WebScraping Data to Perform EDA

In [5]:

```
import requests
from bs4 import BeautifulSoup
import csv

url = "https://www.foxsports.com/soccer/fifa-world-cup/history"
page = requests.get(url)
soup = BeautifulSoup(page.text, "html.parser")
table = soup.find("table", {"class": "data-table"})

headers = []
values_list = []
final_list = []

for i in table.find_all("th"):
    title = i.text.strip()
    headers.append(title)
headers[0] = "Year"
xd = soup.find("tbody", {"class": "row-data"})
for x in xd.find_all("tr"):
    values = []
    for y in str(x.text.strip()).split("\n"):
        y = y.strip()
        if y == "":
            continue
        values.append(y)
    values_list.append(values)

for v in values_list:
    kuchbhi = {}
    count = 0
    for x in v:
        kuchbhi[headers[count]] = x
        count = count + 1
    if len(kuchbhi) == 0:
        pass
    final_list.append(kuchbhi)

#print(final_list)

field_names = final_list[0].keys()
filename = "fifa.csv"
with open(filename, 'w', newline='') as f:
    # create a DictWriter object
    writer = csv.DictWriter(f, fieldnames=field_names)

    # write the headers
    writer.writeheader()

    # write the data
    for row in final_list:
        writer.writerow(row)
```

Importing All Libraries which are Required to Perform Analysis

In [2]:

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

import warnings
warnings.filterwarnings("ignore")
```

Reading CSV file Which is generated After Web Scraping

In [9]:

```
df = pd.read_csv("fifa.csv")
df
```

Out[9]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS
0	2022	Argentina	France	Croatia	Qatar	32	64	172
1	2018	France	Croatia	Belgium	Russia	32	64	169
2	2014	Germany	Argentina	Netherlands	Brazil	32	64	171
3	2010	Spain	Netherlands	Germany	South Africa	32	64	145
4	2006	Italy	France	Germany	Germany	32	64	147
5	2002	Brazil	Germany	Turkey	South Korea, Japan	32	64	161
6	1998	France	Brazil	Croatia	France	32	64	171
7	1994	Brazil	Italy	Sweden	United States	24	52	141
8	1990	Germany	Argentina	Italy	Italy	24	52	115
9	1986	Argentina	Germany	France	Mexico	24	52	132
10	1982	Italy	Germany	Poland	Spain	24	52	146
11	1978	Argentina	Netherlands	Brazil	Argentina	16	38	102
12	1974	Germany	Netherlands	Poland	West Germany	16	38	97
13	1970	Brazil	Italy	Germany	Mexico	16	32	95
14	1966	England	Germany	Portugal	England	16	32	89
15	1962	Brazil	Czechia	Chile	Chile	16	32	89
16	1958	Brazil	Sweden	France	Sweden	16	35	126
17	1954	Germany	Hungary	Austria	Switzerland	16	26	140
18	1950	Uruguay	Brazil	Sweden	Brazil	13	22	88
19	1938	Italy	Hungary	Brazil	France	15	18	84
20	1934	Italy	Czechia	Germany	Italy	16	17	70
21	1930	Uruguay	Argentina	United States	Uruguay	13	16	70

To Display the First five rows from the dataset

In [7]:

```
df.head()
```

Out[7]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS
0	2022	Argentina	France	Croatia	Qatar	32	64	172
1	2018	France	Croatia	Belgium	Russia	32	64	169
2	2014	Germany	Argentina	Netherlands	Brazil	32	64	171
3	2010	Spain	Netherlands	Germany	South Africa	32	64	145
4	2006	Italy	France	Germany	Germany	32	64	147

To Display the last five rows from the dataset

In [10]:

```
df.tail()
```

Out[10]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS
17	1954	Germany	Hungary	Austria	Switzerland	16	26	140
18	1950	Uruguay	Brazil	Sweden	Brazil	13	22	88
19	1938	Italy	Hungary	Brazil	France	15	18	84
20	1934	Italy	Czechia	Germany	Italy	16	17	70
21	1930	Uruguay	Argentina	United States	Uruguay	13	16	70

To display the Datatypes of the Columns

In [11]:

```
df.dtypes
```

Out[11]:

```
Year             int64
CHAMPION        object
RUNNER UP       object
THIRD PLACE     object
HOST            object
TEAMS            int64
MATCHES          int64
GOALS            int64
dtype: object
```

To display number of entries and information in the dataset

In [12]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 22 entries, 0 to 21
Data columns (total 8 columns):
 #   Column       Non-Null Count  Dtype 
---  ------       --------------  ----- 
 0   Year         22 non-null     int64 
 1   CHAMPION     22 non-null     object
 2   RUNNER UP    22 non-null     object
 3   THIRD PLACE  22 non-null     object
 4   HOST         22 non-null     object
 5   TEAMS        22 non-null     int64 
 6   MATCHES      22 non-null     int64 
 7   GOALS        22 non-null     int64 
dtypes: int64(4), object(4)
memory usage: 1.5+ KB
```

To display the Descriptive Statictics of the Dataset

In [13]:
```
df.describe()
```

Out[13]:

	Year	TEAMS	MATCHES	GOALS
count	22.000000	22.000000	22.000000	22.000000
mean	1978.909091	22.227273	43.727273	123.636364
std	27.738419	7.602830	17.776876	34.841882
min	1930.000000	13.000000	16.000000	70.000000
25%	1959.000000	16.000000	32.000000	90.500000
50%	1980.000000	20.000000	45.000000	129.000000
75%	2001.000000	32.000000	64.000000	146.750000
max	2022.000000	32.000000	64.000000	172.000000

Checking the null values in Dataset

In [15]:
```
df.isna().sum()
```

Out[15]:
```
Year           0
CHAMPION       0
RUNNER UP      0
THIRD PLACE    0
HOST           0
TEAMS          0
MATCHES        0
GOALS          0
dtype: int64
```

1. Which is the best team in world cup

In [16]:
```
#Analytical
df["CHAMPION"].value_counts()
```

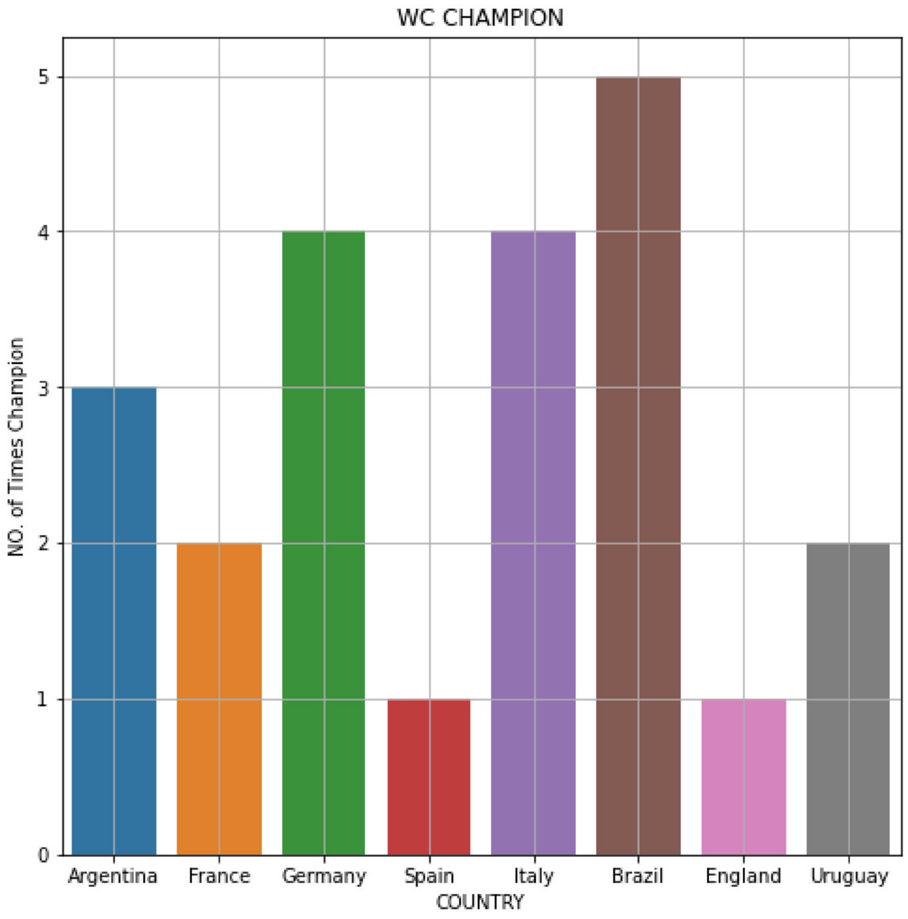
Out[16]:
```
Brazil       5
Germany      4
Italy        4
Argentina    3
Uruguay      2
France       2
England      1
Spain        1
Name: CHAMPION, dtype: int64
```

In [22]:
```
#Graphical
plt.figure(figsize=(8,8))

sns.countplot(data=df, x="CHAMPION")

plt.title("WC CHAMPION")
plt.xlabel("COUNTRY")
plt.ylabel("NO. of Times Champion")
plt.grid(True)

plt.show()
```



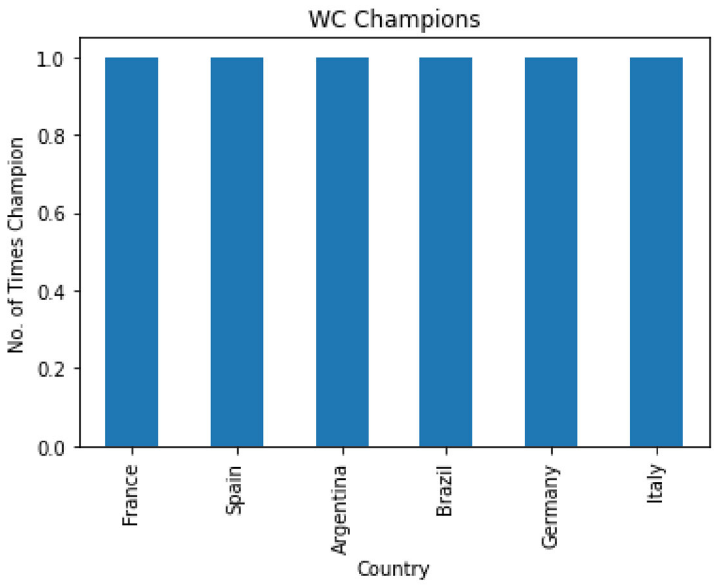
Brazil is the best team in wc history.

2.Country Winning the WorldCup After 2000

In [27]:
```
#Analytical
df[df['Year']>2000]['CHAMPION'].value_counts()
```

Out[27]:
```
France       1
Spain        1
Argentina    1
Brazil       1
Germany      1
Italy        1
Name: CHAMPION, dtype: int64
```

In [28]:
```
#Graphical
df[df['Year']>2000]['CHAMPION'].value_counts().plot(kind="bar")
plt.title("WC Champions")
plt.ylabel("No. of Times Champion")
plt.xlabel("Country")
plt.show()
```



3.Which is the best team in 90's era

In [29]:

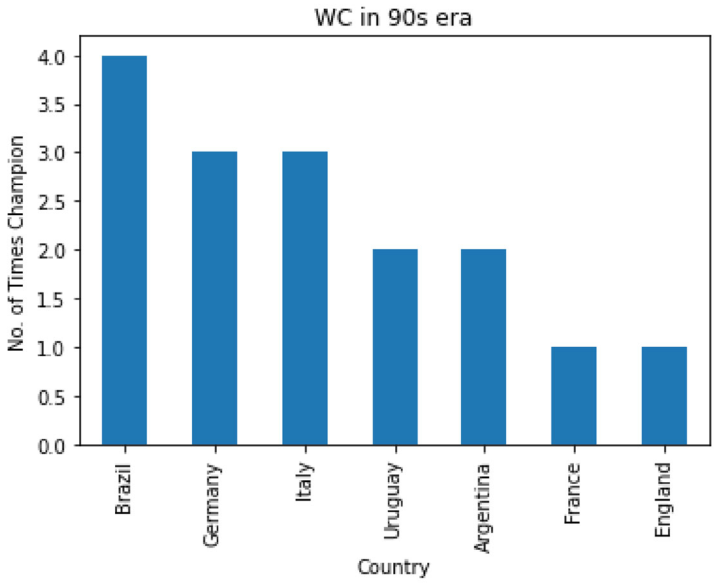
```
#Analytical
df[df['Year']<2000]['CHAMPION'].value_counts()
```

Out[29]:

```
Brazil       4
Germany      3
Italy        3
Uruguay      2
Argentina    2
France       1
England      1
Name: CHAMPION, dtype: int64
```

In [33]:

```
#Graphical
df[df['Year']<2000]['CHAMPION'].value_counts().plot(kind="bar")
plt.title("WC in 90s era")
plt.ylabel("No. of Times Champion")
plt.xlabel("Country")
plt.show()
```



Brazil is the best team in 90's era

4.Host winning world cup

In [35]:

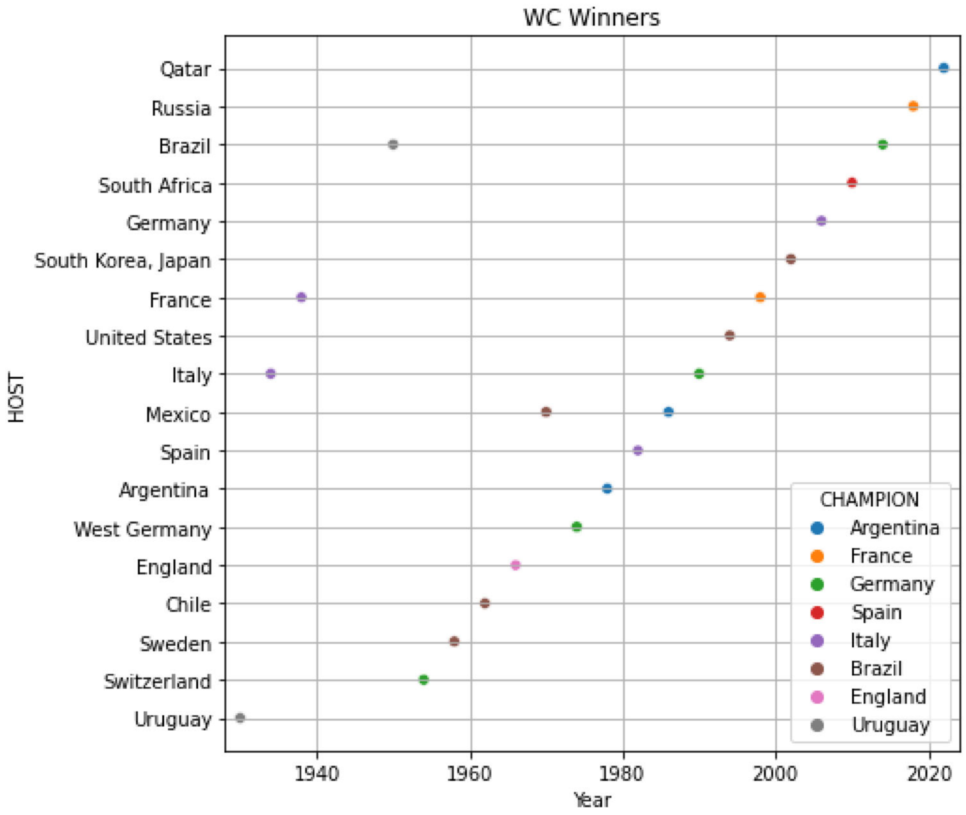
```
df[df["HOST"]==df["CHAMPION"]]
```

Out[35]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS
6	1998	France	Brazil	Croatia	France	32	64	171
11	1978	Argentina	Netherlands	Brazil	Argentina	16	38	102
14	1966	England	Germany	Portugal	England	16	32	89
20	1934	Italy	Czechia	Germany	Italy	16	17	70
21	1930	Uruguay	Argentina	United States	Uruguay	13	16	70

Only six times host country win the wc.

In [42]:
```
plt.figure(figsize=(7,7))
sns.scatterplot(data=df,x="Year",y="HOST",hue="CHAMPION")
plt.xlim(1928,2024)
plt.grid()
plt.title("WC Winners")
plt.show()
```

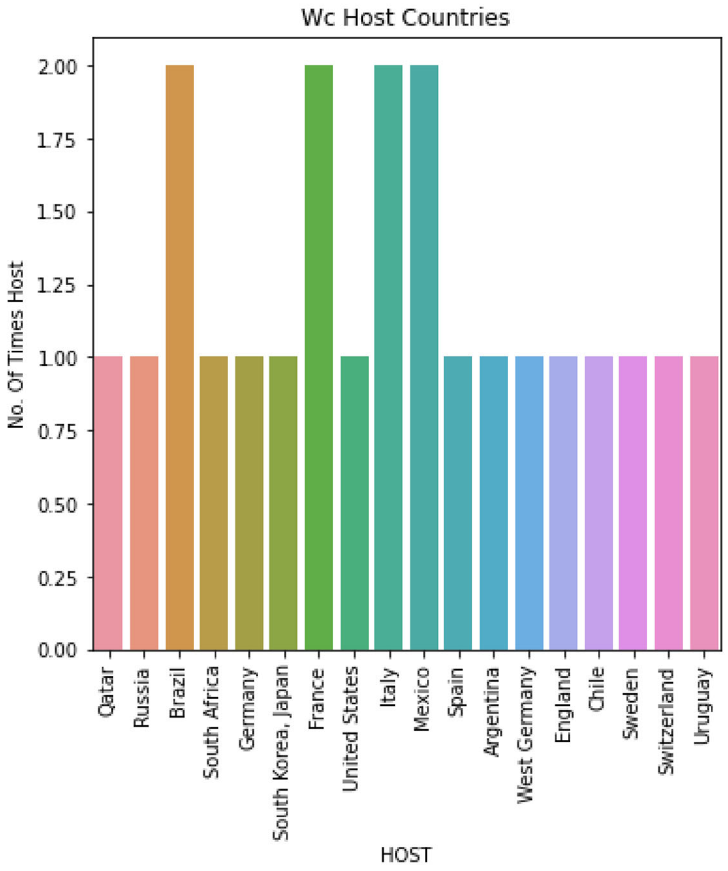


5.Which country host most no. of world cup

In [43]:
```
df["HOST"].value_counts()
```

Out[43]:
```
Brazil                2
France                2
Mexico                2
Italy                 2
Uruguay               1
United States         1
Russia                1
Sweden                1
Spain                 1
England               1
Qatar                 1
South Korea, Japan    1
Germany               1
Switzerland           1
Argentina             1
South Africa          1
Chile                 1
West Germany          1
Name: HOST, dtype: int64
```

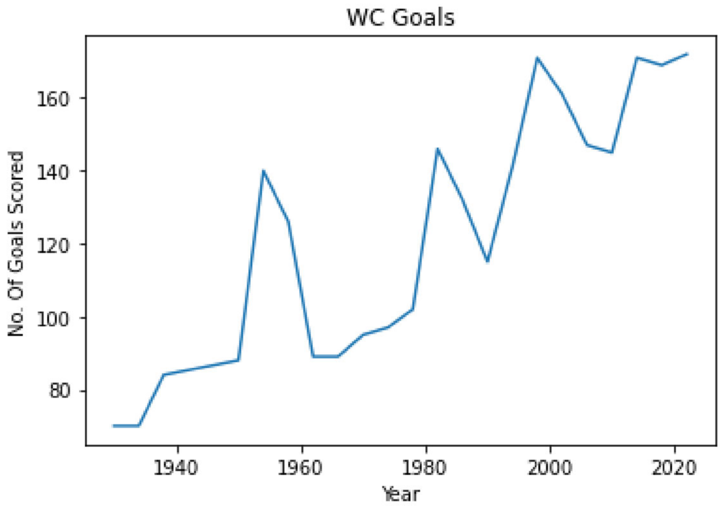
In [52]:
```
plt.figure(figsize=(6,6))
sns.countplot(data=df,x="HOST")
plt.title("Wc Host Countries")
plt.ylabel("No. Of Times Host")
plt.xticks(rotation=90)
plt.show()
```



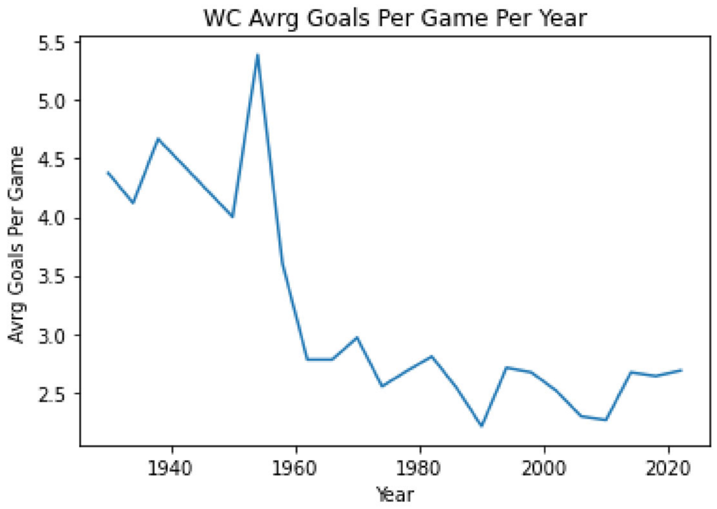
Brazil, France, Italy, Mexico host most no. of Wc that is two times.

6.No. of goals scored per year and average goals per game per year increasing or not ?

In [57]:
```
plt.plot(df["Year"],df["GOALS"])
plt.title("WC Goals")
plt.xlabel("Year")
plt.ylabel("No. Of Goals Scored")
plt.show()
```



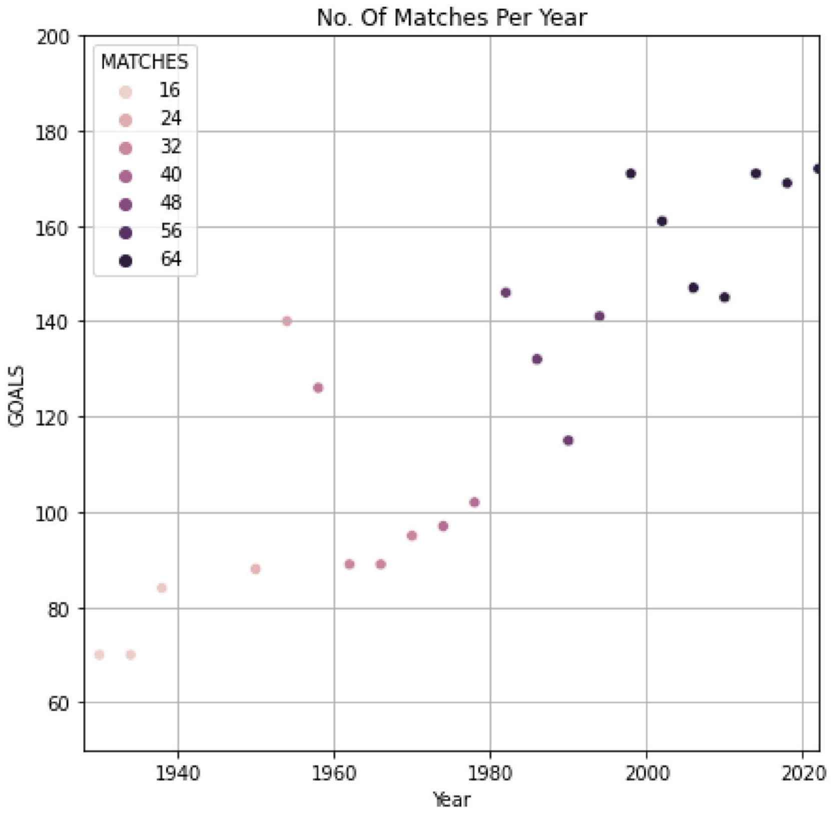
In [58]:
```
df['Avg_Goals_Per_Game'] = df["GOALS"] / df["MATCHES"]
plt.plot(df["Year"],df['Avg_Goals_Per_Game'])
plt.title("WC Avrg Goals Per Game Per Year")
plt.xlabel("Year")
plt.ylabel("Avrg Goals Per Game")
plt.show()
```



Goals Scored per year is increasing.

7.No.of Matches per year

In [77]:
```
plt.figure(figsize=(7,7))
sns.scatterplot(data=df,x="Year",y="GOALS",hue="MATCHES")
plt.title("No. Of Matches Per Year")
plt.ylim(50,200)
plt.xlim(1928,2022)
plt.grid()
```



no. of matches played per year is increasing.

8.Max and min no. of goals scored in which year ?

In [84]:
```
# Find the maximum number of goals scored in a year
max_goals = df.loc[df['GOALS'].idxmax()]
print("Maximum number of goals scored in year:", max_goals['Year'])

# Find the minimum number of goals scored in a year
min_goals = df.loc[df['GOALS'].idxmin()]
print("Minimum number of goals scored in year:", min_goals['Year'])
```

```
Maximum number of goals scored in year: 2022
Minimum number of goals scored in year: 1934
```

9.France wins world cup in which years.

In [91]:
```
df[df['CHAMPION']=='France']['Year']
```

Out[91]:
```
1    2018
6    1998
Name: Year, dtype: int64
```

In [93]:
```
df[(df["CHAMPION"] == "France")]
```

Out[93]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS	Avg_Goals_Per_Game
1	2018	France	Croatia	Belgium	Russia	32	64	169	2.640625
6	1998	France	Brazil	Croatia	France	32	64	171	2.671875

france wins wc in 1938 and 2018.

10.Italy Uruguay and argentina wins world cup in which years

In [95]:
```
df[(df["CHAMPION"] == "Italy") | (df["CHAMPION"] == "Uruguay") | (df["CHAMPION"] == "Argentina") ]
```

Out[95]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS	Avg_Goals_Per_Game
0	2022	Argentina	France	Croatia	Qatar	32	64	172	2.687500
4	2006	Italy	France	Germany	Germany	32	64	147	2.296875
9	1986	Argentina	Germany	France	Mexico	24	52	132	2.538462
10	1982	Italy	Germany	Poland	Spain	24	52	146	2.807692
11	1978	Argentina	Netherlands	Brazil	Argentina	16	38	102	2.684211
18	1950	Uruguay	Brazil	Sweden	Brazil	13	22	88	4.000000
19	1938	Italy	Hungary	Brazil	France	15	18	84	4.666667
20	1934	Italy	Czechia	Germany	Italy	16	17	70	4.117647
21	1930	Uruguay	Argentina	United States	Uruguay	13	16	70	4.375000

Italy wins wc in 1934,1938,1982,2006, Uruguay wins wc in 1930,1950, Argentina wins wc in 1978,1986,2022

11.Brazil, Italy, Sweden Runner Up in which years?

In [115]:
```
df[df["RUNNER UP"].isin(["Brazil","Italy","Sweden"])]
```

Out[115]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS	Avg_Goals_Per_Game
6	1998	France	Brazil	Croatia	France	32	64	171	2.671875
7	1994	Brazil	Italy	Sweden	United States	24	52	141	2.711538
13	1970	Brazil	Italy	Germany	Mexico	16	32	95	2.968750
16	1958	Brazil	Sweden	France	Sweden	16	35	126	3.600000
18	1950	Uruguay	Brazil	Sweden	Brazil	13	22	88	4.000000

Brazil runner up in 1950,1998, Italy runner up in 1970,1994, Sweden runner up in 1958

12.United States finished at third place in which year?

In [107]:
```
df[df["THIRD PLACE"].str.contains("United States")]
```

Out[107]:

	Year	CHAMPION	RUNNER UP	THIRD PLACE	HOST	TEAMS	MATCHES	GOALS	Avg_Goals_Per_Game
21	1930	Uruguay	Argentina	United States	Uruguay	13	16	70	4.375

United States finished at third place in 1930.

13.who is the inaugural world cup winner.

In [99]:
```
df[df["Year"]==1930]["CHAMPION"]
```

Out[99]:
```
21    Uruguay
Name: CHAMPION, dtype: object
```

Uruguay is the inaugaral wc winner.

14.How many times unique team wins world cup ?

In [104]:
```
df.CHAMPION.nunique()
```

Out[104]:
```
8
```

there are 8 occasions when new team wins wc.

In [109]:
```
df["CHAMPION"].value_counts()
```

Out[109]:
```
Brazil       5
Germany      4
Italy        4
Argentina    3
Uruguay      2
France       2
England      1
Spain        1
Name: CHAMPION, dtype: int64
```

In [110]:
```
df["RUNNER UP"].value_counts()
```

Out[110]:
```
Germany        4
Netherlands    3
Argentina      3
Hungary        2
France         2
Italy          2
Czechia        2
Brazil         2
Croatia        1
Sweden         1
Name: RUNNER UP, dtype: int64
```

In [111]:
```
# Brazil wins world cup 5 times.
# Total appearance in world cup final 7 times.
chances = 5*100/7
chances
```

Out[111]:
```
71.42857142857143
```

In [112]:
```
# Italy wins world cup 4 times.
# Total appearance in world cup final 6 times.
chances1 = 4*100/6
chances1
```

Out[112]:
```
66.66666666666667
```

In [114]:
```
# Only 6 times host wins the cup final.
# Total world cups tornament organized 22 times.
chances2 = 6*100/21
chances2
```

Out[114]:
```
28.571428571428573
```

Conclusion

```
Brazil is the best team of all time in world cup.
Brazil is the best team in 90's era.
Brazil wins world cup 5 times and runner up 2 times.
Italy wins world cup 4 times and runner up 2 times.
In last 20 years there are unique world cup winners so there is no team particularly dominating.
Only 6 times team wins the world cup while hosting the tournament which means that there are more pressure on hosts and there
are less chances to win world cup while hosting.
In world cup history only 8 unique teams wins the world cup.
Goals scored per year ratio is increasing.
From above points we colclude that if Brazil or Italy qualifies for world cup final then brazil have 71.42% chance of winning
the world cup and Italy have 66.66% chance of winning the world cup.

Hosting country have only 28.57% chance of winning the world cup.
```

THANK YOU

In [ ]:
```

```