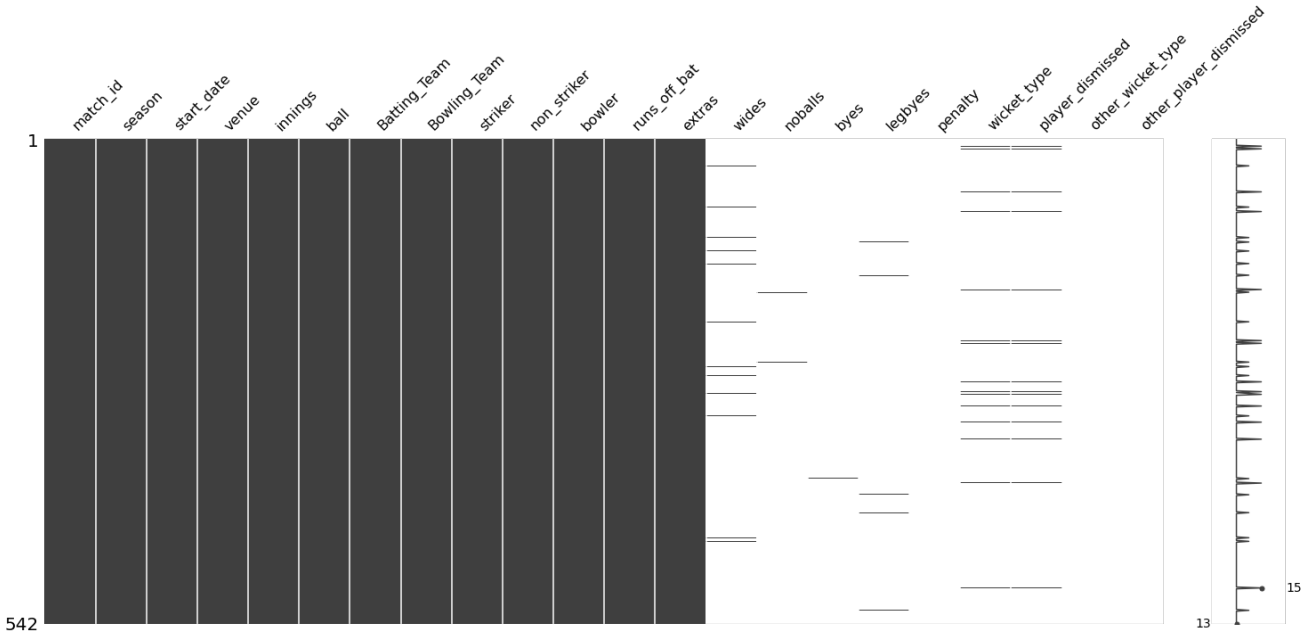
In [7]:
```
df.columns.nunique() # Count of unique columns
```

Out[7]:
```
22
```

In [8]:
```
# Renaming the column names
df.rename(columns = {'batting_team':'Batting_Team', 'bowling_team':'Bowling_T
          inplace = True)
```

Checking Missing Data of the dataset

In [9]:
```
import missingno as msno
msno.matrix(df)
plt.show()
```



Initialising new dataframe to calculate the "Total Runs Scored" by each batsman from both teams

In [10]:
```
df1=df.groupby(by=['striker','Batting_Team'],as_index=False).agg({'runs_off_b
df1.head() # Performed groupby to group each player and their respective coun
```

Out[10]:

	striker	Batting_Team	runs_off_bat
0	BA Carse	England	3
1	BA Stokes	England	27
2	C Overton	England	32
3	DJ Willey	England	18
4	HH Pandya	India	71

Initialising new dataframe to calculate the "Total Balls Faced" by each batsman from both teams

In [11]:
```
df2=df.groupby(by=['striker','Batting_Team'],as_index=False).agg({"runs_off_b
```

In [12]:
```
# To accurately count the number of balls faced, wides count has been removed
df2['Balls_faced']= df2['runs_off_bat']-df2['wides']
```

In [13]:
```
#Dropped the wides and noballs columns which don't make sense anymore!!!
df2.drop(['runs_off_bat','wides','noballs'],axis=1,inplace=True)
df2.head()
```

Out[13]:

	striker	Batting_Team	Balls_faced
0	BA Carse	England	7
1	BA Stokes	England	29
2	C Overton	England	33
3	DJ Willey	England	15
4	HH Pandya	India	55

Creating a new dataframe 'batsman' merging both df1,df2 to get runs scored and balls faced in same dataframe

In [14]:
```
# Merging the dataframes using merge method
batsman = pd.merge(df1,df2,on=['striker','Batting_Team'])
```

In [15]:
```
batsman.head()
```

Out[15]:

	striker	Batting_Team	runs_off_bat	Balls_faced
0	BA Carse	England	3	7
1	BA Stokes	England	27	29
2	C Overton	England	32	33
3	DJ Willey	England	18	15
4	HH Pandya	India	71	55

In [16]:

```
# Calculating the total team score of England
batsman['England_Score'] = df[df['Batting_Team']=='England'] \
.agg({'runs_off_bat':'sum','wides':'sum','noballs':'sum','byes':'sum','legbye
.sum().astype(int)
```

In [17]:

```
# Calculating the total team score of India
batsman['India_Score'] = df[df['Batting_Team']=='India'] \
.agg({'runs_off_bat':'sum','wides':'sum','noballs':'sum','byes':'sum','legbye
.sum().astype(int)
```

In [18]:

```
df.head()
```

Out[18]:

	match_id	season	start_date	venue	innings	ball	Batting_Team	Bowling_Team	strik
0	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.1	England	India	JJ R
1	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.2	England	India	JJ R
2	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.3	England	India	JJ R
3	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.4	England	India	JJ R
4	1276909	2022	2022-07-17	Old Trafford, Manchester	1	0.5	England	India	JJ R

5 rows × 22 columns

Calculating Runs_ratio, Strike Rate of the batsman with respective to team score

In [19]:
```
batsman.loc[batsman['Batting_Team'] == 'England','Runs_Ratio'] = np.round(bat
batsman.loc[batsman['Batting_Team'] == 'India','Runs_Ratio'] = np.round(batsm
```

In [20]:
```
batsman.head()
```

Out[20]:

	striker	Batting_Team	runs_off_bat	Balls_faced	England_Score	India_Score	Runs_Ratio
0	BA Carse	England	3	7	259	261	0.01
1	BA Stokes	England	27	29	259	261	0.10
2	C Overton	England	32	33	259	261	0.12
3	DJ Willey	England	18	15	259	261	0.07
4	HH Pandya	India	71	55	259	261	0.27

In [21]:
```
# Calculating the StrikeRate
batsman['Strike_rate']=np.round(100*(batsman['runs_off_bat']/batsman['Balls_f
```

In [22]:
```
batsman.head(5)
```

Out[22]:

	striker	Batting_Team	runs_off_bat	Balls_faced	England_Score	India_Score	Runs_Ratio
0	BA Carse	England	3	7	259	261	0.01
1	BA Stokes	England	27	29	259	261	0.10
2	C Overton	England	32	33	259	261	0.12
3	DJ Willey	England	18	15	259	261	0.07
4	HH Pandya	India	71	55	259	261	0.27

In [23]:
```
Batsman_Ratings=batsman
Batsman_Ratings['Runs_off_bat'] = batsman['runs_off_bat']
Batsman_Ratings['Strike_Rate'] = batsman['Strike_rate']
Batsman_Ratings.head()
```

Out[23]:

	striker	Batting_Team	runs_off_bat	Balls_faced	England_Score	India_Score	Runs_Ratio
0	BA Carse	England	3	7	259	261	0.01
1	BA Stokes	England	27	29	259	261	0.10
2	C Overton	England	32	33	259	261	0.12
3	DJ Willey	England	18	15	259	261	0.07
4	HH Pandya	India	71	55	259	261	0.27

Importing MinMaxScaler to scale runs, strike rate, runs ratio !!!

In [24]:
```
from sklearn.preprocessing import MinMaxScaler #import minmaxscaler()

scaler = MinMaxScaler()

def myfunc(batsman, x): # Function to perform minmaxscaler on each row
    for i in x:
        batsman[i] = pd.DataFrame(scaler.fit_transform(pd.DataFrame(batsman[i
    return batsman

Batsman_Ratings = batsman
Batsman_Ratings = myfunc(Batsman_Ratings,['runs_off_bat'])
Batsman_Ratings.rename(columns={'runs_off_bat':'Scaled_runs'},inplace=True)
```

In [25]:
```
Batsman_Ratings = myfunc(Batsman_Ratings,['Strike_rate'])
# Renaming the columns
Batsman_Ratings.rename(columns={'Strike_rate':'Scaled_Strike_Rate'},inplace=T
```

Calculating the Batsman Rating considering weightage of 0.33 for each criteria

In [26]:
```
Batsman_Ratings['Final_Rating']= round(100 * ((0.33 * Batsman_Ratings['Runs_R
                                    + (0.33 * Batsman_Ratings['Scaled_Strike_
                                    (0.33 * Batsman_Ratings['Scaled_runs'])),
# calculating the rating
```

In [27]:
```
Batsman_Ratings.rename(columns={'striker':'Player','Batting_Team':'Team'},inp
```

In [28]:
```
Batsman_Ratings.drop(['England_Score','India_Score'],axis=1,inplace=True)
```

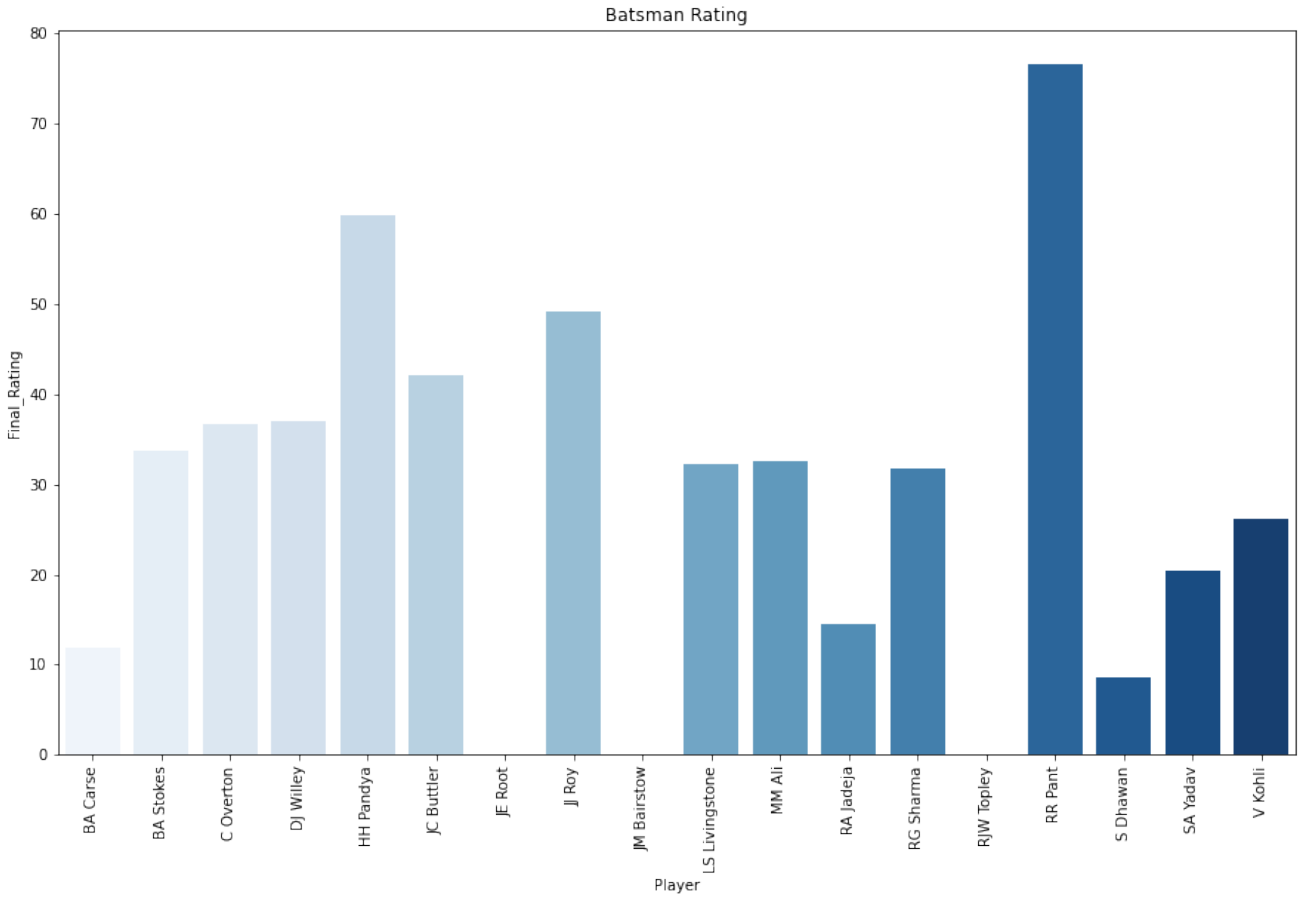
In [29]:
```
Batsman_Ratings.head()
```

Out[29]:

	Player	Team	Scaled_runs	Balls_faced	Runs_Ratio	Scaled_Strike_Rate	Runs_off_bat
0	BA Carse	England	0.024	7	0.01	0.324059	3
1	BA Stokes	England	0.216	29	0.10	0.703917	27
2	C Overton	England	0.256	33	0.12	0.733177	32
3	DJ Willey	England	0.144	15	0.07	0.907304	18
4	HH Pandya	India	0.568	55	0.27	0.976032	71

Plotting the barplot of Batsman from both countries with their respective Batsman Rating

