In [56]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from statsmodels.distributions.empirical_distribution import ECDF
```

In [2]:
```
sethaag = pd.read_csv("sethaag.csv")
dravid = pd.read_csv("dravid.csv")
```

In [3]:
```
sethaag.shape
```

Out[3]:
```
(245, 14)
```

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

Out[4]:
```
(318, 14)
```

In [5]:
```
sethaag
```

Out[5]:

	Runs	Mins	BF	4s	6s	SR	Pos	Dismissal	Inns	Unnamed: 9	Opposition	Ground	Start Date	Unnamed: 13
0	1	5	2	0	0	50.00	7	lbw	1	NaN	v Pakistan	Mohali	1 Apr 1999	ODI # 1427
1	18	34	24	0	1	75.00	6	caught	1	NaN	v Zimbabwe	Rajkot	14 Dec 2000	ODI # 1660
2	58	62	54	6	0	107.40	6	bowled	1	NaN	v Australia	Bengaluru	25 Mar 2001	ODI # 1696
3	2	7	7	0	0	28.57	6	caught	2	NaN	v Zimbabwe	Bulawayo	27 Jun 2001	ODI # 1730
4	11	19	16	1	0	68.75	6	not out	2	NaN	v West Indies	Bulawayo	30 Jun 2001	ODI # 1731
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
240	15	21	15	2	0	100.00	2	caught	1	NaN	v Sri Lanka	Hambantota	24 Jul 2012	ODI # 3292
241	3	6	6	0	0	50.00	2	caught	2	NaN	v Sri Lanka	Colombo (RPS)	28 Jul 2012	ODI # 3293
242	34	46	29	6	0	117.24	2	caught	2	NaN	v Sri Lanka	Colombo (RPS)	31 Jul 2012	ODI # 3294
243	4	20	11	1	0	36.36	2	bowled	1	NaN	v Pakistan	Chennai	30 Dec 2012	ODI # 3314
244	31	70	43	3	0	72.09	2	lbw	2	NaN	v Pakistan	Kolkata	3 Jan 2013	ODI # 3315

245 rows × 14 columns

In [6]:
```
p_25=np.percentile(sethaag["Runs"],25) # percentile of Q1
p_25
```

Out[6]:
```
8.0
```

In [7]:
```
p_50=np.percentile(sethaag["Runs"],50) # percentile of Q2
p_50
```

Out[7]:
```
23.0
```

In [8]:
```
p_75=np.percentile(sethaag["Runs"],75) # percentile of Q3
p_75
```

Out[8]:
```
46.0
```

In [9]:
```
iqr=p_75-p_25
iqr
```

Out[9]:
```
38.0
```

In [10]:
```
range1=sethaag["Runs"].max()-sethaag["Runs"].min()
range1
```

Out[10]:
```
219
```

In [11]:
```
sethaag["Runs"].quantile(.25)
```

Out[11]:
```
8.0
```

In [12]:
```
sethaag["Runs"].quantile(.5)
```

Out[12]:
```
23.0
```

In [13]:
```
sethaag["Runs"].quantile(.75)
```

Out[13]:
```
46.0
```

In [23]:
```
lower= max(p_25-(1.5*iqr),sethaag["Runs"].min())
lower
```

Out[23]:
```
0
```

In [22]:
```
upper= min(p_75+(1.5*iqr),sethaag["Runs"].max())
upper
```

Out[22]:
```
103.0
```

In [23]:
```
sns.boxplot(x=sethaag["Runs"])
plt.show()
```

In [28]:
```
sethaag_outlier= sethaag[sethaag["Runs"]>upper]
sethaag_outlier["Runs"].shape
```

Out[28]:
```
(14,)
```

In [29]:
```
sethaag.shape
```

Out[29]:
```
(245, 14)
```

Out[29]:
```
14/245
```

Out[29]:
```
0.057142857142857144
```

In [30]:
```
describe_d=dravid["Runs"].describe()
describe_d
```

Out[30]:
```
count    318.000000
mean      34.241130
std       29.681822
min        0.000000
25%       10.000000
50%       26.000000
75%       54.000000
max      153.000000
Name: Runs, dtype: float64
```

In [38]:
```
describe_d.loc["max"]
```

Out[38]:
```
153.0
```

In [33]:
```
d_25=dravid["Runs"].quantile(.25)
d_50=dravid["Runs"].quantile(.5)
d_75=dravid["Runs"].quantile(.75)
print(d_25,d_50,d_75)
```

```
10.0 26.0 54.0
```

In [39]:
```
lower_d=max(d_25-(1.5*iqr),dravid["Runs"].min())

upper_d=min(d_75+(1.5*iqr),dravid["Runs"].max())
iqr_d=upper_d-lower_d
iqr_d
```

Out[39]:
```
111.0
```

In [41]:
```
dravid_outlier= dravid[dravid["Runs"]>upper_d]
dravid_outlier["Runs"].shape
```

Out[41]:
```
(4,)
```

In [42]:
```
dravid.shape
```

Out[42]:
```
(318, 14)
```

In [44]:
```
4/318
```

Out[44]:
```
0.012578616352201259
```

In [45]:
```
dataqrwt.read_html("https://www.espncricinfo.com/records/most-runs-in-career-282827")
data
```

Out[45]:
```
[                  Player    Span  Mat  Inns  NO  Runs    HS    Ave    BF    SR  100  50  0  4s  6s
 0          V Kohli (IND)  2010-2022  115   107  31  4008  122*  52.73  2905  137.96   1  37  4  356  117
 1       RG Sharma (IND)  2007-2022  148   140  17  3853   118  31.32  2767   139.24   4  29  10  348  182
 2          MJ Guptill (NZ)  2009-2022  122   118   7  3531   105  31.81  2602   135.70   2  20   3  309  173
 3       Babar Azam (PAK)  2016-2023  104    98  14  3485   122  41.48  2714   128.40   3  30   5  371   53
 4          PR Stirling (IRE)  2009-2023  124   123   9  3275   119*  28.72  2410   135.99   1  22  12  374   121
 ..                    ...        ...  ...   ...  ..   ...   ...    ...   ...      ...  ..  ..  ..  ...   ...
 95    Riazat Ali Shah (USA)  2019-2023   48    43  13  1075    96*  35.83   832   129.20   -   4   3   77    50
 96      LD Chandimal (SL)  2010-2022   68    61   7  1062    68*  19.66  1025   103.60   -   6   -   90    22
 97      Ahmed Faiz (MAL)  2019-2023   48    43   5  1057    86   27.81   958   123.19   -   5   2   85    40
 98    Jatinder Singh (OMA)  2015-2022   46    46   6  1056    73*  26.40   899   117.46   -   5   3  107    21
 99  HE van der Dussen (SA)  2018-2022   41    37   8  1044    94*  36.00   811   128.72   -   7   1   66    45

 [100 rows x 15 columns]]
```

In [46]:
```
type(data)
```

Out[46]:
```
list
```

In [48]:
```
data[0]
```

Out[48]:

	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s
0	V Kohli (IND)	2010-2022	115	107	31	4008	122*	52.73	2905	137.96	1	37	4	356	117
1	RG Sharma (IND)	2007-2022	148	140	17	3853	118	31.32	2767	139.24	4	29	10	348	182
2	MJ Guptill (NZ)	2009-2022	122	118	7	3531	105	31.81	2602	135.70	2	20	3	309	173
3	Babar Azam (PAK)	2016-2023	104	98	14	3485	122	41.48	2714	128.40	3	30	5	371	53
4	PR Stirling (IRE)	2009-2023	124	123	9	3275	119*	28.72	2410	135.99	1	22	12	374	121
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
95	Riazat Ali Shah (USA)	2019-2023	48	43	13	1075	96*	35.83	832	129.20	-	4	3	77	50
96	LD Chandimal (SL)	2010-2022	68	61	7	1062	68*	19.66	1025	103.60	-	6	-	90	22
97	Ahmed Faiz (MAL)	2019-2023	48	43	5	1057	86	27.81	958	123.19	-	5	2	85	40
98	Jatinder Singh (OMA)	2015-2022	46	46	6	1056	73*	26.40	899	117.46	-	5	3	107	21
99	HE van der Dussen (SA)	2018-2022	41	37	8	1044	94*	36.00	811	128.72	-	7	1	66	45

100 rows × 15 columns

In [49]:
```
!ls
```

```
04_Descriptive_Statistics_Notebook.ipynb
05_Descriptive_Statistics_Notebook.ipynb
05_Descriptive_Statistics_Notebook.pdf
05_Descriptive_Statistics_Scribble_Notes.pdf
05_Descriptive_Statistics_Typed_Notes.pdf
dravid.csv
sethaag.csv
weight-height.csv
```

In [50]:
```
df_hwrpd.read_csv("weight-height.csv")
df_hw
```

Out[50]:

	Gender	Height	Weight
0	Male	73.847017	241.893563
1	Male	68.781904	162.310473
2	Male	74.110105	212.740856
3	Male	71.730978	220.042470
4	Male	69.881796	206.349801
...	...	...	...
9995	Female	66.172652	136.777454
9996	Female	67.067155	170.867906
9997	Female	63.867992	128.475319
9998	Female	69.034243	163.852461
9999	Female	61.944246	113.649103

10000 rows × 3 columns

In [51]:
```
df_hw["Height"]
```

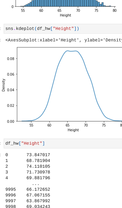
Out[51]:
```
0       73.847017
1       68.781904
2       74.110105
3       71.730978
4       69.881796
        ...
9995    66.172652
9996    67.067155
9997    63.867992
9998    69.034243
9999    61.944246
Name: Height, Length: 10000, dtype: float64
```

In [52]:
```
df_hw["Height"].describe()
```

Out[52]:
```
count    10000.000000
mean        66.367560
std          3.847528
min         54.263133
25%         63.505620
50%         66.318070
75%         69.174262
max         78.998742
Name: Height, dtype: float64
```

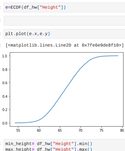
In [53]:
```
sns.displot(df_hw["Height"])
```

Out[53]:
```
<seaborn.axisgrid.FacetGrid at 0x7fe6ec580640>
```



In [54]:
```
sns.kdeplot(df_hw["Height"])
```

Out[54]:
```
<AxesSubplot:xlabel='Height', ylabel='Density'>
```



In [56]:
```
df_hw["Height"]
```

Out[55]:
```
0       73.847017
1       68.781904
2       74.110105
3       71.730978
4       69.881796
        ...
9995    66.172652
9996    67.067155
9997    63.867992
9998    69.034243
9999    61.944246
Name: Height, Length: 10000, dtype: float64
```

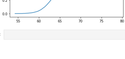
In [57]:
```
ecdf(df_hw["Height"])
```

In [ ]:
```

```

In [62]:
```
plt.plot(e_x,e_y)
```

Out[62]:
```
[<matplotlib.lines.Line2D at 0x7fe6e90d6f10>]
```



In [67]:
```
min_height= df_hw["Height"].min()
max_height= df_hw["Height"].max()
max_height
```

Out[67]:
```
78.998742348
```

In [68]:
```
df_height=df_hw["Height"]
```

In [69]:
```
x_values=np.linspace(min_height,max_height,1000)
x_values[:]
```

In [72]:
```
x_values=np.linspace(min_height,max_height,1000)
y_values=[]
for x in x_values:
    people_shorter_than_x = df_height[df_height<x]
    num_people_shorter_than_x= len(people_shorter_than_x)
    fraction_people_shorter_than_x=num_people_shorter_than_x/df_height.shape[0]
    y_values.append(fraction_people_shorter_than_x)
plt.plot(x_values,y_values)
```

Out[72]:
```
[<matplotlib.lines.Line2D at 0x7fe6eac4b2e0>]
```


In [73]:
```
plt.plot(e_x,e_y)
```

Out[73]:
```
[<matplotlib.lines.Line2D at 0x7fe6db6861b0>]
```


In [ ]:
```

```

In [ ]:

In [ ]: