In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
import plotly.graph_objects as go
```

In [2]:
```
sns.set_style("whitegrid")
```

In [3]:
```
df=pd.read_csv('globalterrorism.csv',encoding='ISO-8859-1',low_memory=False)
df.rename(columns={'iyear':'Year','imonth':'Month','iday':'Day','country_txt':'Country',
                    'region_txt':'Region','attacktype1_txt':'AttackType','target1':'Target',
                    'nkill':'Killed','nwound':'Wounded','summary':'Summary','gname':'Group',
                    'targtype1_txt':'Target_type','weaptype1_txt':'Weapon_type','motive':'Motive'},inplace=True)

df=df[['Year','Month','Day','Country','Region','city','latitude','longitude','AttackType','Killed',
       'Wounded','Target','extended','Group','Target_type','Weapon_type','Motive']]
pd.set_option('display.max_columns', None)
```

In [4]:
```
df.head()
```

Out[4]:

	Year	Month	Day	Country	Region	city	latitude	longitude	AttackType	Killed	Wounded	Target	extended	Group	Target
0	1970	7	2	Dominican Republic	Central America & Caribbean	Santo Domingo	18.456792	-69.951164	Assassination	1.0	0.0	Julio Guzman	0	MANO-D	P Citiz Prc
1	1970	0	0	Mexico	North America	Mexico city	19.371887	-99.086624	Hostage Taking (Kidnapping)	0.0	0.0	Nadine Chaval, daughter	0	23rd of September Communist League	Goverr (Diplor
2	1970	1	0	Philippines	Southeast Asia	Unknown	15.478598	120.599741	Assassination	1.0	0.0	Employee	0	Unknown	Jourr & I
3	1970	1	0	Greece	Western Europe	Athens	37.997490	23.762728	Bombing/Explosion	NaN	NaN	U.S. Embassy	0	Unknown	Goverr (Diplor
4	1970	1	0	Japan	East Asia	Fukouka	33.580412	130.396361	Facility/Infrastructure Attack	NaN	NaN	U.S. Consulate	0	Unknown	Goverr (Diplor

In [5]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 181691 entries, 0 to 181690
Data columns (total 17 columns):
 #   Column       Non-Null Count   Dtype  
---  ------       --------------   -----  
 0   Year         181691 non-null  int64  
 1   Month        181691 non-null  int64  
 2   Day          181691 non-null  int64  
 3   Country      181691 non-null  object 
 4   Region       181691 non-null  object 
 5   city         181257 non-null  object 
 6   latitude     177135 non-null  float64
 7   longitude    177134 non-null  float64
 8   AttackType   181691 non-null  object 
 9   Killed       171378 non-null  float64
 10  Wounded      165380 non-null  float64
 11  Target       181055 non-null  object 
 12  extended     181691 non-null  int64  
 13  Group        181691 non-null  object 
 14  Target_type  181691 non-null  object 
 15  Weapon_type  181691 non-null  object 
 16  Motive       50561 non-null   object 
dtypes: float64(4), int64(4), object(9)
memory usage: 23.6+ MB
```

In [6]:
```
df.describe()
```

Out[6]:

	Year	Month	Day	latitude	longitude	Killed	Wounded	extended
count	181691.000000	181691.000000	181691.000000	177135.000000	1.771340e+05	171378.000000	165380.000000	181691.000000
mean	2002.638997	6.467277	15.505644	23.498343	-4.586957e+02	2.403272	3.167668	0.045346
std	13.259430	3.388303	8.814045	18.569242	2.047790e+05	11.545741	35.949392	0.208063
min	1970.000000	0.000000	0.000000	-53.154613	-8.618590e+07	0.000000	0.000000	0.000000
25%	1991.000000	4.000000	8.000000	11.510046	4.545640e+00	0.000000	0.000000	0.000000
50%	2009.000000	6.000000	15.000000	31.467463	4.324651e+01	0.000000	0.000000	0.000000
75%	2014.000000	9.000000	23.000000	34.685087	6.871033e+01	2.000000	2.000000	0.000000
max	2017.000000	12.000000	31.000000	74.633553	1.793667e+02	1570.000000	8191.000000	1.000000

In [7]:
```
percent_missing = df.isnull().sum() * 100 / len(df)
percent_missing
```

Out[7]:

```
Year           0.000000
Month          0.000000
Day            0.000000
Country        0.000000
Region         0.000000
city           0.238867
latitude       2.507554
longitude      2.508104
AttackType     0.000000
Killed         5.676120
Wounded        8.977330
Target         0.350045
extended       0.000000
Group          0.000000
Target_type    0.000000
Weapon_type    0.000000
Motive        72.171984
dtype: float64
```

In [8]:

```
df = df.loc[:, df.isnull().mean() < .6]
```

In [9]:

```
df.head(2)
```

Out[9]:

	Year	Month	Day	Country	Region	city	latitude	longitude	AttackType	Killed	Wounded	Target	extended	Group	Target_type	W
0	1970	7	2	Dominican Republic	Central America & Caribbean	Santo Domingo	18.456792	-69.951164	Assassination	1.0	0.0	Julio Guzman	0	MANO-D	Private Citizens & Property	
1	1970	0	0	Mexico	North America	Mexico city	19.371887	-99.086624	Hostage Taking (Kidnapping)	0.0	0.0	Nadine Chaval, daughter	0	23rd of September Communist League	Government (Diplomatic)	

Cleaning

In [10]:

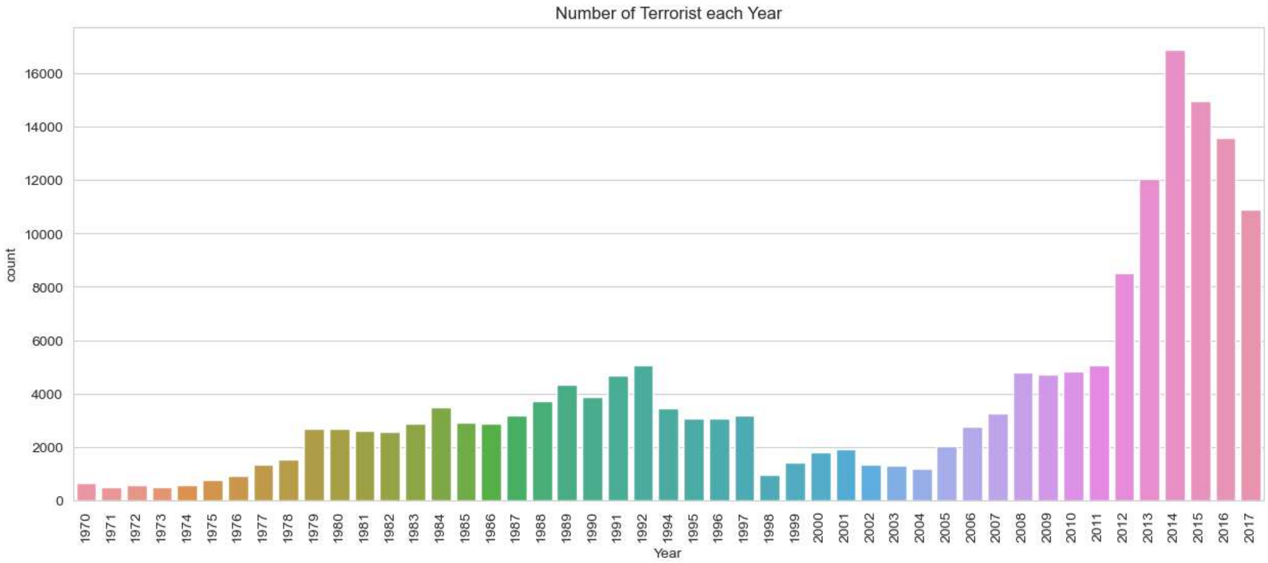
```
df['Weapon_type'] = df['Weapon_type'].replace(['Vehicle (not to include vehicle-borne explosives, i.e., car or truck bombs)'], 'car c
```

EDA

Number of terrorist Activity Each Year

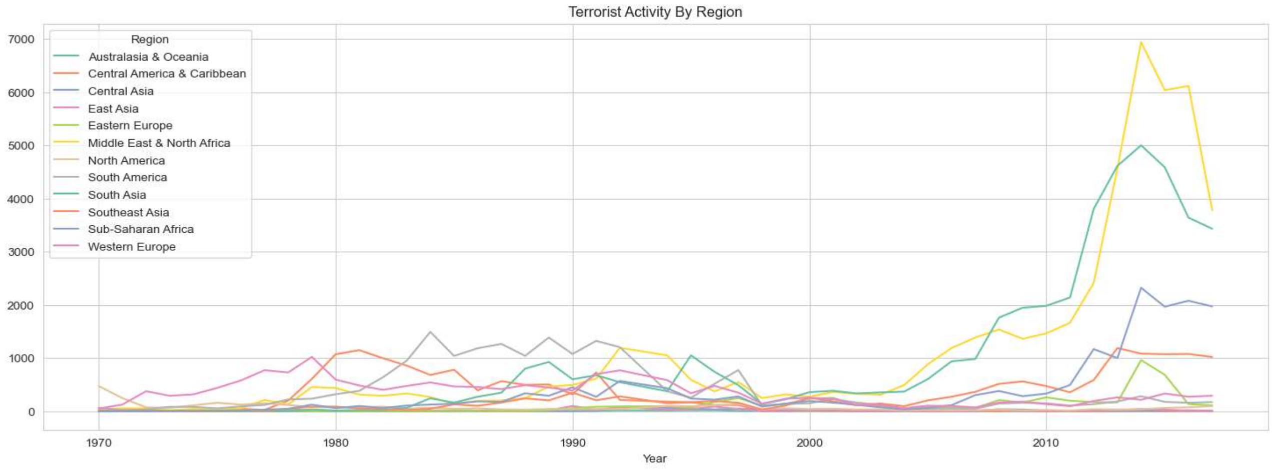
In [11]:

```
plt.subplots(figsize=(15,6))
sns.countplot(data=df,x='Year')
plt.xticks(rotation=90)
plt.title('Number of Terrorist each Year')
plt.show()
```



In [12]:

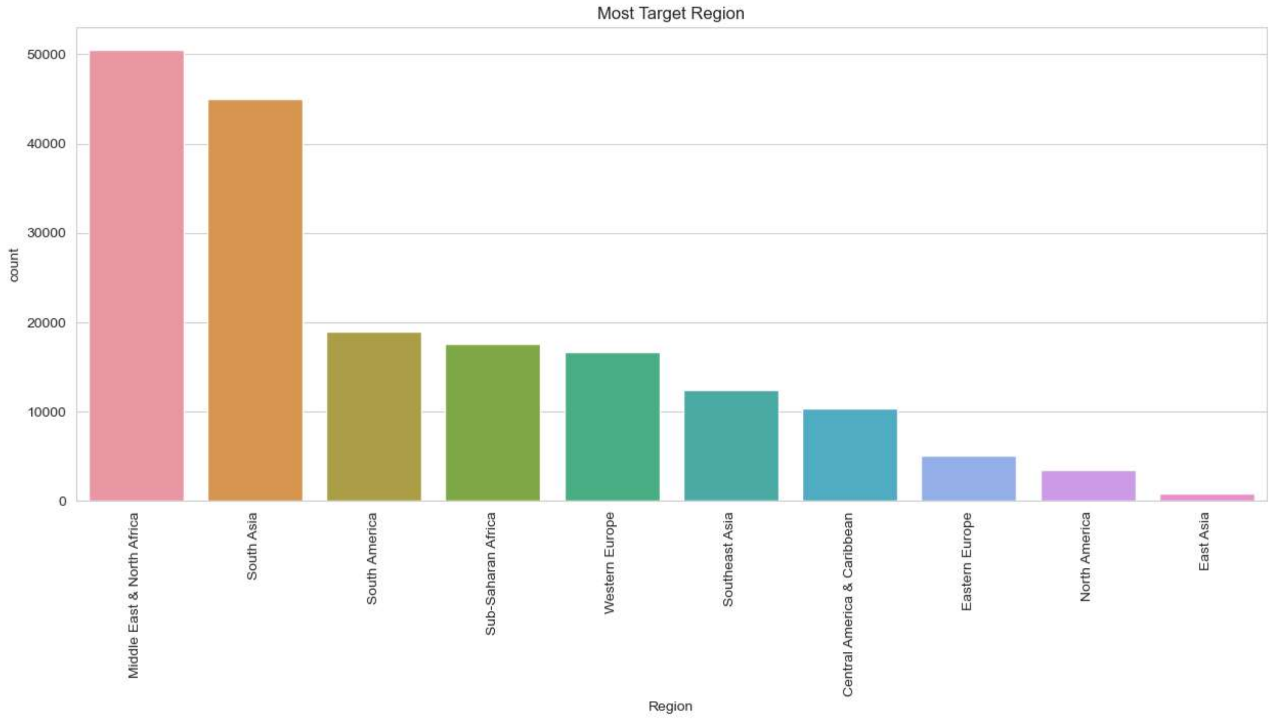
```
terror_region=pd.crosstab(df.Year,df.Region)
terror_region.plot(color=sns.color_palette('Set2',12))
fig=plt.gcf()
fig.set_size_inches(18,6)
plt.title('Terrorist Activity By Region')
plt.show()
```



Most Target Region

In [13]:

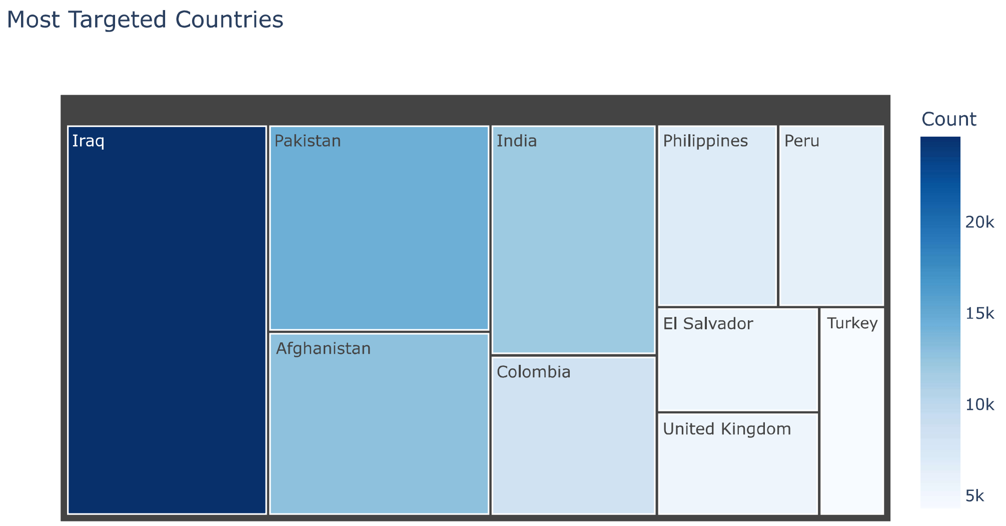
```
sns.set_palette("Spectral")
plt.subplots(figsize=(15,6))
sns.countplot(data=df,x='Region',order=df['Region'].value_counts().head(10).index)
plt.xticks(rotation=90)
plt.title('Most Target Region')
plt.show()
```



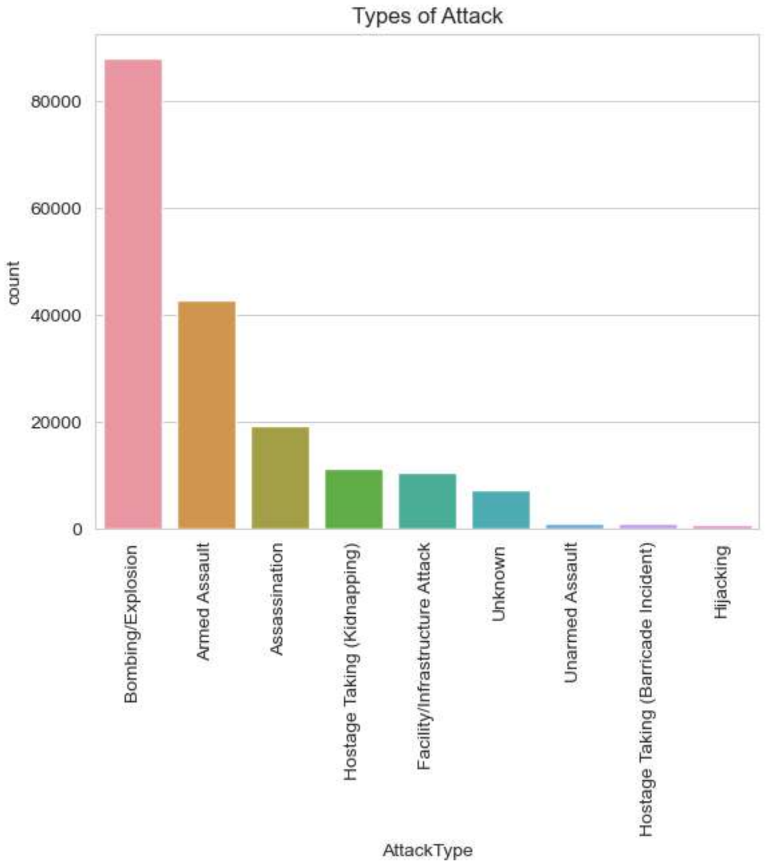
Most Target Country

In [14]:

```
country_counts = df['Country'].value_counts().head(10)

treemap_data = pd.DataFrame({'Country': country_counts.index, 'Count': country_counts.values})

fig = px.treemap(treemap_data, path=['Country'], values='Count',
                 title='Most Targeted Countries',
                 color='Count', color_continuous_scale='blues')


fig.update_layout(width=800, height=500)

fig.show()
```



In [15]:
```
sns.countplot(data=df,x='AttackType',order=df['AttackType'].value_counts().index)
plt.xticks(rotation=90)
plt.title('Types of Attack')
plt.show()
```

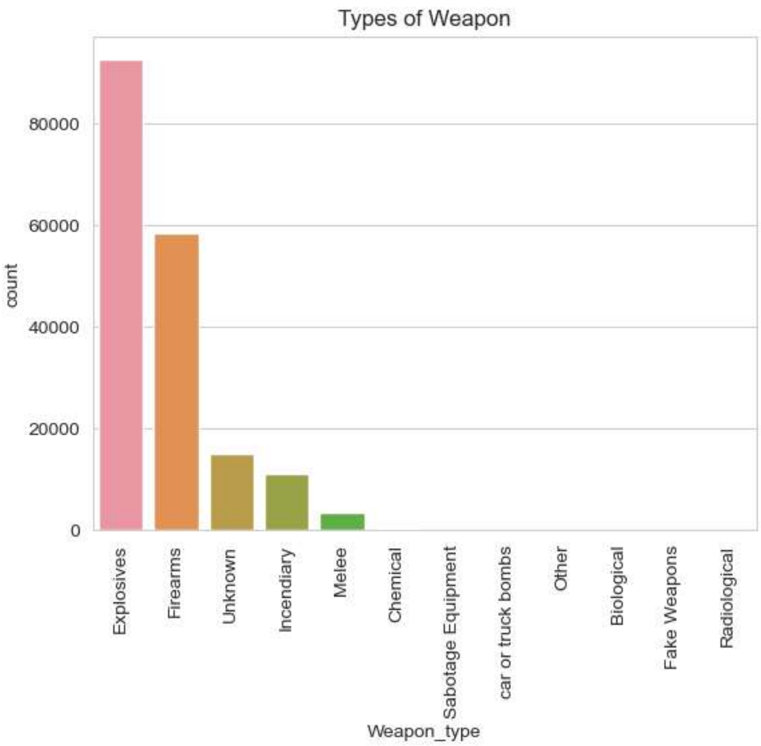


In [16]:
```
df['Weapon_type'].value_counts()
```

Out[16]:
```
Explosives             92426
Firearms               58524
Unknown                15157
Incendiary             11135
Melee                   3655
Chemical                 321
Sabotage Equipment       141
car or truck bombs       136
Other                    114
Biological                35
Fake Weapons              33
Radiological              14
Name: Weapon_type, dtype: int64
```

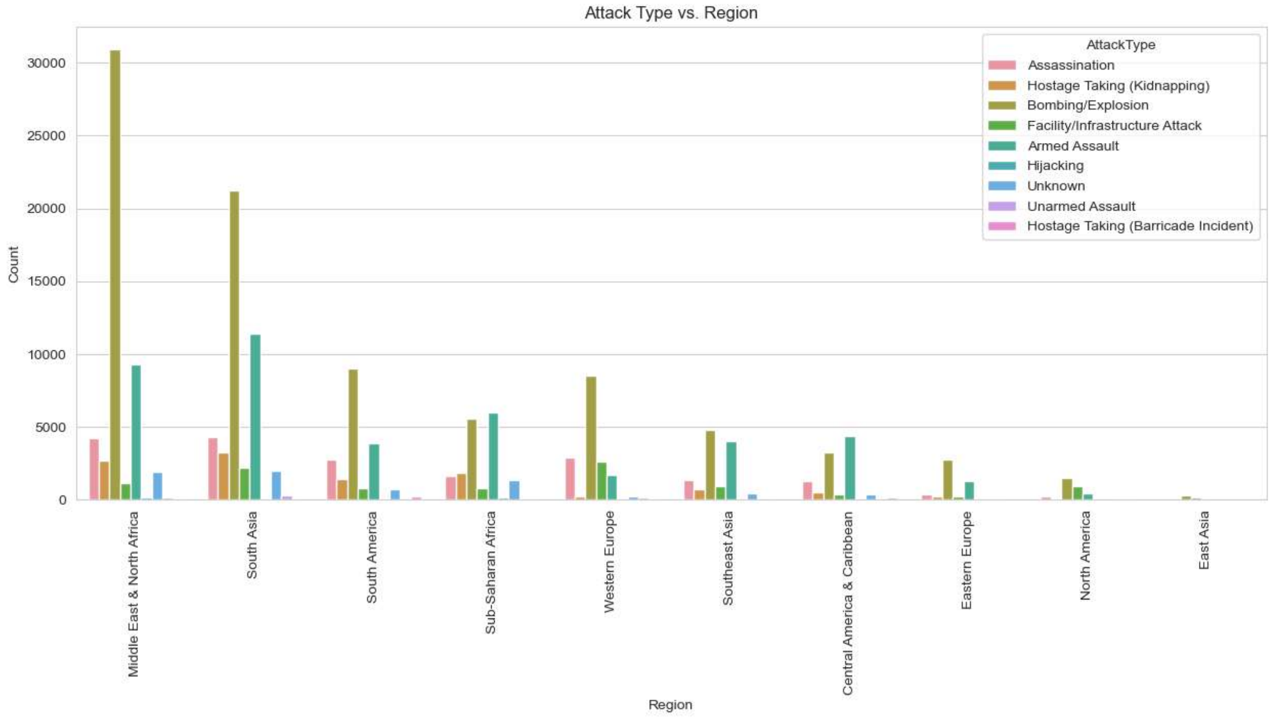
In [17]:

```
sns.countplot(data=df,x='Weapon_type',order=df['Weapon_type'].value_counts().index)
plt.xticks(rotation=90)
plt.title('Types of Weapon')
plt.show()
```



In [18]:

```
plt.subplots(figsize=(15,6))
sns.countplot(data=df, x='Region',order=df['Region'].value_counts().head(10).index, hue='AttackType')
plt.xticks(rotation=90)
plt.xlabel('Region')
plt.ylabel('Count')
plt.title('Attack Type vs. Region')
plt.show()
```



In [19]:

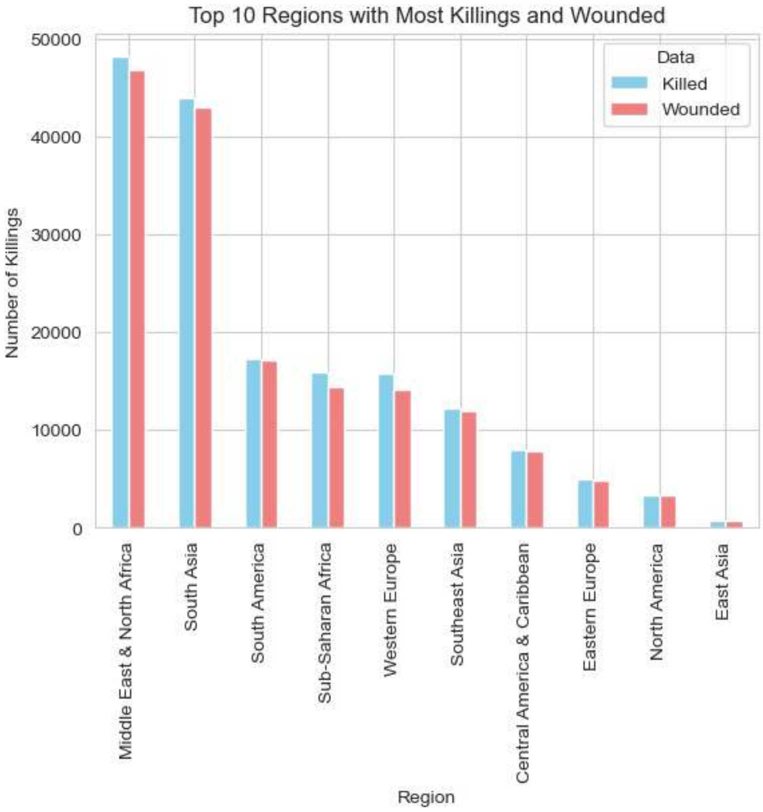
```
df.groupby('Region')[['Killed','Wounded']].count().sort_values(by=['Killed','Wounded'],ascending=False).head(10)
```

Out[19]:

	Killed	Wounded
Region		
Middle East & North Africa	48201	46918
South Asia	44037	43082
South America	17306	17103
Sub-Saharan Africa	15937	14438
Western Europe	15727	14129
Southeast Asia	12209	12023
Central America & Caribbean	8022	7874
Eastern Europe	4978	4892
North America	3363	3335
East Asia	763	757

In [20]:

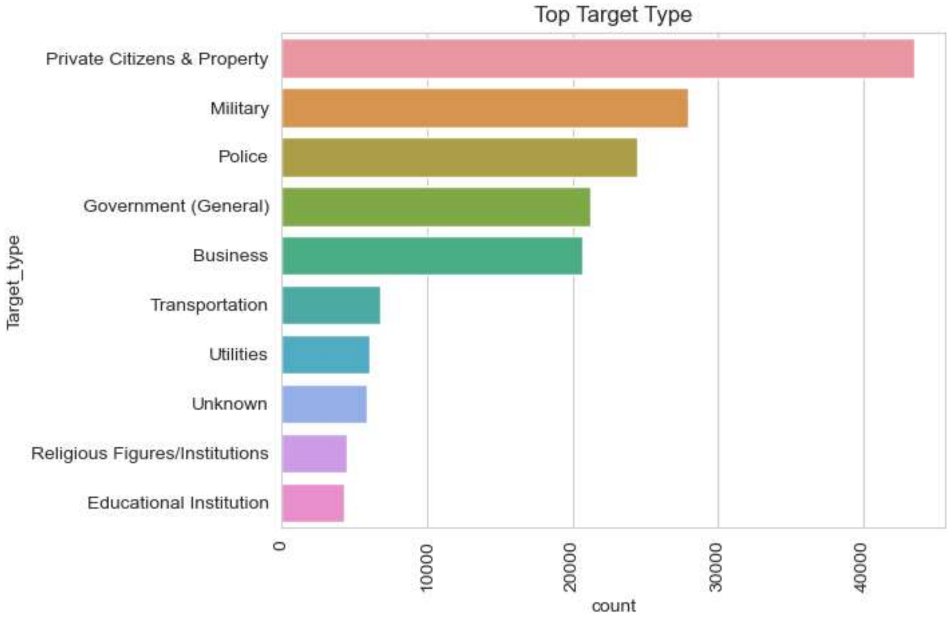
```
result=df.groupby('Region')[['Killed','Wounded']].count().sort_values(by=['Killed','Wounded'],ascending=False).head(10)

result.plot(kind='bar', color=['skyblue','lightcoral'])
plt.xlabel('Region')
plt.ylabel('Number of Killings')
plt.title('Top 10 Regions with Most Killings and Wounded')
plt.xticks(rotation=90)
plt.legend(title='Data', labels=['Killed', 'Wounded'])
plt.show();
```



Target Type

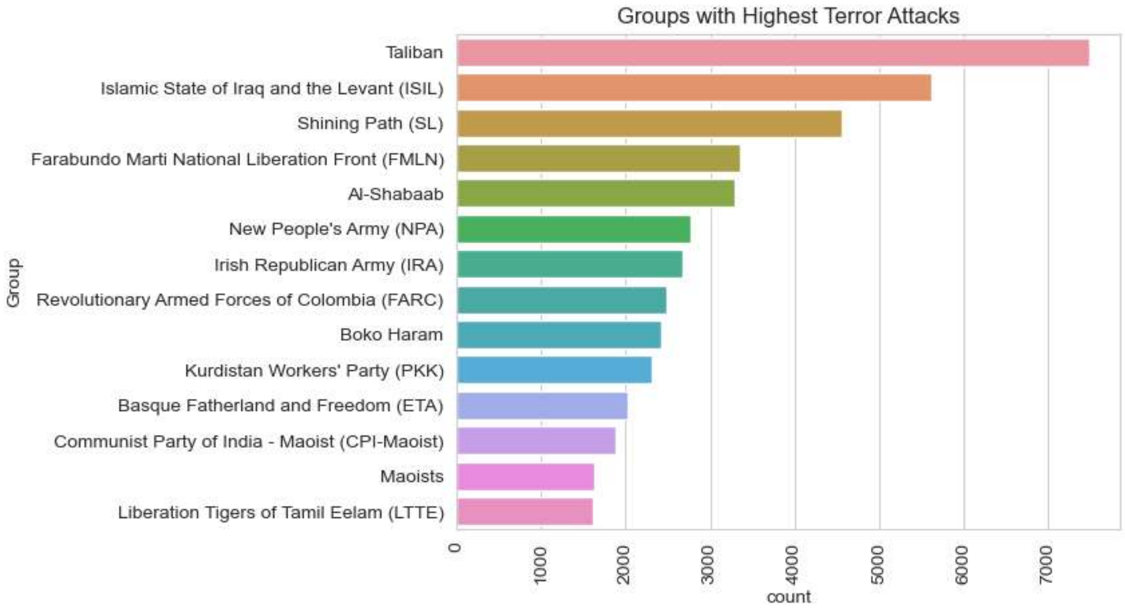
In [21]:

```
sns.countplot(data=df,y='Target_type',order=df['Target_type'].value_counts()[:10].index)
plt.title('Top Target Type')
plt.xticks(rotation=90)
plt.show()
```

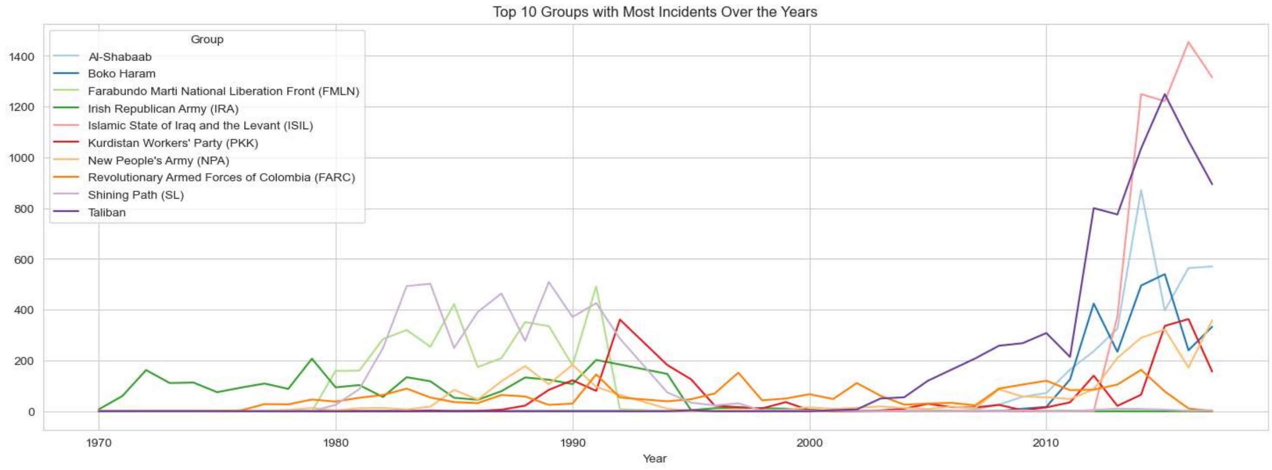


Groups with highest Terro Attacks

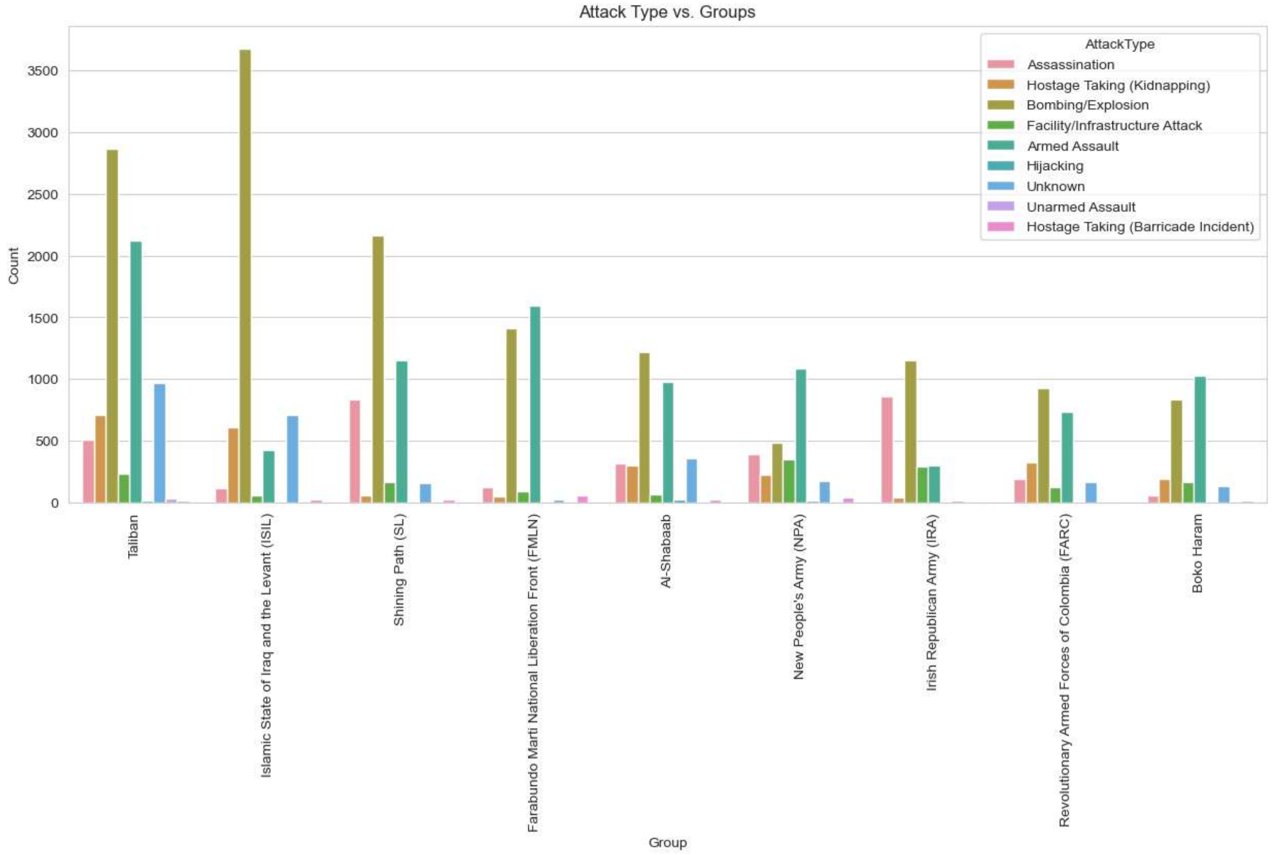
In [23]:
```
sns.countplot(data=df,y='Group',order=df['Group'].value_counts()[1:15].index)
plt.title('Groups with Highest Terror Attacks')
plt.xticks(rotation=90)
plt.show()
```



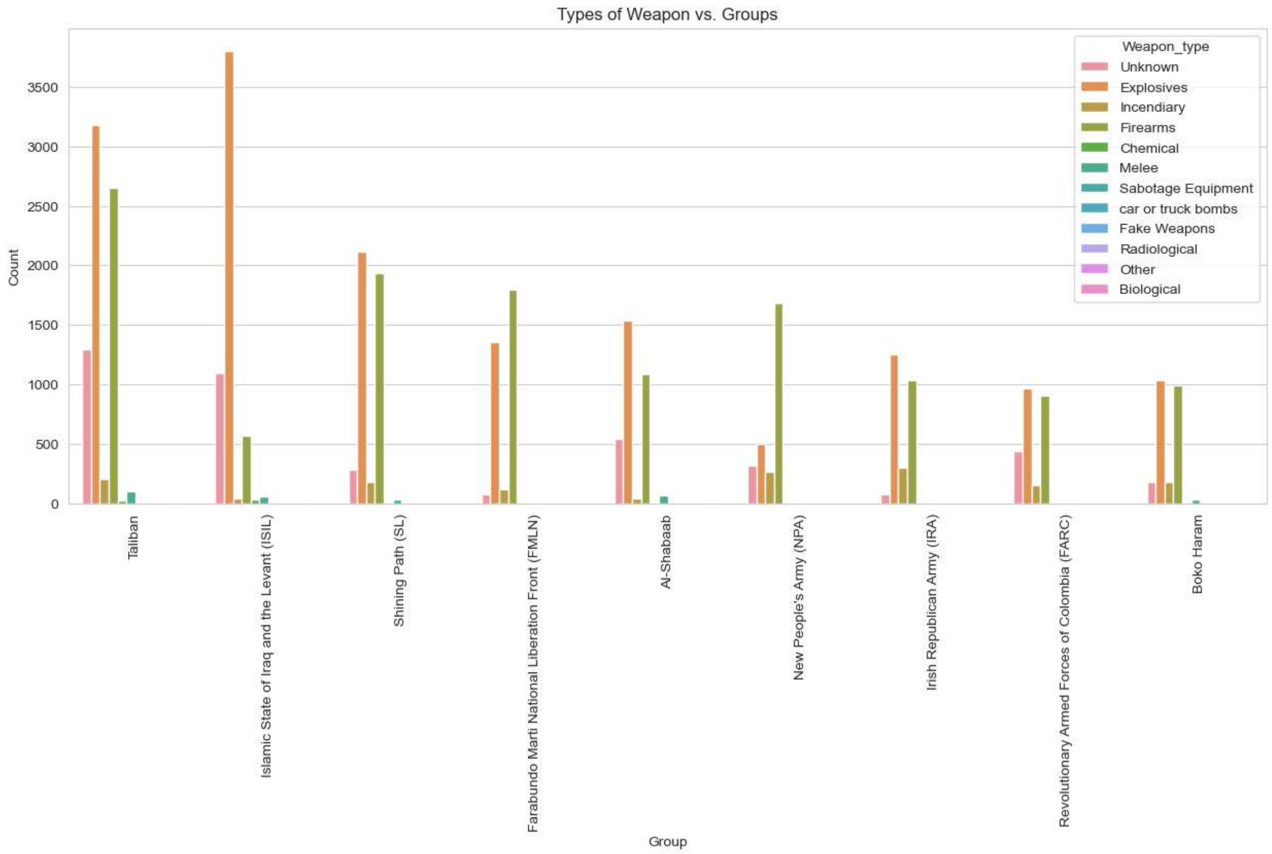
In [24]:
```
top_groups10=df[df['Group'].isin(df['Group'].value_counts()[1:11].index)]
pd.crosstab(top_groups10.Year,top_groups10.Group).plot(color=sns.color_palette('Paired',10))
fig=plt.gcf()
fig.set_size_inches(18,6)
plt.title('Top 10 Groups with Most Incidents Over the Years')
plt.show()
```



```
In [25]: plt.subplots(figsize=(15,6))
         sns.countplot(data=df, x='Group',order=df['Group'].value_counts()[1:10].index, hue='AttackType')
         plt.xticks(rotation=90)
         plt.xlabel('Group')
         plt.ylabel('Count')
         plt.title('Attack Type vs. Groups')
         plt.show()
```



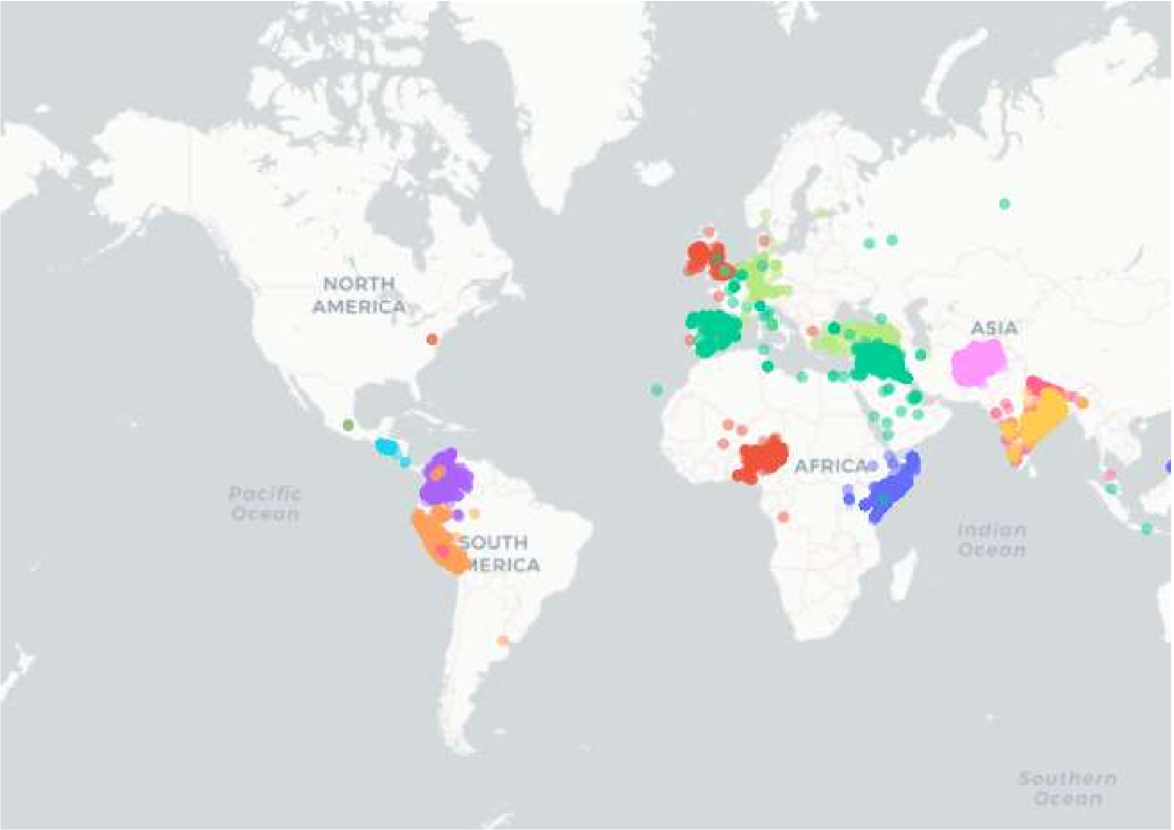
```
In [26]: plt.subplots(figsize=(15,6))
         sns.countplot(data=df, x='Group',order=df['Group'].value_counts()[1:10].index, hue='Weapon_type')
         plt.xticks(rotation=90)
         plt.xlabel('Group')
         plt.ylabel('Count')
         plt.title('Types of Weapon vs. Groups')
         plt.show()
```



In [28]:

```
top_groups = df['Group'].value_counts()[1:14].index
filtered_data = df[df['Group'].isin(top_groups)]

# Create an interactive map using px.scatter_mapbox
fig = px.scatter_mapbox(filtered_data, lat='latitude', lon='longitude',
                        hover_name='Group', color='Group',
                        title='Regional Activities of Terrorist Groups',
                        zoom=1, height=800)

# Customize the map layout
fig.update_layout(mapbox_style="carto-positron")
fig.update_geos(projection_type="orthographic")
fig.update_traces(marker=dict(size=10, opacity=0.5))

# Show the interactive map
fig.show(renderer="notebook")
```

Regional Activities of Terrorist Groups


NORTH
AMERICA
SOUTH
AMERICA
AFRICA
ASIA
Pacific
Ocean
Indian
Ocean
Southern
Ocean