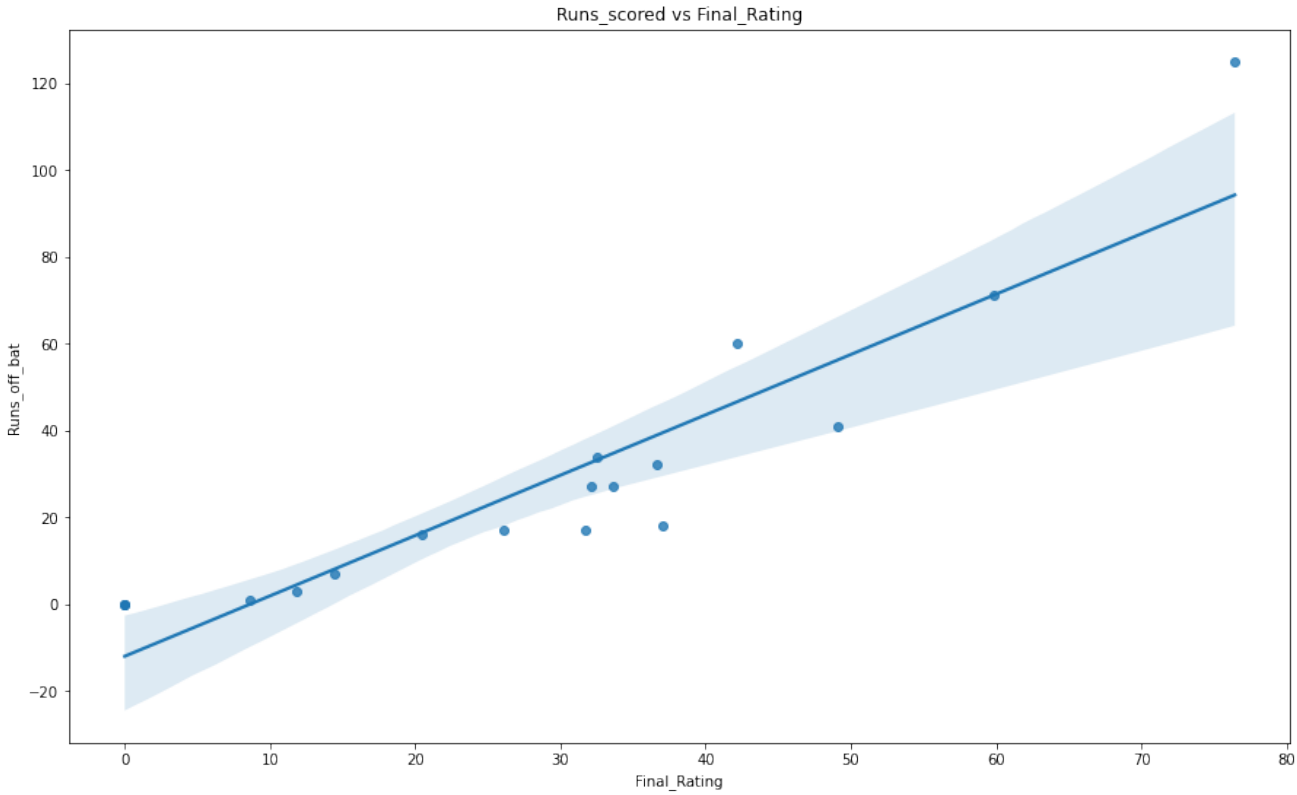
In [30]:
```
plt.figure(figsize=(15,9)) # initial figure size
sns.barplot(x='Player',y='Final_Rating',data=Batsman_Ratings,palette="Blues")
plt.title('Batsman Rating')# Assigning title
plt.xticks(rotation=90) # Rotating the labels
plt.show() #plotting
```



Checking the impact of Runs scored by bat on Final Batsman Rating

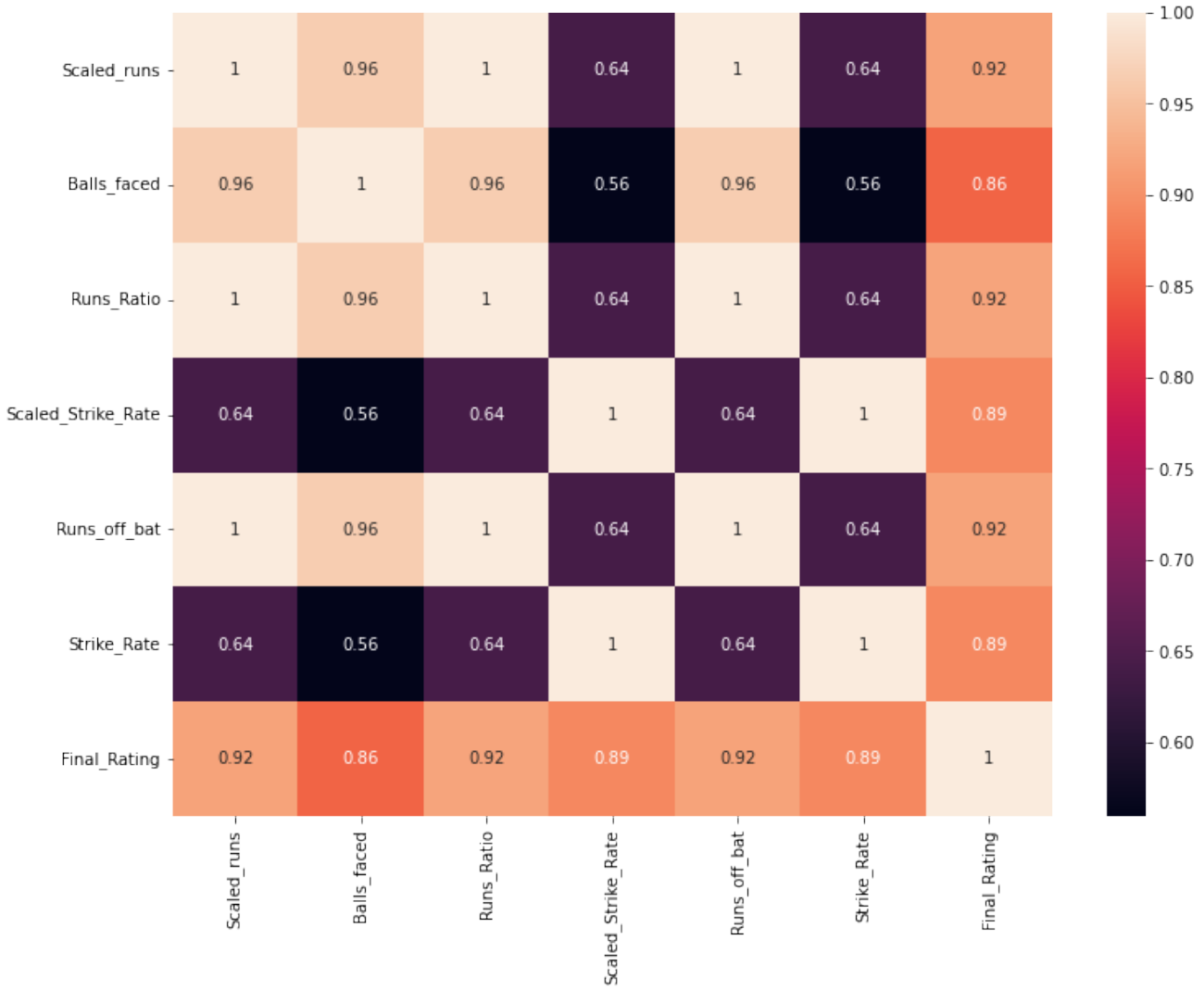
In [31]:

```
plt.figure(figsize=(15,9))
sns.regplot(y='Runs_off_bat',x='Final_Rating',data=Batsman_Ratings)
plt.title('Runs_scored vs Final_Rating')
plt.show()
```



Checking the correlation for the Batsman_Ratings dataframe (how they are related)

In [32]:
```
plt.figure(figsize=(12,9))
sns.heatmap(Batsman_Ratings.corr(),annot=True)
plt.show()
```



Bowling Rating

In [33]:
```
df3=df.groupby(by=['bowler','Bowling_Team'],as_index=False).agg({"runs_off_ba
df31=df.groupby(by=['bowler','Bowling_Team'],as_index=False).agg({"runs_off_b
```

In [34]:
```
# Calculating the 'Runs_conceeded' by the bowler
df3['Runs_conceeded']=df3['runs_off_bat']+df3['wides']+df3['noballs']
df31['Balls_Bowled']=df31['runs_off_bat']-df31['wides']-df31['noballs']
```

In [35]:
```
df3.drop(['runs_off_bat','wides','noballs'],axis=1,inplace=True)
df31.drop(['runs_off_bat','wides','noballs'],axis=1,inplace=True)
df3['Runs_conceeded'].astype(int)
df3.head(5)
```

Out[35]:

	bowler	Bowling_Team	Runs_conceeded
0	BA Carse	England	45.0
1	BA Stokes	England	14.0
2	C Overton	England	54.0
3	DJ Willey	England	58.0
4	HH Pandya	India	24.0

In [36]:

```
df31.head(5)
```

Out[36]:

	bowler	Bowling_Team	Balls_Bowled
0	BA Carse	England	48
1	BA Stokes	England	12
2	C Overton	England	48
3	DJ Willey	England	42
4	HH Pandya	India	42

Merging the dataframes to get 'Runs conceeded' and 'Balls Bowled' in same dataframe -> 'Bowler'

In [37]:

```
#performing inner join
Bowler = pd.merge(df3,df31,on=['bowler','Bowling_Team'],how='inner')
```

In [38]:

```
Bowler.head(5)
```

Out[38]:

	bowler	Bowling_Team	Runs_conceeded	Balls_Bowled
0	BA Carse	England	45.0	48
1	BA Stokes	England	14.0	12
2	C Overton	England	54.0	48
3	DJ Willey	England	58.0	42
4	HH Pandya	India	24.0	42

In [39]:

```
# Calculating the Economy for each bowler across both Teams!
Bowler['Economy']=np.round((Bowler['Runs_conceeded']/Bowler['Balls_Bowled'])*
```

In [40]:
```
Bowler.head(5)
```

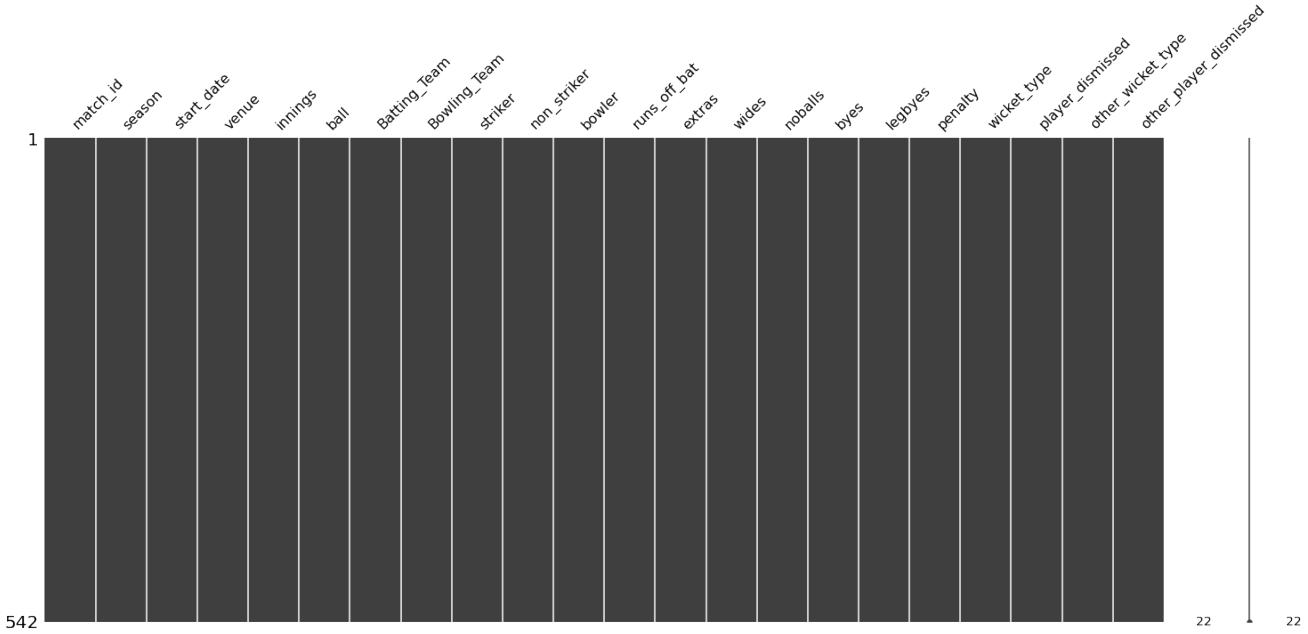
Out[40]:

	bowler	Bowling_Team	Runs_conceeded	Balls_Bowled	Economy
0	BA Carse	England	45.0	48	5.62
1	BA Stokes	England	14.0	12	7.00
2	C Overton	England	54.0	48	6.75
3	DJ Willey	England	58.0	42	8.29
4	HH Pandya	India	24.0	42	3.43

Filling the Missing Data

In [41]:
```
df.fillna(0,inplace=True) #Filling using zeros
```

In [42]:
```
msno.matrix(df) #plotting the graph after filling the missing data
plt.show()
```



In [43]:
```
df.info() # Cross-checking if there are any null values
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 542 entries, 0 to 541
Data columns (total 22 columns):
 #   Column                  Non-Null Count  Dtype  
---  ------                  --------------  -----  
 0   match_id                542 non-null    int64  
 1   season                  542 non-null    int64  
 2   start_date              542 non-null    object 
 3   venue                   542 non-null    object 
 4   innings                 542 non-null    int64  
 5   ball                    542 non-null    float64
 6   Batting_Team            542 non-null    object 
 7   Bowling_Team            542 non-null    object 
 8   striker                 542 non-null    object 
 9   non_striker             542 non-null    object 
 10  bowler                  542 non-null    object 
 11  runs_off_bat            542 non-null    int64  
 12  extras                  542 non-null    int64  
 13  wides                   542 non-null    float64
 14  noballs                 542 non-null    float64
 15  byes                    542 non-null    float64
 16  legbyes                 542 non-null    float64
 17  penalty                 542 non-null    float64
 18  wicket_type             542 non-null    object 
 19  player_dismissed        542 non-null    object 
 20  other_wicket_type       542 non-null    float64
 21  other_player_dismissed  542 non-null    float64
dtypes: float64(8), int64(5), object(9)
memory usage: 93.3+ KB
```

In [44]:
```
Bowler['Wickets_Taken'] = [1,0,1,0,4,0,0,0,0,0,2,1,3,3]
```

In [45]:
```
Bowler.head(5)
```

Out[45]:

	bowler	Bowling_Team	Runs_conceeded	Balls_Bowled	Economy	Wickets_Taken
0	BA Carse	England	45.0	48	5.62	1
1	BA Stokes	England	14.0	12	7.00	0
2	C Overton	England	54.0	48	6.75	1
3	DJ Willey	England	58.0	42	8.29	0
4	HH Pandya	India	24.0	42	3.43	4

Total wickets taken by each team against the opponent team

In [46]:
```
Bowler.loc[Bowler['Bowling_Team']=='England','Total_Wickets_taken']= \
Bowler[Bowler['Bowling_Team']=='England']['Wickets_Taken'].sum()
Bowler.loc[Bowler['Bowling_Team']=='India','Total_Wickets_taken']=\
Bowler[Bowler['Bowling_Team']=='India']['Wickets_Taken'].sum()
```

In [47]:
```
Bowler['Total_Wickets_taken']=Bowler['Total_Wickets_taken'].astype(int) # Flo
```

In [48]:
```
Bowler['Runs_conceeded']=Bowler['Runs_conceeded'].astype(int) # Float to int
```

In [49]:
```
Bowler.head()
```

Out[49]:

	bowler	Bowling_Team	Runs_conceeded	Balls_Bowled	Economy	Wickets_Taken	Total_Wi
0	BA Carse	England	45	48	5.62	1	
1	BA Stokes	England	14	12	7.00	0	
2	C Overton	England	54	48	6.75	1	
3	DJ Willey	England	58	42	8.29	0	
4	HH Pandya	India	24	42	3.43	4	

In [50]:
```
Bowler.info() #Info about the Bowler Dataframe
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 14 entries, 0 to 13
Data columns (total 7 columns):
 #   Column               Non-Null Count  Dtype  
---  ------               --------------  -----  
 0   bowler               14 non-null     object 
 1   Bowling_Team         14 non-null     object 
 2   Runs_conceeded       14 non-null     int64  
 3   Balls_Bowled         14 non-null     int64  
 4   Economy              14 non-null     float64
 5   Wickets_Taken        14 non-null     int64  
 6   Total_Wickets_taken  14 non-null     int64  
dtypes: float64(1), int64(4), object(2)
memory usage: 896.0+ bytes
```

In [51]:
```
Bowler.describe() #statistical info
```

Out[51]:

	Runs_conceeded	Balls_Bowled	Economy	Wickets_Taken	Total_Wickets_taken
count	14.000000	14.000000	14.000000	14.000000	14.000000
mean	36.714286	37.714286	7.189286	1.071429	7.142857
std	19.368605	18.044512	5.010788	1.384768	2.567763
min	4.000000	1.000000	3.430000	0.000000	5.000000
25%	21.750000	28.500000	5.270000	0.000000	5.000000
50%	36.500000	42.000000	5.860000	0.500000	5.000000
75%	52.500000	48.000000	7.000000	1.750000	10.000000
max	66.000000	59.000000	24.000000	4.000000	10.000000

In [52]:

```
# Calculating the Wicket_Ratio with respect to total wickets taken against op
Bowler['Wicket_Ratio']=Bowler['Wickets_Taken']/Bowler['Total_Wickets_taken']
```

In [53]:

```
Bowler.head()
```

Out[53]:

	bowler	Bowling_Team	Runs_conceeded	Balls_Bowled	Economy	Wickets_Taken	Total_Wi
0	BA Carse	England	45	48	5.62	1	
1	BA Stokes	England	14	12	7.00	0	
2	C Overton	England	54	48	6.75	1	
3	DJ Willey	England	58	42	8.29	0	
4	HH Pandya	India	24	42	3.43	4	

In [54]:

```
Bowler['Scaled_Wickets_Ratio']=Bowler['Wicket_Ratio']
Bowler['Scaled_Economy']=Bowler['Economy']
```

Performing Minmaxscaler() to scale wickets_ratio, economy, wickets_taken

In [55]:
```
from sklearn.preprocessing import MinMaxScaler #import minmaxscaler()

scaler = MinMaxScaler()

def myfunc(Bowler, x): # Function to perform minmaxscaler on each row
    for i in x:
        Bowler[i] = pd.DataFrame(scaler.fit_transform(pd.DataFrame(Bowler[i])
    return Bowler
```

In [56]:
```
Bowler_Ratings = Bowler
Bowler_Ratings = myfunc(Bowler_Ratings,['Scaled_Wickets_Ratio'])
```

In [57]:
```
Bowler_Ratings['Scaled_Economy']=np.round((Bowler_Ratings['Economy'] - \
                                           Bowler_Ratings['Economy'].max())/\
                                          (Bowler_Ratings['Economy'].min() -
                                           Bowler_Ratings['Economy'].max()),2
```

In [58]:
```
Bowler_Ratings['Scaled_Wickets_Ratio']= np.round(Bowler_Ratings['Scaled_Wicke
```

In [59]:
```
Bowler_Ratings.head()
```

Out[59]:

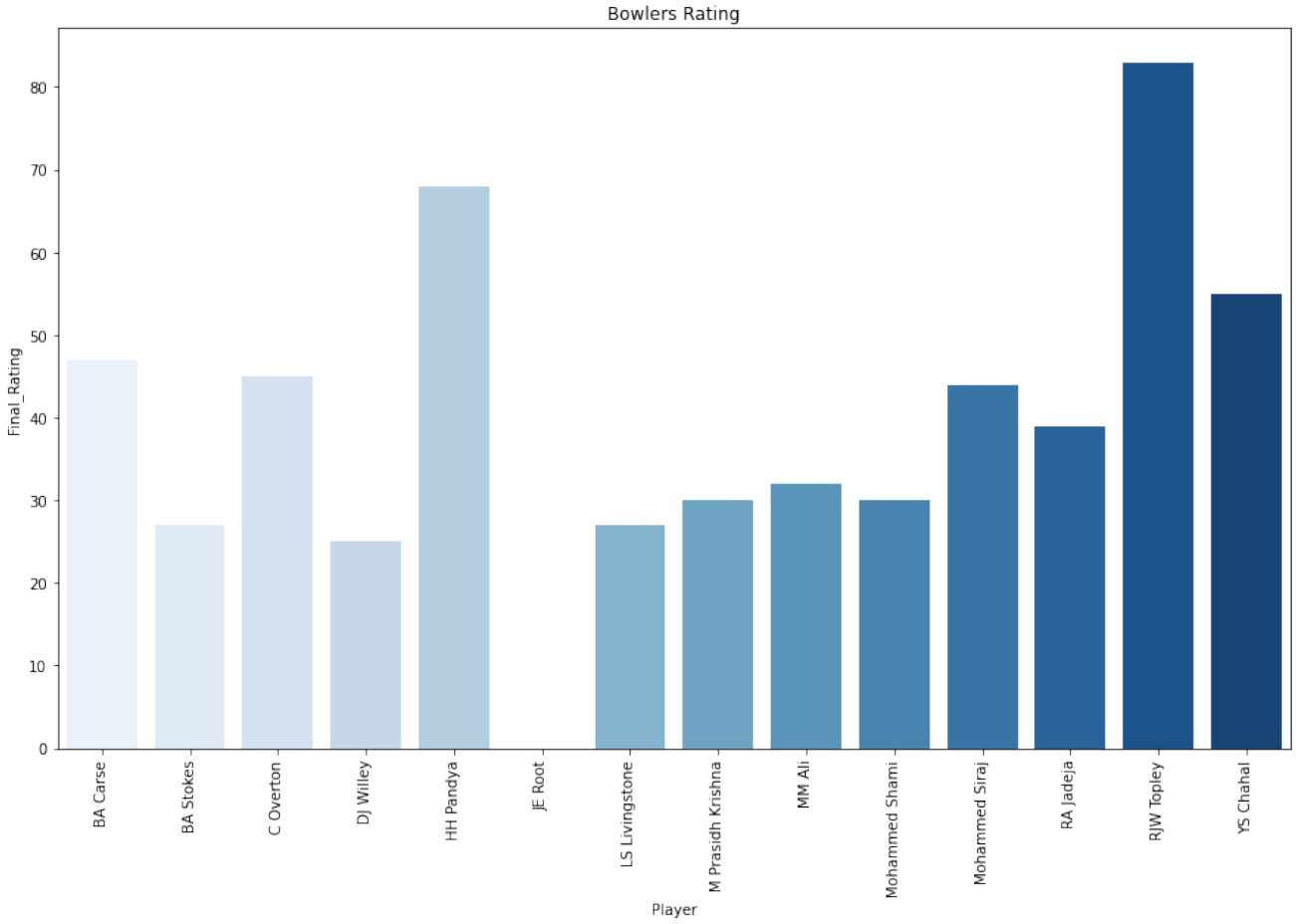
	bowler	Bowling_Team	Runs_conceeded	Balls_Bowled	Economy	Wickets_Taken	Total_Wi
0	BA Carse	England	45	48	5.62	1	
1	BA Stokes	England	14	12	7.00	0	
2	C Overton	England	54	48	6.75	1	
3	DJ Willey	England	58	42	8.29	0	
4	HH Pandya	India	24	42	3.43	4	

Measuring the 'Bowler Rating'

In [60]:
```
Bowler_Ratings['Final_Rating']= 100 * np.round(0.33 * Bowler_Ratings['Wicket_
```

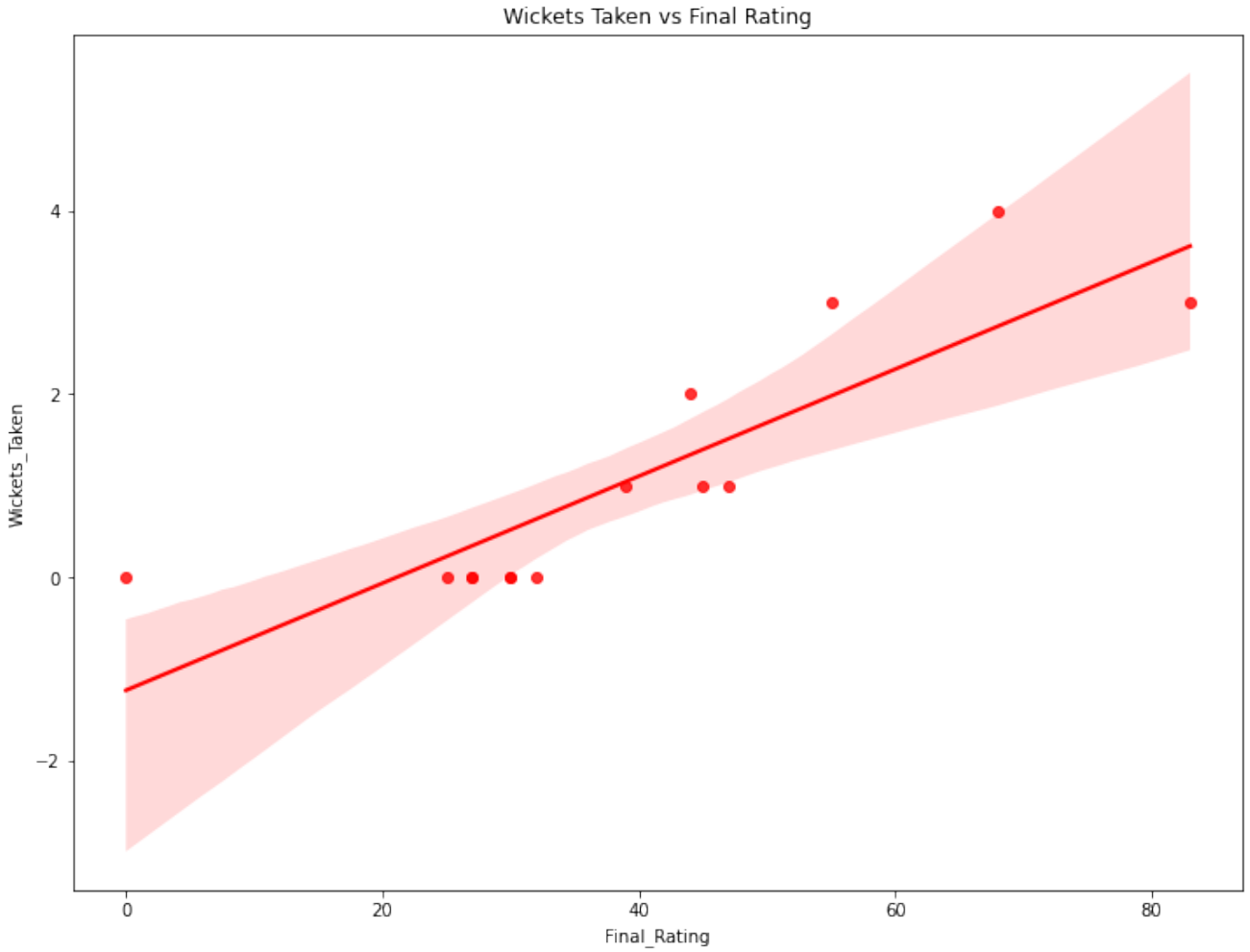
In [61]:
```
Bowler_Ratings.rename(columns={'bowler':'Player','Bowling_Team':'Team'},inpla
```

In [62]:
```
plt.figure(figsize=(15,9)) # initial figure size
sns.barplot(x='Player',y='Final_Rating',data=Bowler_Ratings,palette="Blues")
plt.title('Bowlers Rating')# Assigning title
plt.xticks(rotation=90) # Rotating the labels
plt.show() #plotting
```



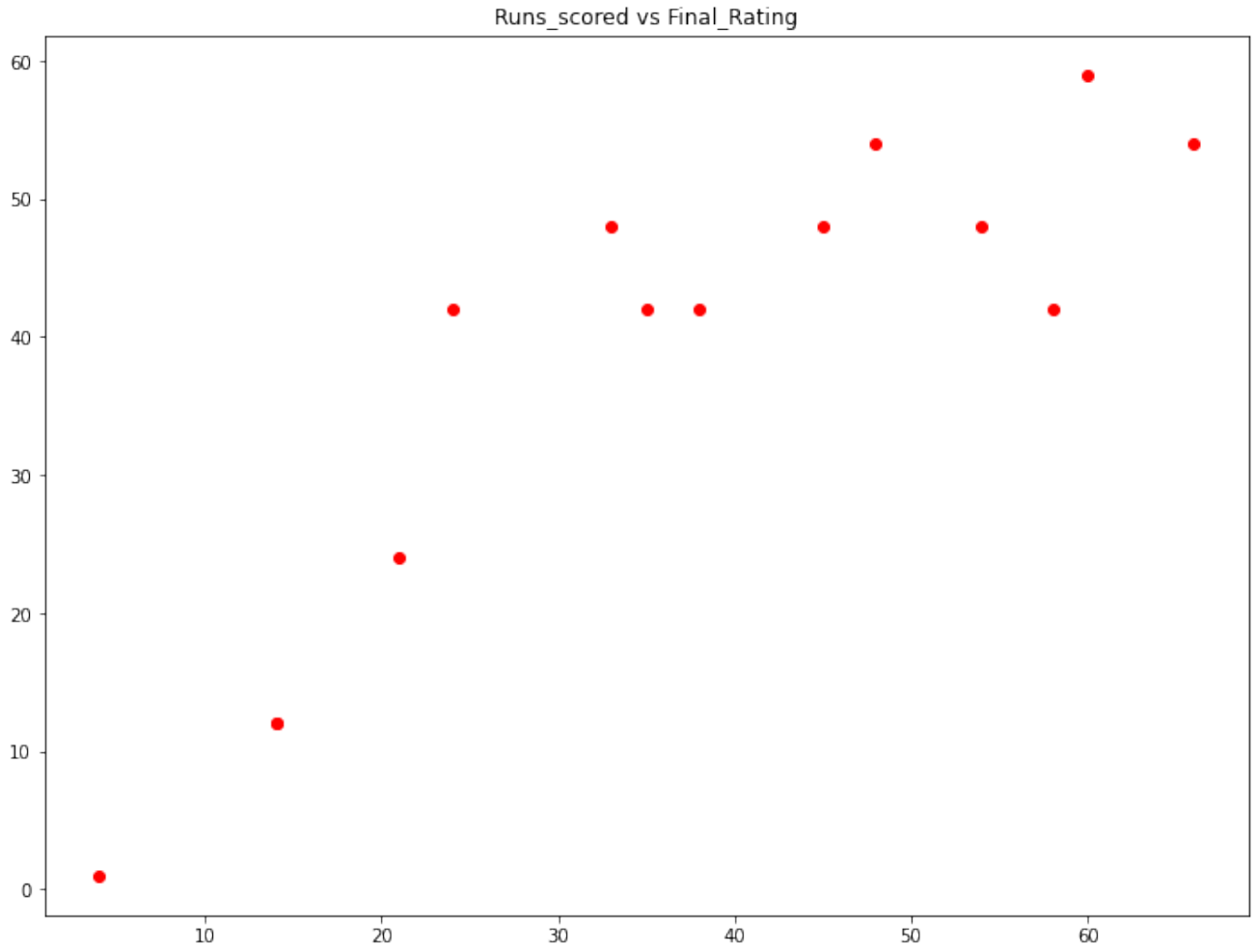
Impact of 'Wickets Taken' on 'Bowler Rating'

In [63]:
```
plt.figure(figsize=(12,9))
sns.regplot(y='Wickets_Taken',x='Final_Rating',data=Bowler_Ratings,color='red
plt.title('Wickets Taken vs Final Rating')
plt.show()
```



In [64]:

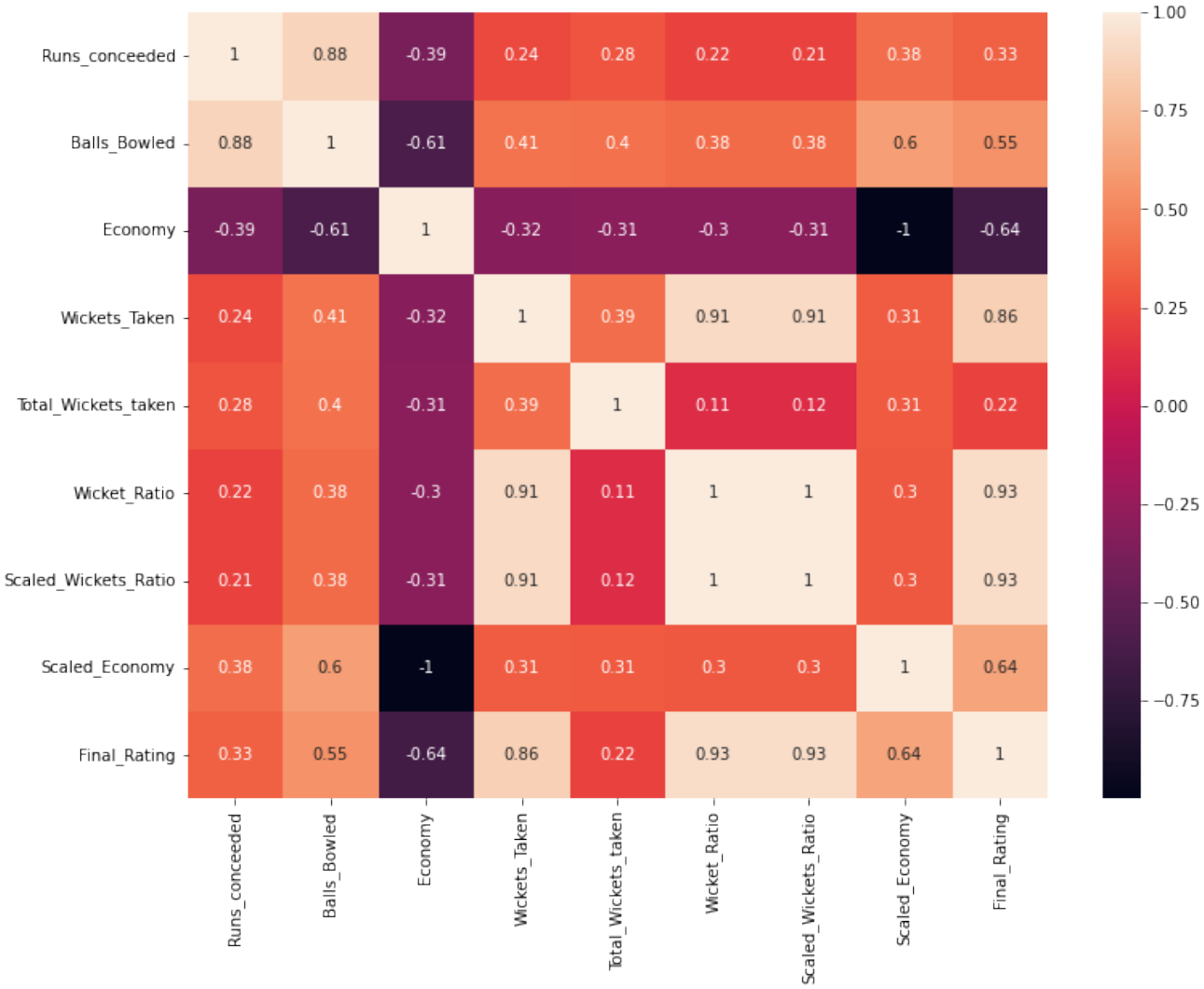
```
# Runs Conceeded vs Balls Bowled
plt.figure(figsize=(12,9))
plt.scatter(x=Bowler_Ratings['Runs_conceeded'],y=Bowler_Ratings['Balls_Bowled
plt.title('Runs_scored vs Final_Rating')
plt.show()
```



Bowlers_Rating Correlation

In [65]:

```
plt.figure(figsize=(12,9))
sns.heatmap(Bowler_Ratings.corr(),annot=True)
plt.show()
```



We can conclude that 'Wickets-Taken' is highly correlated with Bowler rating whereas 'Runs conceeded' is the least

CALCULATING OVERALL PLAYER RATING

In [66]:

```
# Getting all the player names (Bowlers,Strikers) using Concat
df_2 = df[['striker','Batting_Team']].drop_duplicates().reset_index()
df_2.drop('index',axis=1)
df_2.head()
```

Out[66]:

	index	striker	Batting_Team
0	0	JJ Roy	England
1	6	JM Bairstow	England
2	9	JE Root	England
3	15	BA Stokes	England
4	60	JC Buttler	England

In [67]:

```
df_3 = df[['bowler','Bowling_Team']].drop_duplicates().reset_index()
df_3.drop('index',axis=1)
df_3.head()
```

Out[67]:

	index	bowler	Bowling_Team
0	0	Mohammed Shami	India
1	6	Mohammed Siraj	India
2	49	M Prasidh Krishna	India
3	55	HH Pandya	India
4	104	YS Chahal	India

In [68]:

```
df_2.rename(columns={'striker':'Player','Batting_Team':'Team'},inplace=True)
```

In [69]:

```
df_2.drop('index',axis=1,inplace=True)
```

In [70]:

```
df_3.rename(columns={'bowler':'Player','Bowling_Team':'Team'},inplace=True)
```

In [71]:

```
df_3.drop('index',axis=1,inplace=True)
```

In [72]:

```
df_3.head()
```

Out[72]:

	Player	Team
0	Mohammed Shami	India
1	Mohammed Siraj	India
2	M Prasidh Krishna	India
3	HH Pandya	India
4	YS Chahal	India

In [73]:
```
Players = pd.concat([df_2,df_3]) #concatenating to get names of all players p
```

In [74]:
```
Players.drop_duplicates(inplace=True)
```

In [75]:
```
Players.reset_index(drop=True,inplace=True)
Players
```

Out[75]:

	Player	Team
0	JJ Roy	England
1	JM Bairstow	England
2	JE Root	England
3	BA Stokes	England
4	JC Buttler	England
5	MM Ali	England
6	LS Livingstone	England
7	DJ Willey	England
8	C Overton	England
9	BA Carse	England
10	RJW Topley	England
11	RG Sharma	India
12	S Dhawan	India
13	V Kohli	India
14	RR Pant	India
15	SA Yadav	India
16	HH Pandya	India
17	RA Jadeja	India
18	Mohammed Shami	India
19	Mohammed Siraj	India
20	M Prasidh Krishna	India
21	YS Chahal	India

In [76]:
```
df_5 = pd.merge(Players,Bowler_Ratings,on=['Player','Team'],how='left')
```

In [77]:
```
Overall_Rating = pd.merge(df_5,Batsman_Ratings,on=['Player','Team'],how='left
```

In [78]:
```
#Extracting the required columns
Overall_Player_Rating = Overall_Rating[['Player','Team','Final_Rating_x','Fin
```

In [79]:
```
Overall_Player_Rating.fillna(0).head()
```

Out[79]:

	Player	Team	Final_Rating_x	Final_Rating_y
0	JJ Roy	England	0.0	49.10
1	JM Bairstow	England	0.0	0.00
2	JE Root	England	0.0	0.00
3	BA Stokes	England	27.0	33.66
4	JC Buttler	England	0.0	42.14

In [80]:
```
Overall_Player_Rating.rename(columns={"Final_Rating_x":'Bowling_Rating',"Fina
```

```
/var/folders/q9/vmdwqts13cj9tk5_rqd7w6pr0000gn/T/ipykernel_96787/4230067499.py
:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
able/user_guide/indexing.html#returning-a-view-versus-a-copy
  Overall_Player_Rating.rename(columns={"Final_Rating_x":'Bowling_Rating',"Fin
al_Rating_y":'Batting_Rating'},inplace=True)
```

In [81]:
```
Overall_Player_Rating['Player_Rating_for_the_Match'] = Overall_Player_Rating[
```

```
/var/folders/q9/vmdwqts13cj9tk5_rqd7w6pr0000gn/T/ipykernel_96787/1557728663.py
:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
able/user_guide/indexing.html#returning-a-view-versus-a-copy
  Overall_Player_Rating['Player_Rating_for_the_Match'] = Overall_Player_Rating
[["Bowling_Rating", "Batting_Rating"]].max(axis=1)
```

In [82]:
```
Overall_Player_Rating.fillna(0,inplace=True)
```

```
/var/folders/q9/vmdwqts13cj9tk5_rqd7w6pr0000gn/T/ipykernel_96787/3149467160.py
:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/st
able/user_guide/indexing.html#returning-a-view-versus-a-copy
  Overall_Player_Rating.fillna(0,inplace=True)
```

In [83]:
```
Overall_Player_Rating.head()
```

Out[83]:

	Player	Team	Bowling_Rating	Batting_Rating	Player_Rating_for_the_Match
0	JJ Roy	England	0.0	49.10	49.10
1	JM Bairstow	England	0.0	0.00	0.00
2	JE Root	England	0.0	0.00	0.00
3	BA Stokes	England	27.0	33.66	33.66
4	JC Buttler	England	0.0	42.14	42.14

Player of the Match with Best Rating

In [84]:
```
Player_of_the_Match_with_the_Best_Rating = \
Overall_Player_Rating.loc[Overall_Player_Rating['Player_Rating_for_the_Match'
                          Overall_Player_Rating['Player_Rating_for_the_Match'
[['Player','Team']]
```

In [85]:
```
Player_of_the_Match_with_the_Best_Rating
```

Out[85]:

	Player	Team
10	RJW Topley	England

In [86]:
```
Overall_Player_Rating.loc[Overall_Player_Rating['Team']=='India'][['Player_Ra
```

Out[86]:
```
Player_Rating_for_the_Match    76.44
dtype: float64
```

In [87]:
```
Player_of_the_Match_with_the_Best_Rating_for_India = \
Overall_Player_Rating.loc[Overall_Player_Rating['Player_Rating_for_the_Match'
```

Player of the Match with the Best Rating for India

In [88]:
```
Player_of_the_Match_with_the_Best_Rating_for_India
```

Out[88]:

	Player	Team
14	RR Pant	India

Our Predicted player with the Best Rating for India is the 'Player of the Match' (Result) -> RR Pant

(Its not Topley since India won the Match)

Using Minmaxscaler was a good approach to the problem !!!

---------- THANK YOU ----------

In [ ]: