

TASK:

Design an algorithm to select the best team for the Champions League Final: Man City vs. Inter Milan on June 10th. Consider player performance, team strategies, and past records.

Name:Name POS:Position Age:Current age of player HT:Height WT:Weight NAT:Nationality APP:Appearances
SUB:Substitute Appearances G:Total Goals A:Assists SH:Shots ST:Shots On Target FC:Fouls Committed FA:Fouls
Suffered YC:Yellow Cards RC:Red Cards SV:Saves GA:Goals Against

```
In [4]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sn
```

```
In [5]: ls
```

```
Volume in drive C is ssd
Volume Serial Number is 344C-651C
```

```
Directory of C:\Users\phoneclicker\Downloads\excelr_kd\champions_league
```

```
05/30/2023  10:51 PM    <DIR>          .
05/30/2023  10:51 PM    <DIR>          ..
05/30/2023  08:55 PM    <DIR>          .ipynb_checkpoints
05/30/2023  10:51 PM                2,094 team 2.csv
05/30/2023  10:50 PM                1,605 team1.csv
05/30/2023  10:25 PM                5,423 Untitled.ipynb
                3 File(s)              9,122 bytes
                3 Dir(s) 29,876,064,256 bytes free
```

```
In [13]: team1=pd.read_csv("team1.csv",encoding="latin")
team2=pd.read_csv("team 2.csv",encoding="latin")
```

```
In [14]: team1.head(2)
```

```
Out[14]:
```

	NAME	POS	AGE	HT	WT	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
0	Kyle Walker2	D	33	1.78 m	78 kg	England	27	5	0	0	6	1	13	10	3	0
1	R�ben Dias3	D	26	1.85 m	76 kg	Portugal	26	4	0	0	9	2	18	7	3	0

```
In [15]: team2.head(2)
```

```
Out[15]:
```

	NAME	POS	AGE	HT	WT	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
0	Kieran Tierney3	D	25	1.78 m	68 kg	Scotland	27	21	0	1	7	2	5	9	0	0
1	Ben White4	D	25	1.85 m	76 kg	England	38	2	2	5	10	2	28	29	5	0

```
In [19]: team1
```

Out[19]:

	NAME	POS	AGE	HT	WT	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
0	Kyle Walker2	D	33	1.78 m	78 kg	England	27	5	0	0	6	1	13	10	3	0
1	Ruben Dias3	D	26	1.85 m	76 kg	Portugal	26	4	0	0	9	2	18	7	3	0
2	John Stones5	D	29	1.88 m	78 kg	England	23	2	2	2	12	4	11	8	2	0
3	Nathan Akp6	D	28	1.8 m	73 kg	Netherlands	26	4	1	0	9	2	11	14	2	0
4	Aymeric Laporte14	D	29	1.88 m	86 kg	Spain	12	1	0	0	9	1	5	7	0	0
5	Manuel Akanji25	D	27	1.85 m	91 kg	Switzerland	29	5	0	1	15	2	24	12	2	0
6	Rico Lewis82	D	18	1.7 m	NaN	England	14	4	0	0	5	2	10	18	1	0
7	Kalvin Phillips4	M	27	1.78 m	72 kg	England	12	10	0	0	6	0	10	2	1	0
8	Ilkay Gundogan8	M	32	1.8 m	78 kg	Germany	31	4	8	4	51	18	22	25	0	0
9	Jack Grealish10	M	27	1.75 m	76 kg	England	28	5	5	7	40	13	25	78	4	0
10	Rodri16	M	26	1.91 m	82 kg	Spain	36	2	2	6	46	13	45	20	5	0
11	Kevin De Bruyne17	M	31	1.8 m	68 kg	Belgium	32	4	7	16	65	20	20	29	1	0
12	Bernardo Silva20	M	28	1.73 m	63 kg	Portugal	34	10	4	5	25	9	29	15	5	0
13	Sergio Gomez21	M	22	1.7 m	68 kg	Spain	12	10	0	1	7	0	1	2	0	0
14	Mximo Perrone32	M	20	1.78 m	68 kg	Argentina	1	1	0	0	0	0	0	0	0	0
15	Phil Foden47	M	23	1.7 m	68 kg	England	32	10	11	6	46	21	9	29	1	0
16	Shea Charles62	M	19	--	--	Northern Ireland	1	1	0	0	0	0	0	0	0	0
17	Nico O'Reilly75	M	18	--	--	England	0	0	0	0	0	0	0	0	0	0
18	Cole Palmer80	M	21	1.83 m	73 kg	England	14	12	0	2	11	4	1	6	1	0
19	Alex Robertson93	M	20	1.83 m	--	Australia	0	0	0	0	0	0	0	0	0	0
20	Ben Knight96	M	20	1.7 m	59 kg	England	0	0	0	0	0	0	0	0	0	0

	NAME	POS	AGE	HT	WT	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
21	Erling Haaland9	F	22	1.93 m	87 kg	Norway	35	2	36	8	125	60	31	24	5	0
22	Juli n ? lvarez19	F	23	1.7 m	71 kg	Argentina	31	18	9	0	45	21	20	14	0	0
23	Riyad Mahrez26	F	32	1.78 m	67 kq	Algeria	30	8	5	11	40	12	15	42	2	0

In [22]:

team1["WT"].fillna(me)

Out[22]:

	NAME	POS	AGE	HT	WT	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
0	Kyle Walker2	D	33	1.78 m	78 kg	England	27	5	0	0	6	1	13	10	3	0
1	R£ben Dias3	D	26	1.85 m	76 kg	Portugal	26	4	0	0	9	2	18	7	3	0
2	John Stones5	D	29	1.88 m	78 kg	England	23	2	2	2	12	4	11	8	2	0
3	Nathan Ak¶6	D	28	1.8 m	73 kg	Netherlands	26	4	1	0	9	2	11	14	2	0
4	Aymeric Laporte14	D	29	1.88 m	86 kg	Spain	12	1	0	0	9	1	5	7	0	0
5	Manuel Akanji25	D	27	1.85 m	91 kg	Switzerland	29	5	0	1	15	2	24	12	2	0
6	Rico Lewis82	D	18	1.7 m	NaN	England	14	4	0	0	5	2	10	18	1	0
7	Kalvin Phillips4	M	27	1.78 m	72 kg	England	12	10	0	0	6	0	10	2	1	0
8	Ilkay G¶ndogan8	M	32	1.8 m	78 kg	Germany	31	4	8	4	51	18	22	25	0	0
9	Jack Grealish10	M	27	1.75 m	76 kg	England	28	5	5	7	40	13	25	78	4	0
10	Rodri16	M	26	1.91 m	82 kg	Spain	36	2	2	6	46	13	45	20	5	0
11	Kevin De Bruyne17	M	31	1.8 m	68 kg	Belgium	32	4	7	16	65	20	20	29	1	0
12	Bernardo Silva20	M	28	1.73 m	63 kg	Portugal	34	10	4	5	25	9	29	15	5	0
13	Sergio G¶mez21	M	22	1.7 m	68 kg	Spain	12	10	0	1	7	0	1	2	0	0
14	M ximo Perrone32	M	20	1.78 m	68 kg	Argentina	1	1	0	0	0	0	0	0	0	0
15	Phil Foden47	M	23	1.7 m	68 kg	England	32	10	11	6	46	21	9	29	1	0
16	Shea Charles62	M	19	--	--	Northern Ireland	1	1	0	0	0	0	0	0	0	0
17	Nico O'Reilly75	M	18	--	--	England	0	0	0	0	0	0	0	0	0	0
18	Cole Palmer80	M	21	1.83 m	73 kg	England	14	12	0	2	11	4	1	6	1	0
19	Alex Robertson93	M	20	1.83 m	--	Australia	0	0	0	0	0	0	0	0	0	0
20	Ben Knight96	M	20	1.7 m	59 kg	England	0	0	0	0	0	0	0	0	0	0

	NAME	POS	AGE	HT	WT	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
21	Erling Haaland	F	22	1.93 m	87 kg	Norway	35	2	36	8	125	60	31	24	5	0
22	Juli n ? lvarez	F	23	1.7 m	71 kg	Argentina	31	18	9	0	45	21	20	14	0	0
23	Riyad Mahrez	F	32	1.78 m	67 kg	Algeria	30	8	5	11	40	12	15	42	2	0

remove unwanted column

```
In [24]: new_team1=team1[["NAME", "POS", "NAT", "APP", "SUB", "G", "A", "SH", "ST", "FC", "FA", "YC", "RC"]]
```

visualization For Team-1

```
In [25]: new_team1
```

Out[25]:

	NAME	POS	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC	
0	Kyle Walker	2	D	England	27	5	0	0	6	1	13	10	3	0
1	R�ben Dias	3	D	Portugal	26	4	0	0	9	2	18	7	3	0
2	John Stones	5	D	England	23	2	2	2	12	4	11	8	2	0
3	Nathan Ak�	6	D	Netherlands	26	4	1	0	9	2	11	14	2	0
4	Aymeric Laporte	14	D	Spain	12	1	0	0	9	1	5	7	0	0
5	Manuel Akanji	25	D	Switzerland	29	5	0	1	15	2	24	12	2	0
6	Rico Lewis	82	D	England	14	4	0	0	5	2	10	18	1	0
7	Kalvin Phillips	4	M	England	12	10	0	0	6	0	10	2	1	0
8	Ilkay G�ndogan	8	M	Germany	31	4	8	4	51	18	22	25	0	0
9	Jack Grealish	10	M	England	28	5	5	7	40	13	25	78	4	0
10	Rodri	16	M	Spain	36	2	2	6	46	13	45	20	5	0
11	Kevin De Bruyne	17	M	Belgium	32	4	7	16	65	20	20	29	1	0
12	Bernardo Silva	20	M	Portugal	34	10	4	5	25	9	29	15	5	0
13	Sergio G�mez	21	M	Spain	12	10	0	1	7	0	1	2	0	0
14	Mximo Perrone	32	M	Argentina	1	1	0	0	0	0	0	0	0	0
15	Phil Foden	47	M	England	32	10	11	6	46	21	9	29	1	0
16	Shea Charles	62	M	Northern Ireland	1	1	0	0	0	0	0	0	0	0
17	Nico O'Reilly	75	M	England	0	0	0	0	0	0	0	0	0	0
18	Cole Palmer	80	M	England	14	12	0	2	11	4	1	6	1	0
19	Alex Robertson	93	M	Australia	0	0	0	0	0	0	0	0	0	0
20	Ben Knight	96	M	England	0	0	0	0	0	0	0	0	0	0
21	Erling Haaland	9	F	Norway	35	2	36	8	125	60	31	24	5	0
22	Juli�n �lvarez	19	F	Argentina	31	18	9	0	45	21	20	14	0	0
23	Riyad Mahrez	26	F	Algeria	30	8	5	11	40	12	15	42	2	0

In [78]:

```
#goals
plt.figure(figsize=(6,8))
plt.barh(new_team1["NAME"],new_team1["G"],height=.6)
```

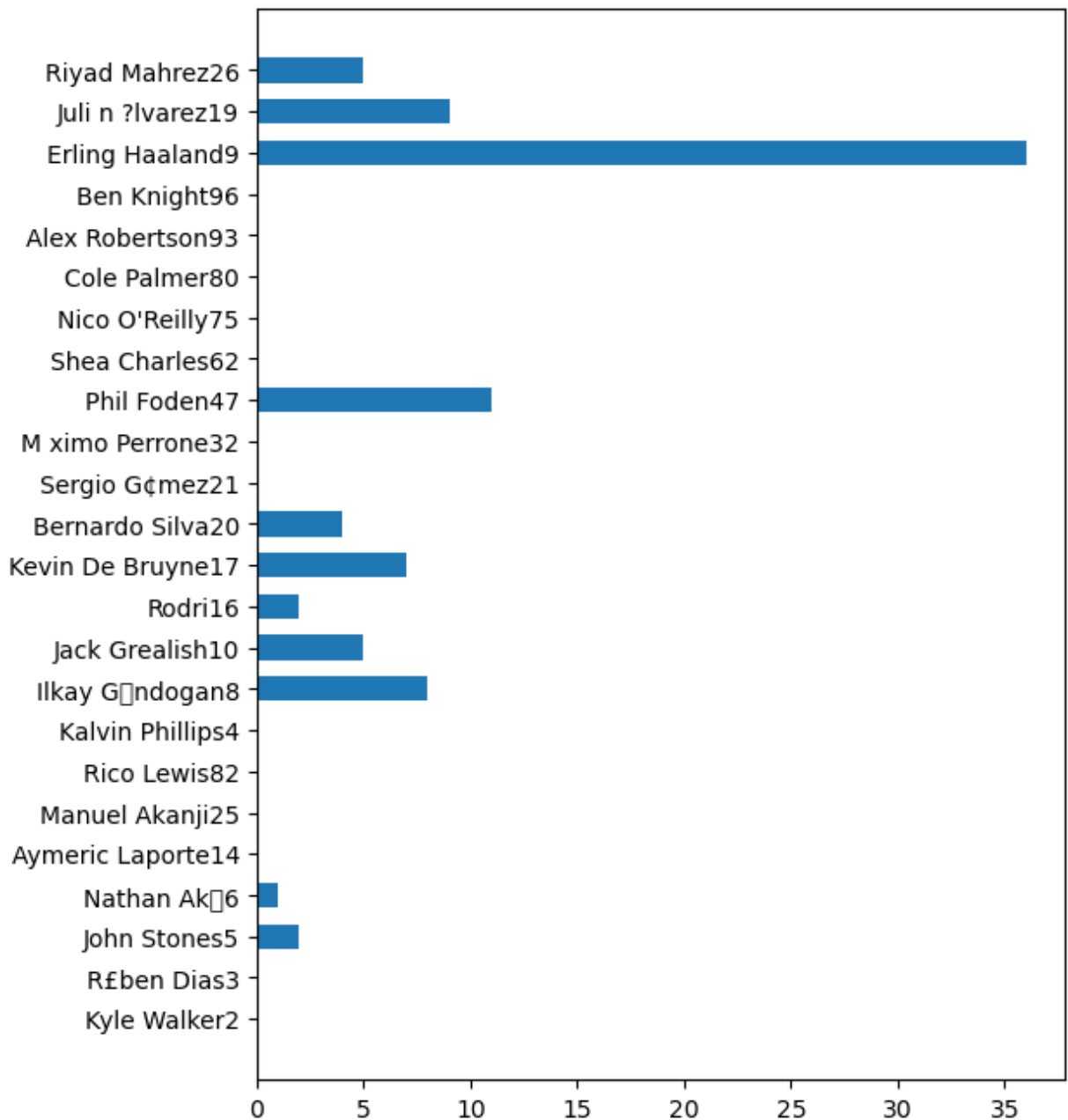
Out[78]:

<BarContainer object of 24 artists>

```

C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\events.py:89:
UserWarning: Glyph 130 (\x82) missing from current font.
    func(*args, **kwargs)
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\events.py:89:
UserWarning: Glyph 129 (\x81) missing from current font.
    func(*args, **kwargs)
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\pylabtools.p
y:152: UserWarning: Glyph 130 (\x82) missing from current font.
    fig.canvas.print_figure(bytes_io, **kw)
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\pylabtools.p
y:152: UserWarning: Glyph 129 (\x81) missing from current font.
    fig.canvas.print_figure(bytes_io, **kw)

```



```

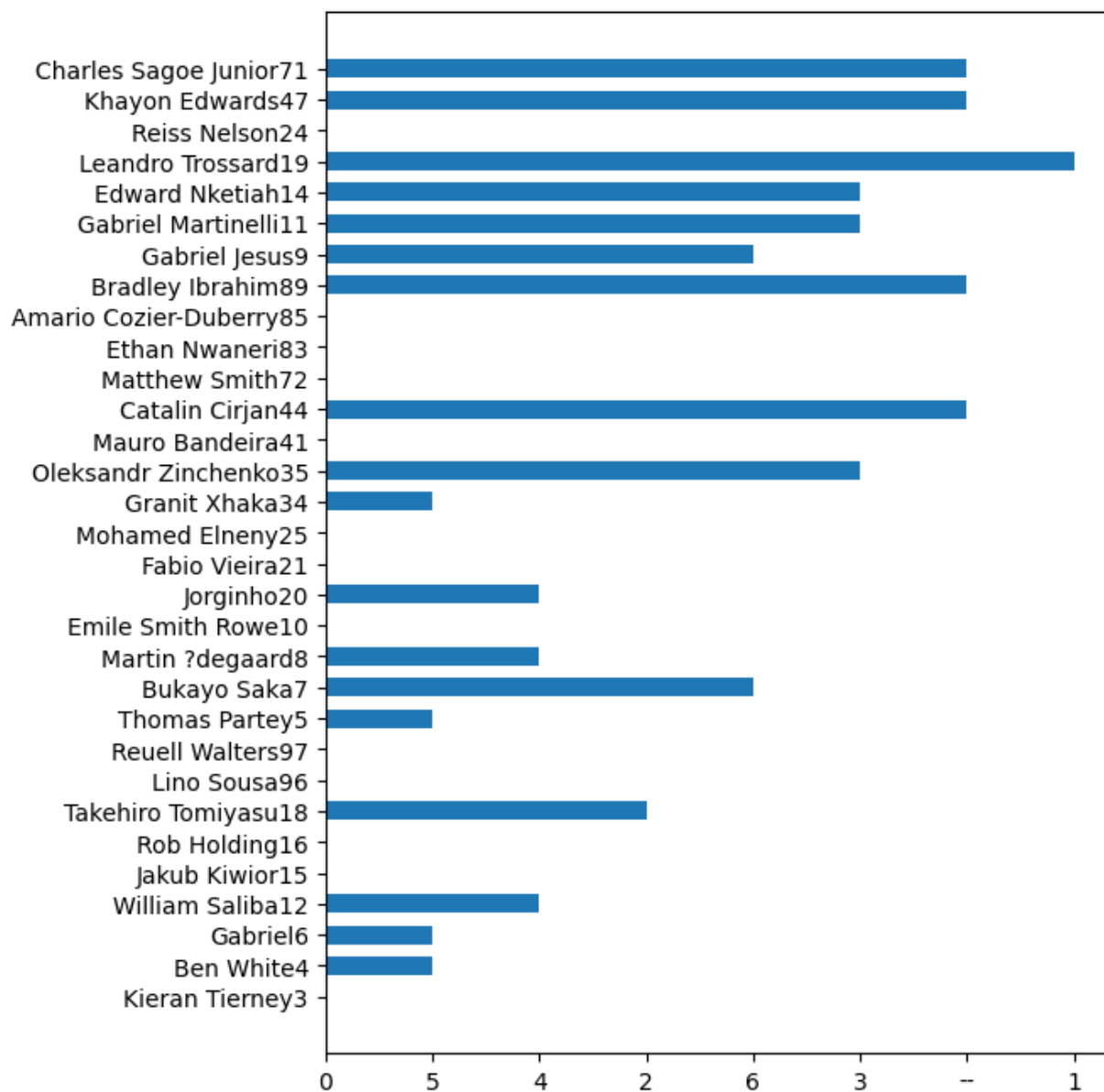
In [55]: #Max yellow card
plt.figure(figsize=(6,8))
plt.barh(new_team1["NAME"],new_team1["YC"],height=.6)

```

```

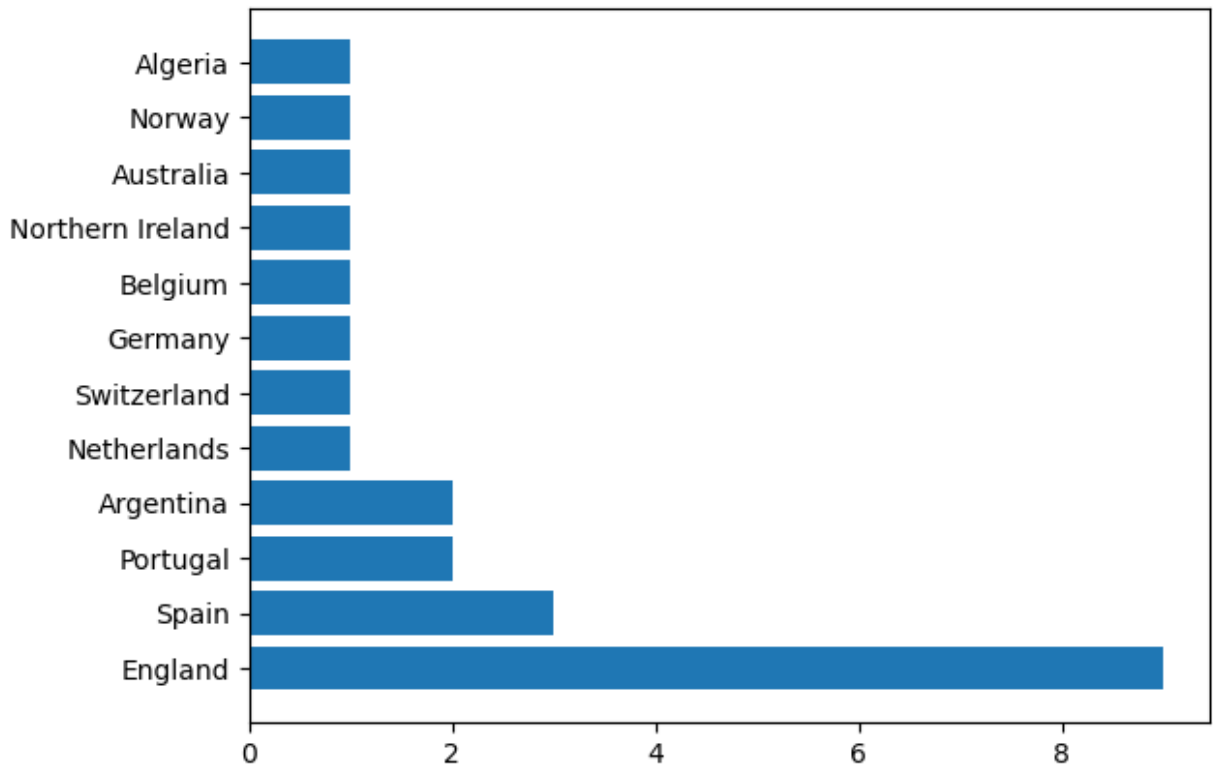
Out[55]: <BarContainer object of 31 artists>

```



```
In [79]: #player location
x=pd.DataFrame(new_team1["NAT"].value_counts())
x=x.reset_index()
plt.barh(x["index"],x["NAT"])
```

```
Out[79]: <BarContainer object of 12 artists>
```

```
In [80]: new_team1.head()
```

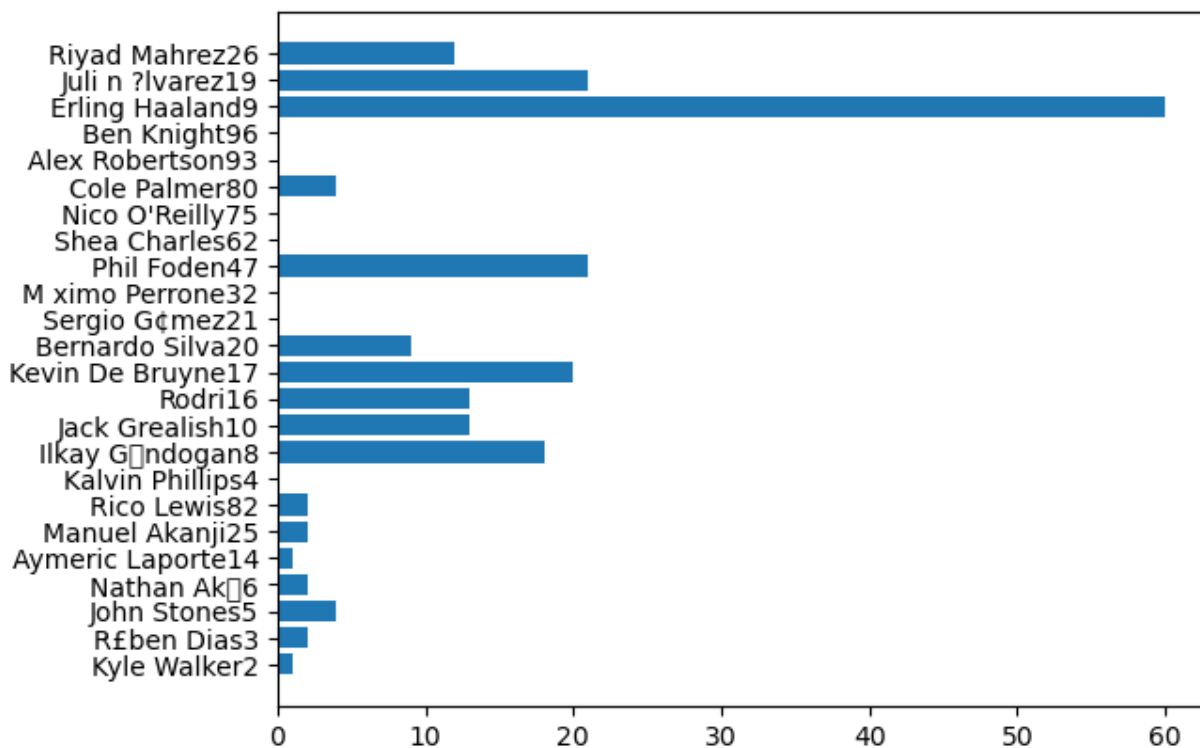
```
Out[80]:
```

	NAME	POS	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
0	Kyle Walker2	D	England	27	5	0	0	6	1	13	10	3	0
1	R�ben Dias3	D	Portugal	26	4	0	0	9	2	18	7	3	0
2	John Stones5	D	England	23	2	2	2	12	4	11	8	2	0
3	Nathan Ak�6	D	Netherlands	26	4	1	0	9	2	11	14	2	0
4	Aymeric Laporte14	D	Spain	12	1	0	0	9	1	5	7	0	0

```
In [81]: # shots on target
plt.barh(new_team1["NAME"],new_team1["ST"])
```

```
Out[81]: <BarContainer object of 24 artists>
```

```
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\events.py:89:
UserWarning: Glyph 130 (\x82) missing from current font.
  func(*args, **kwargs)
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\events.py:89:
UserWarning: Glyph 129 (\x81) missing from current font.
  func(*args, **kwargs)
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\pylabtools.p
y:152: UserWarning: Glyph 130 (\x82) missing from current font.
  fig.canvas.print_figure(bytes_io, **kw)
C:\Users\phoneclicker\anaconda3\anaconda\lib\site-packages\IPython\core\pylabtools.p
y:152: UserWarning: Glyph 129 (\x81) missing from current font.
  fig.canvas.print_figure(bytes_io, **kw)
```

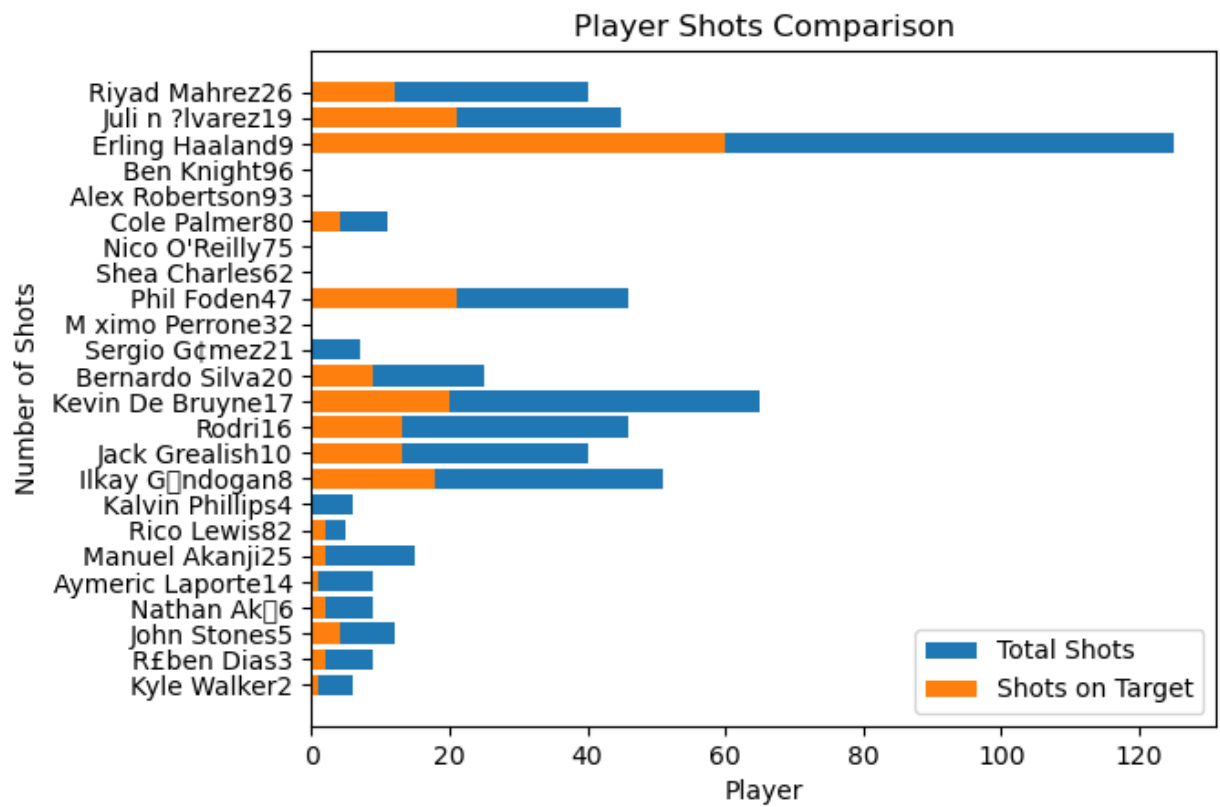


```
In [93]: #total shots vs shots on target
players =new_team1["NAME"]
total_shots = new_team1["SH"]
shots_on_target = new_team1["ST"]
plt.barh(players, total_shots, label='Total Shots')
plt.barh(players, shots_on_target, label='Shots on Target')

plt.xlabel('Player')
plt.ylabel('Number of Shots')
plt.title('Player Shots Comparison')

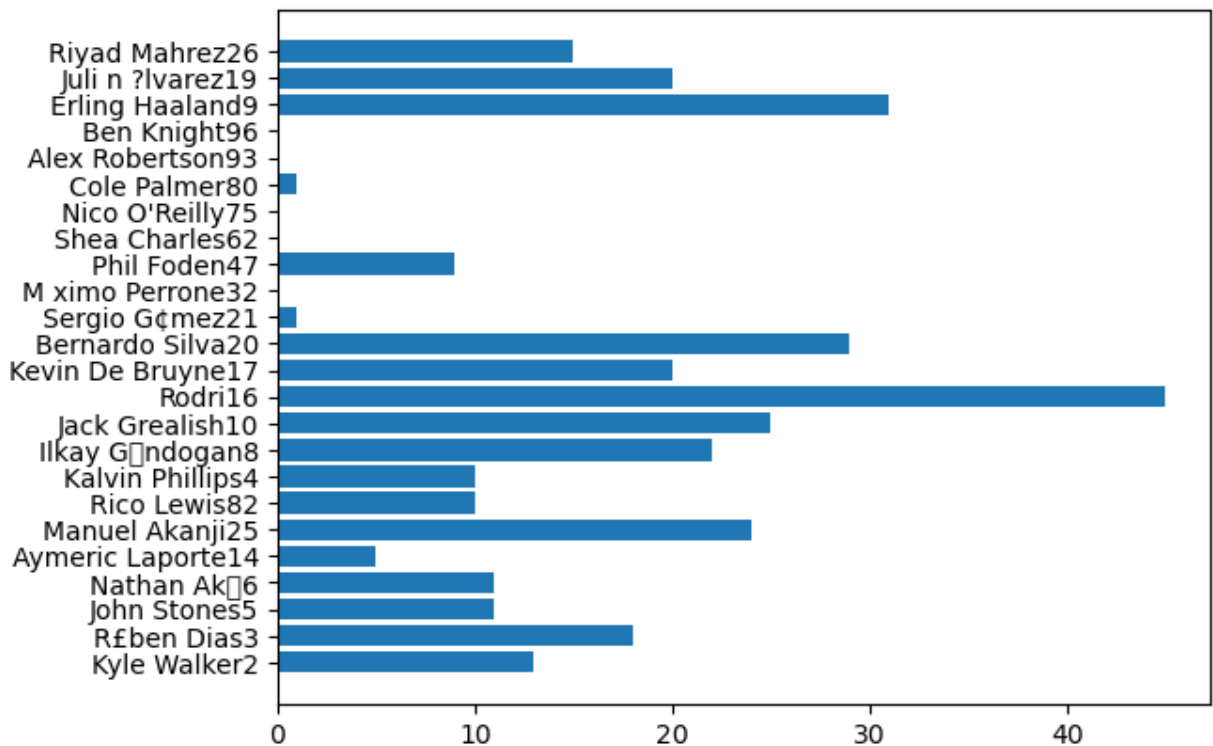
plt.legend()

plt.show()
```



```
In [94]: #Fauls Comitted
plt.barh(new_team1["NAME"],new_team1["FC"])
```

```
Out[94]: <BarContainer object of 24 artists>
```



team-2

In [109...

```
new_team2=team2[["NAME", "POS", "NAT", "APP", "SUB", "G", "A", "SH", "ST", "FC", "FA", "YC", "RC"]]
```

In [110...

```
new_team2
```

Out[110]:

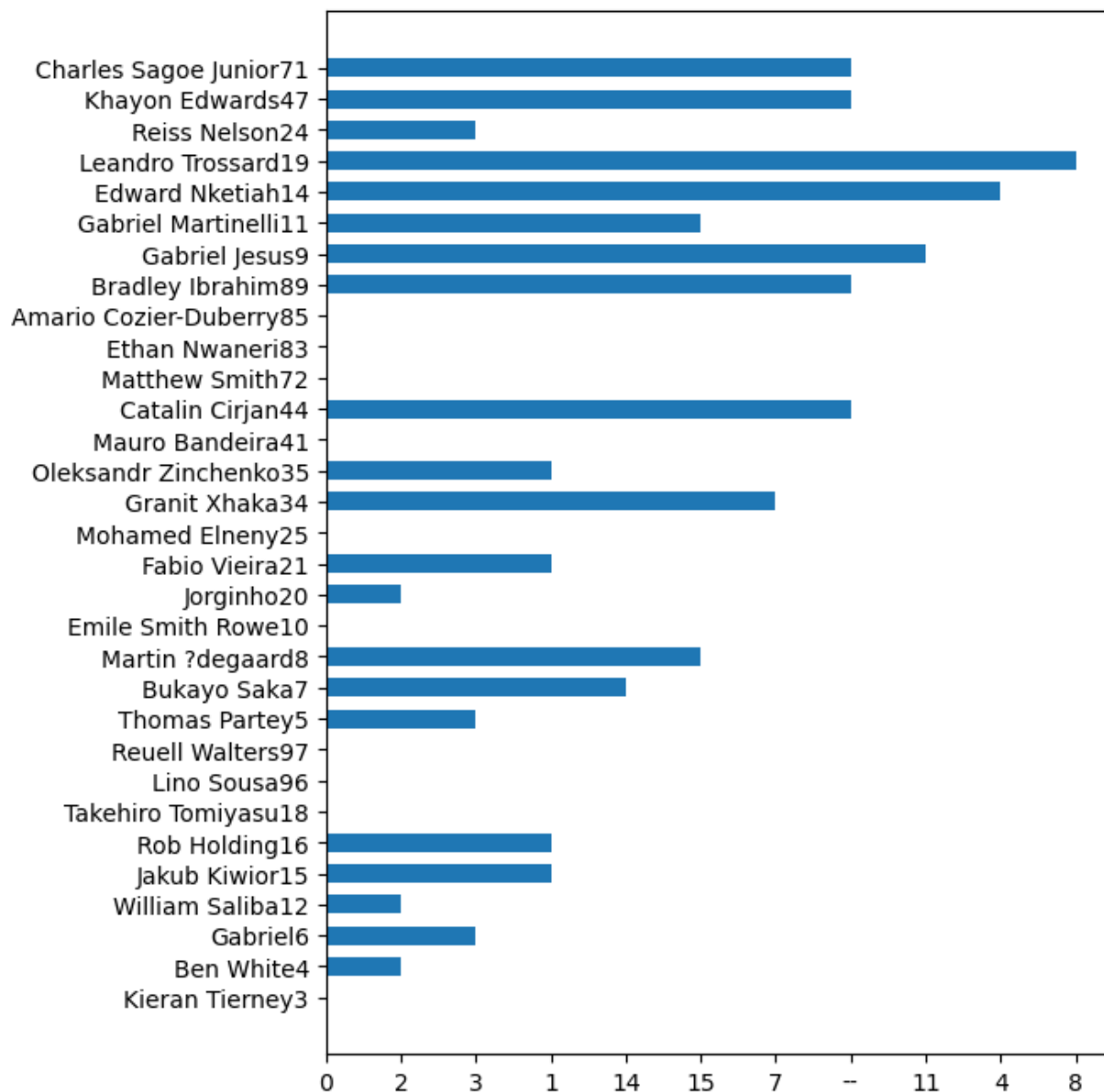
	NAME	POS	NAT	APP	SUB	G	A	SH	ST	FC	FA	YC	RC
0	Kieran Tierney3	D	Scotland	27	21	0	1	7	2	5	9	0	0
1	Ben White4	D	England	38	2	2	5	10	2	28	29	5	0
2	Gabriel6	D	Brazil	38	0	3	0	31	8	25	40	5	0
3	William Saliba12	D	France	27	0	2	1	7	4	18	13	4	0
4	Jakub Kiwior15	D	Poland	7	2	1	0	1	1	1	1	0	0
5	Rob Holding16	D	England	14	8	1	0	5	2	5	2	0	0
6	Takehiro Tomiyasu18	D	Japan	21	15	0	1	2	0	6	3	2	0
7	Lino Sousa96	D	England	0	0	0	0	0	0	0	0	0	0
8	Reuell Walters97	D	England	0	0	0	0	0	0	0	0	0	0
9	Thomas Partey5	M	Ghana	33	5	3	0	27	4	36	23	5	0
10	Bukayo Saka7	M	England	38	1	14	11	87	31	38	65	6	0
11	Martin ?degaard8	M	Norway	37	0	15	8	91	29	30	26	4	0
12	Emile Smith Rowe10	M	England	12	12	0	2	4	1	1	1	0	0
13	Jorginho20	M	Italy	32	8	2	1	11	3	16	41	4	0
14	Fabio Vieira21	M	Portugal	22	19	1	2	15	2	3	5	0	0
15	Mohamed Elneny25	M	Egypt	5	4	0	0	0	0	1	1	0	0
16	Granit Xhaka34	M	Switzerland	37	1	7	8	41	14	24	39	5	0
17	Oleksandr Zinchenko35	M	Ukraine	27	1	1	2	28	7	6	11	3	0
18	Mauro Bandeira41	M	Portugal	0	0	0	0	0	0	0	0	0	0
19	Catalin Cirjan44	M	Romania	--	--	--	--	--	--	--	--	--	--
20	Matthew Smith72	M	England	0	0	0	0	0	0	0	0	0	0
21	Ethan Nwaneri83	M	England	1	1	0	0	0	0	0	0	0	0
22	Amario Cozier-Duberry85	M	England	0	0	0	0	0	0	0	0	0	0
23	Bradley Ibrahim89	M	England	--	--	--	--	--	--	--	--	--	--
24	Gabriel Jesus9	F	Brazil	26	2	11	6	78	31	40	57	6	0
25	Gabriel Martinelli11	F	Brazil	36	2	15	5	75	28	39	37	3	0
26	Edward Nketiah14	F	England	30	21	4	1	41	14	26	25	3	0
27	Leandro Trossard19	F	Belgium	36	10	8	12	55	22	18	30	1	0
28	Reiss Nelson24	F	England	11	11	3	2	12	7	8	4	0	0
29	Khayon Edwards47	F	England	--	--	--	--	--	--	--	--	--	--
30	Charles Sagoe Junior71	F	England	--	--	--	--	--	--	--	--	--	--

In [111]...

```
#goals
plt.figure(figsize=(6,8))
```

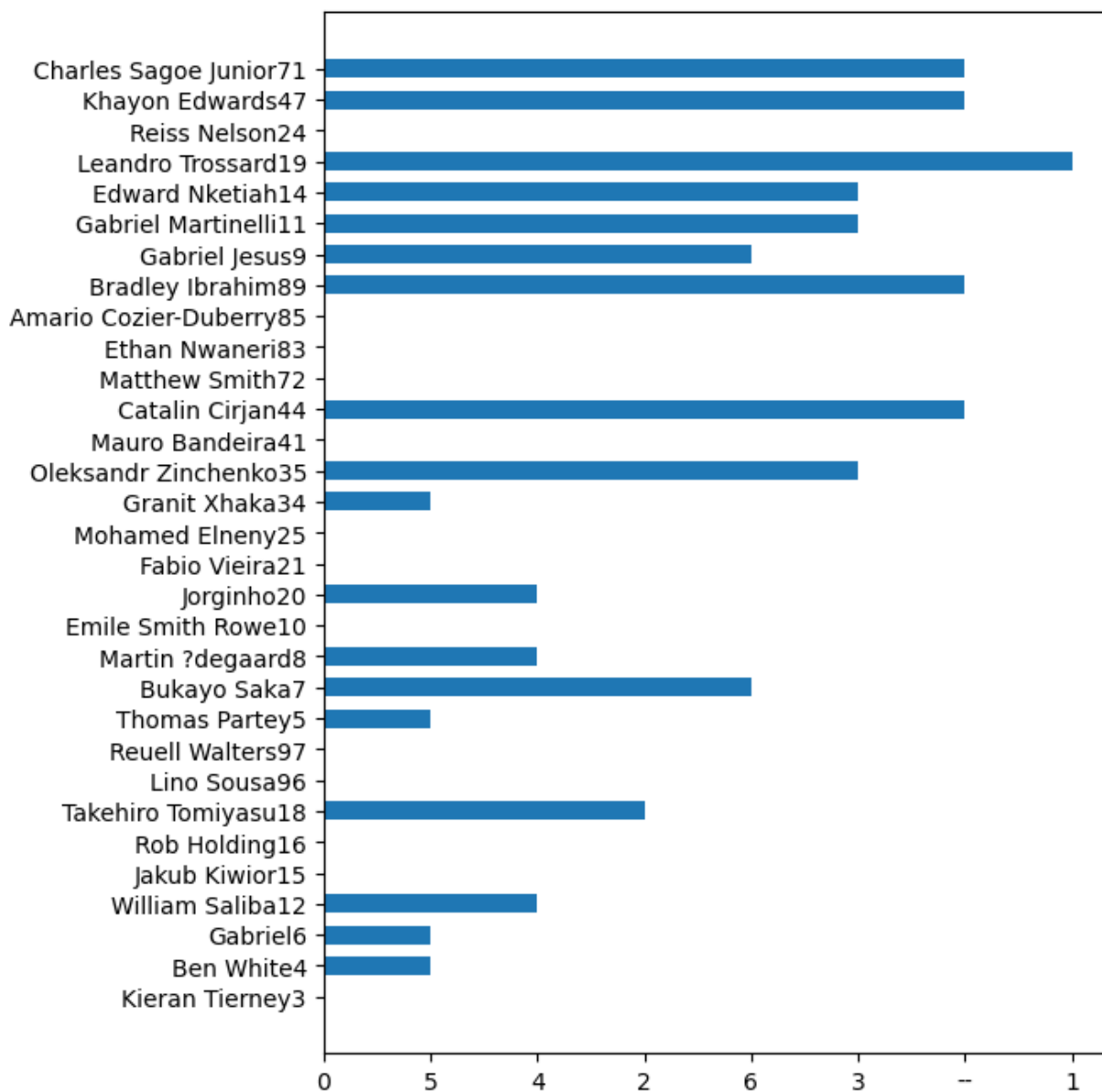
```
plt.barh(new_team2["NAME"],new_team2["G"],height=.6)
```

Out[111]: <BarContainer object of 31 artists>



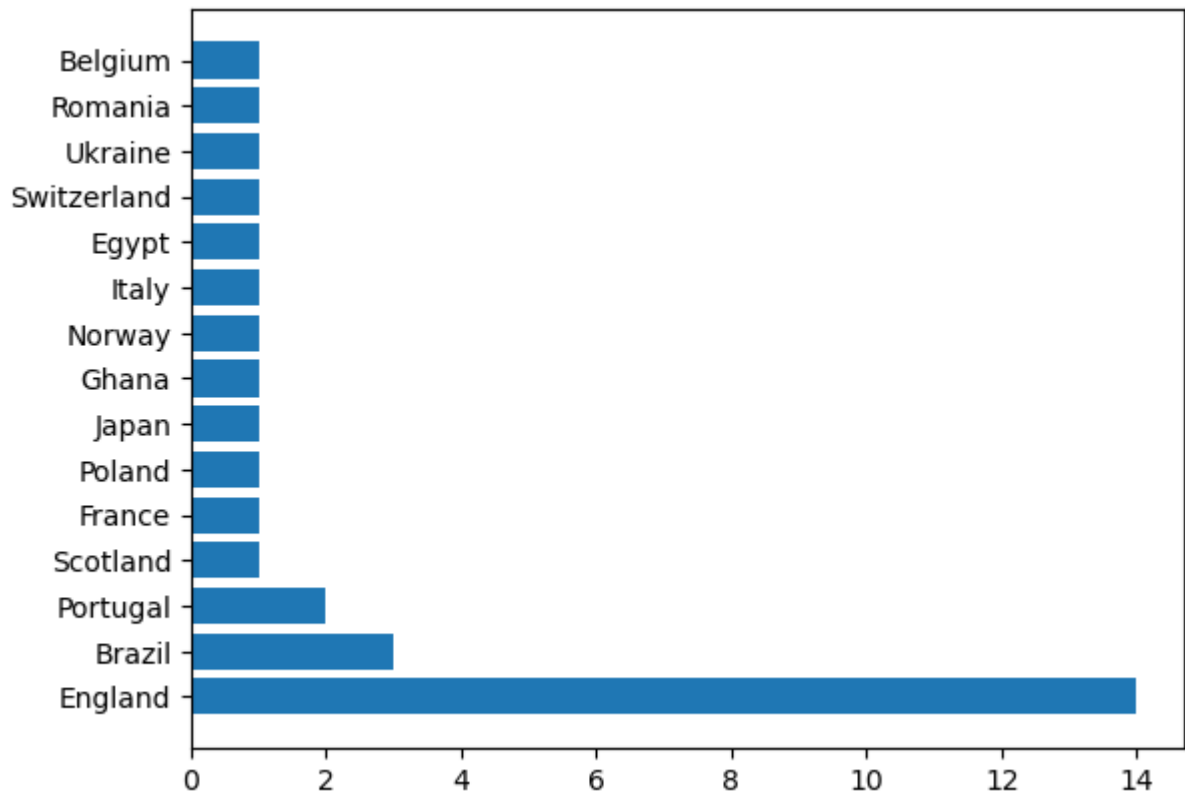
```
In [112... #Max yellow card
plt.figure(figsize=(6,8))
plt.barh(new_team2["NAME"],new_team2["YC"],height=.6)
```

Out[112]: <BarContainer object of 31 artists>



```
In [113]: #player location
x=pd.DataFrame(new_team2["NAT"].value_counts())
x=x.reset_index()
plt.barh(x["index"],x["NAT"])
```

```
Out[113]: <BarContainer object of 15 artists>
```



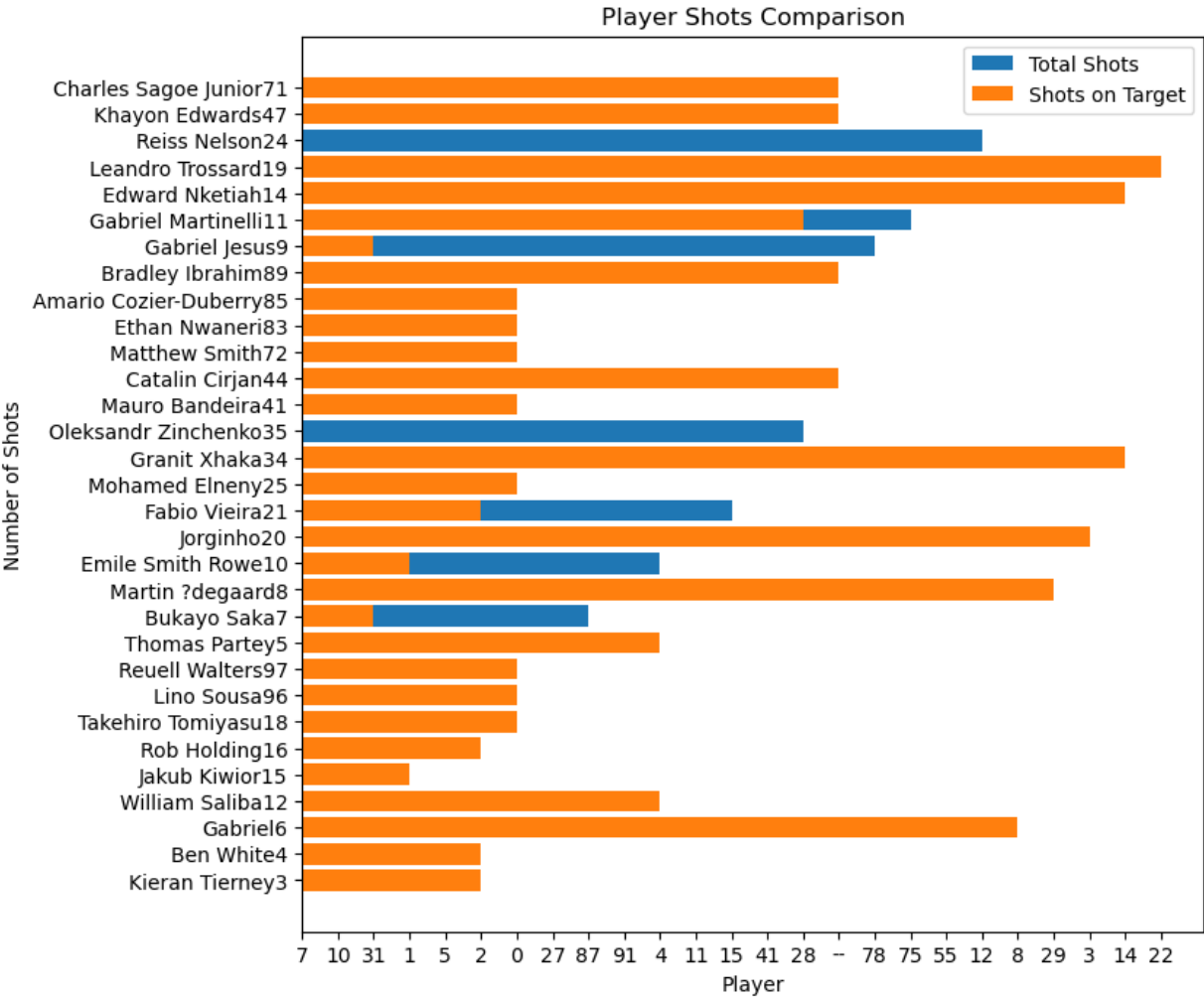
In [116...

```
#total shots vs shots on target
plt.figure(figsize=(8,8))
players = new_team2["NAME"]
total_shots = new_team2["SH"]
shots_on_target = new_team2["ST"]
plt.barh(players, total_shots, label='Total Shots')
plt.barh(players, shots_on_target, label='Shots on Target')

plt.xlabel('Player')
plt.ylabel('Number of Shots')
plt.title('Player Shots Comparison')

plt.legend()

plt.show()
```

In []: