In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
```

In [15]:

```
data = pd.read_csv("road_accident.csv")
```

In [16]:

```
data
```

Out[16]:

	Index	Country	Code	Year	Deaths	Sidedness
0	0	Afghanistan	AFG	1990	4154	0
1	1	Afghanistan	AFG	1991	4472	0
2	2	Afghanistan	AFG	1992	5106	0
3	3	Afghanistan	AFG	1993	5681	0
4	4	Afghanistan	AFG	1994	6001	0
...	...	...	...	...	...	...
8005	8005	Zimbabwe	ZWE	2015	2373	1
8006	8006	Zimbabwe	ZWE	2016	2436	1
8007	8007	Zimbabwe	ZWE	2017	2473	1
8008	8008	Zimbabwe	ZWE	2018	2509	1
8009	8009	Zimbabwe	ZWE	2019	2554	1

8010 rows × 6 columns

In [17]:

```
data.head()
```

Out[17]:

	Index	Country	Code	Year	Deaths	Sidedness
0	0	Afghanistan	AFG	1990	4154	0
1	1	Afghanistan	AFG	1991	4472	0
2	2	Afghanistan	AFG	1992	5106	0
3	3	Afghanistan	AFG	1993	5681	0
4	4	Afghanistan	AFG	1994	6001	0

In [18]:

```
data.tail()
```

Out[18]:

	Index	Country	Code	Year	Deaths	Sidedness
8005	8005	Zimbabwe	ZWE	2015	2373	1
8006	8006	Zimbabwe	ZWE	2016	2436	1
8007	8007	Zimbabwe	ZWE	2017	2473	1
8008	8008	Zimbabwe	ZWE	2018	2509	1
8009	8009	Zimbabwe	ZWE	2019	2554	1

In [19]:

```
data.shape
```

Out[19]:

```
(8010, 6)
```

In [20]:

```
data.columns
```

Out[20]:

```
Index(['Index', 'Country', 'Code', 'Year', 'Deaths', 'Sidedness'], dtype
='object')
```

In [21]:

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 8010 entries, 0 to 8009
Data columns (total 6 columns):
 #   Column     Non-Null Count  Dtype 
---  ------     --------------  ----- 
 0   Index      8010 non-null   int64 
 1   Country    8010 non-null   object
 2   Code       6150 non-null   object
 3   Year       8010 non-null   int64 
 4   Deaths     8010 non-null   int64 
 5   Sidedness  8010 non-null   int64 
dtypes: int64(4), object(2)
memory usage: 375.6+ KB
```

In [22]:

```
data.describe()
```

Out[22]:

	Index	Year	Deaths	Sidedness
count	8010.000000	8010.000000	8.010000e+03	8010.000000
mean	4004.500000	2004.500000	4.451661e+04	0.213483
std	2312.432161	8.655982	1.269077e+05	0.409791
min	0.000000	1990.000000	0.000000e+00	0.000000
25%	2002.250000	1997.000000	3.322500e+02	0.000000
50%	4004.500000	2004.500000	1.969500e+03	0.000000
75%	6006.750000	2012.000000	1.323600e+04	0.000000
max	8009.000000	2019.000000	1.285039e+06	1.000000

In [23]:

```
data.isnull().sum()
```

Out[23]:

```
Index          0
Country        0
Code        1860
Year           0
Deaths         0
Sidedness      0
dtype: int64
```

In [24]:

```
data.dropna(inplace = True)
```

In [25]:

```
data.isnull().any().any()
```

Out[25]:

```
False
```

In [26]:

```
data.Country.value_counts(dropna=False)
```

Out[26]:

```
Kazakhstan                      30
Belarus                         30
American Samoa                  30
Finland                         30
United States Virgin Islands    30
                                ..
Cameroon                        30
Nepal                           30
Maldives                        30
Niger                           30
Antigua and Barbuda             30
Name: Country, Length: 205, dtype: int64
```

In [27]:

```
data.Year.value_counts()
```

Out[27]:

```
2019    205
2015    205
1996    205
2000    205
2004    205
2008    205
2012    205
2016    205
1993    205
1997    205
2001    205
2005    205
2009    205
2013    205
2017    205
1990    205
1994    205
1998    205
2002    205
2006    205
2010    205
2014    205
2018    205
1991    205
1995    205
1999    205
2003    205
2007    205
2011    205
1992    205
Name: Year, dtype: int64
```

In [28]:

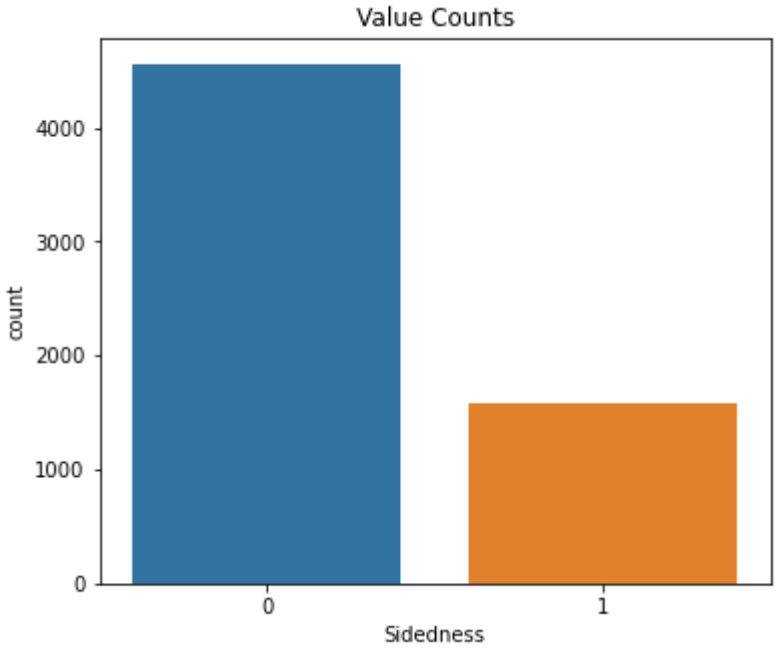
```
data.Sidedness.value_counts()
```

Out[28]:

```
0    4560
1    1590
Name: Sidedness, dtype: int64
```

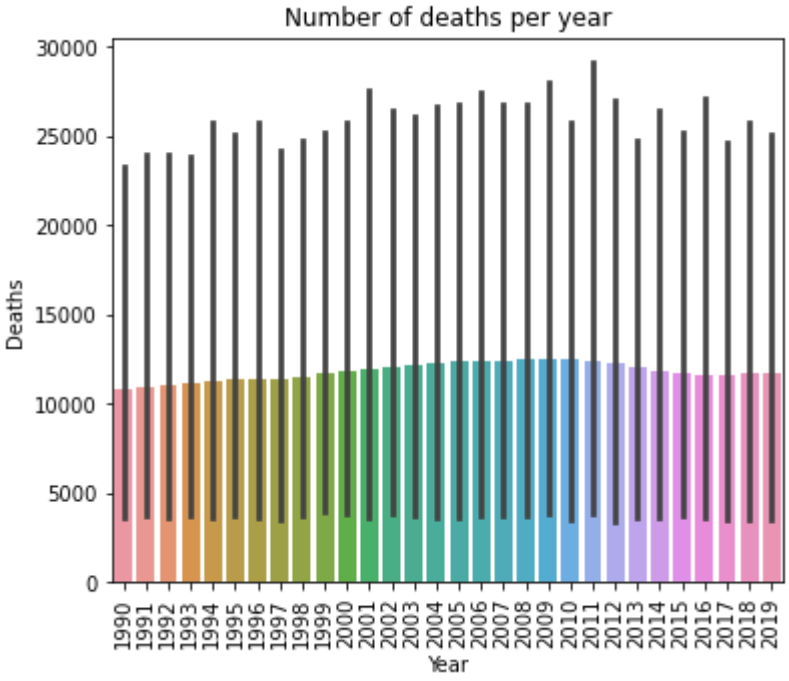
In [34]:

```
plt.figure(figsize = (6,5))
sns.countplot(data=data,x='Sidedness')
plt.title("Value Counts")
plt.show()
```



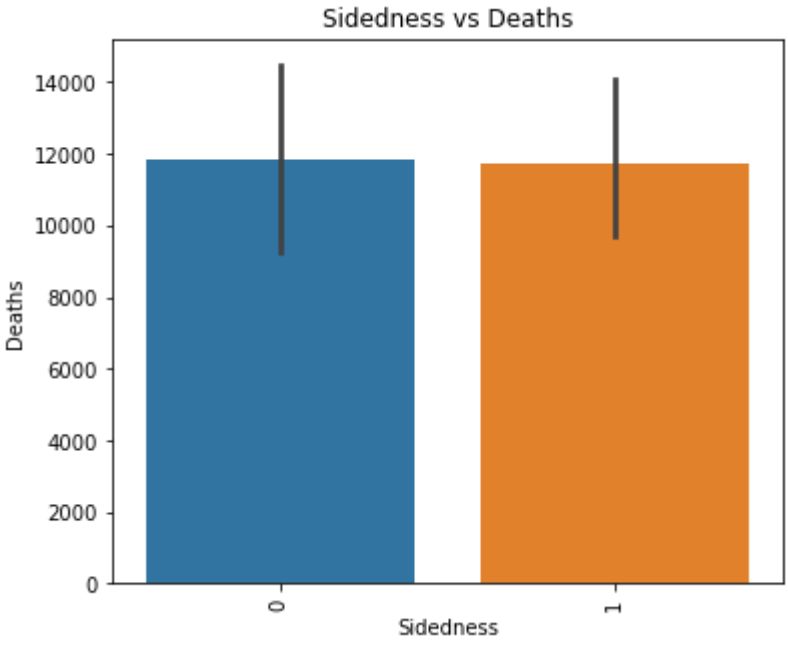
In [36]:

```
plt.figure(figsize = (6,5))
sns.barplot(x='Year', y='Deaths', data= data)
plt.xticks(rotation=90)
plt.title("Number of deaths per year")
plt.show()
```



In [39]:

```
plt.figure(figsize = (6,5))
sns.barplot(data = data,x='Sidedness',y='Deaths')
plt.xticks(rotation=90)
plt.title("Sidedness vs Deaths")
plt.show()
```



In [41]:

```
accidents_by_country = data.groupby('Country').sum()
accidents_by_country.drop('Index', axis = 1, inplace = True)
print('Total Accidents = ' ,accidents_by_country['Deaths'].sum())
accidents_by_country.sort_values(by = 'Deaths', ascending = False).head()
```

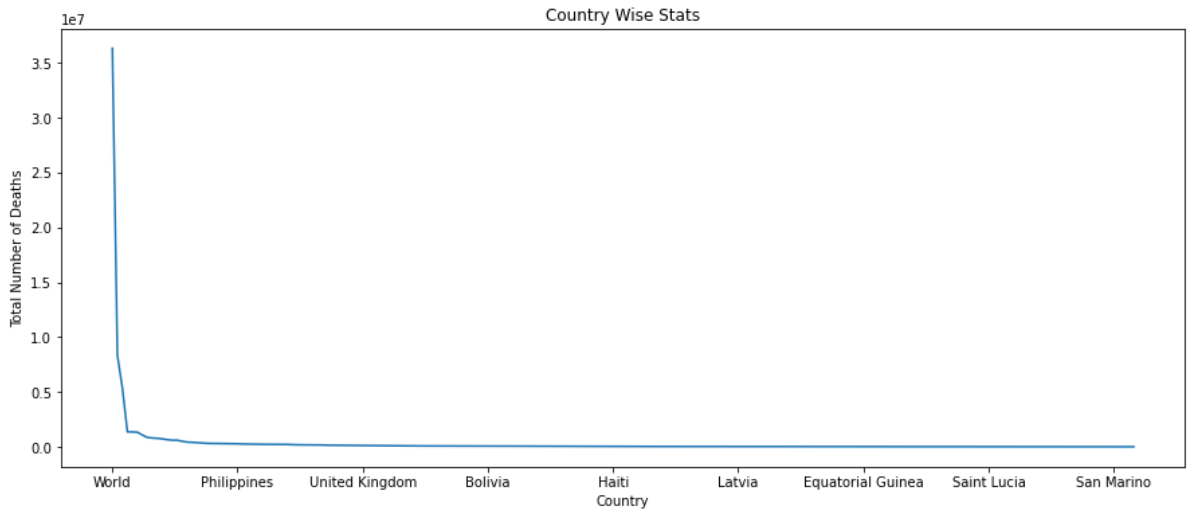
```
Total Accidents =  72613564
```

Out[41]:

Country	Year	Deaths	Sidedness
World	60135	36317087	0
China	60135	8350399	30
India	60135	5346154	30
United States	60135	1359744	0
Brazil	60135	1352192	0

In [45]:

```
plt.subplots(figsize = (15, 6))
cr = accidents_by_country['Deaths'].sort_values(ascending = False)
ax = cr.plot.line()
ax.set_xlabel('Country')
ax.set_ylabel('Total Number of Deaths')
ax.set_title('Country Wise Stats')
plt.show()
print(cr)
```




```
Country
World             36317087
China              8350399
India              5346154
United States      1359744
Brazil             1352192
                    ...
San Marino              90
Tuvalu                  82
Monaco                  70
Niue                     0
Tokelau                  0
Name: Deaths, Length: 205, dtype: int64
```

In [46]:

```
india_accidents = data[data['Country'] == 'India']
```

In [47]:

```
india_accidents.head()
```

Out[47]:

	Index	Country	Code	Year	Deaths	Sidedness
3420	3420	India	IND	1990	129821	1
3421	3421	India	IND	1991	135557	1
3422	3422	India	IND	1992	138623	1
3423	3423	India	IND	1993	141224	1
3424	3424	India	IND	1994	144071	1

In [48]:

```
# Let's have a look at yearly distribution of number of rape victims in Madhya Pradesh
india_accidents_by_year = india_accidents.groupby('Year').sum()
# plotting the data
plt.subplots(figsize = (15, 6))
ax = india_accidents_by_year['Deaths'].plot()
ax.xaxis.set_ticks(np.arange(1990, 2020, 1))
ax.set(xlabel = 'Year', ylabel = 'Total Number of Deaths',
       title = 'Number of Deaths throught the years 1990 to 2019 of India')
plt.show()
```