Lets Grow more Data Science Internship Intermediate Level Task-2

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In [1]:
```
# import libraries
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

In [2]:
```
# Loaded dataset
df=pd.read_csv(r"C:\Users\admin\Desktop\globalterrorism.csv",encoding="latin-1
df.sample(5)
```

```
C:\Users\admin\AppData\Local\Temp\ipykernel_12648\2061752522.py:1: DtypeWarni
ng: Columns (4,6,31,33,61,62,63,76,79,90,92,94,96,114,115,121) have mixed typ
es. Specify dtype option on import or set low_memory=False.
  df=pd.read_csv(r"C:\Users\admin\Desktop\globalterrorism.csv",encoding="lati
n-1")
```

Out[2]:

	eventid	iyear	imonth	iday	approxdate	extended	resolution	country	country_t
115115	201303120011	2013	3	12	NaN	0	NaN	78	Gree
82237	200701250004	2007	1	25	NaN	0	NaN	95	Ir
27672	198603260054	1986	3	26	NaN	0	NaN	43	Ch
124236	201312030041	2013	12	3	NaN	0	NaN	95	Ir
88923	200809280013	2008	9	28	NaN	0	NaN	4	Afghanist

5 rows × 135 columns

In [3]:
```
df.rename(columns={'iyear':'Year','imonth':'Month','iday':'Day','country_txt':
                   'region_txt':'Region','attacktype1_txt':'AttackType','t
                   'nwound':'Wounded','summary':'Summary','gname':'Group',
                   'weaptype1_txt':'Weapon_type','motive':'Motive'},inplac
```

In [4]:
```
# I'm just taking important data from whole dataset, which I will use in furth
df=df[['Year','Month','Day','Country','state','Region','city','latitude','long
                'Wounded','Target','Summary','Group','Target_type','Weapon_type
```

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

Out[5]:

	Year	Month	Day	Country	state	Region	city	latitude	longitude	A
0	1970	7	2	Dominican Republic	NaN	Central America & Caribbean	Santo Domingo	18.456792	-69.951164	As
1	1970	0	0	Mexico	Federal	North America	Mexico city	19.371887	-99.086624	Host (K
2	1970	1	0	Philippines	Tarlac	Southeast Asia	Unknown	15.478598	120.599741	As
3	1970	1	0	Greece	Attica	Western Europe	Athens	37.997490	23.762728	Bombing
4	1970	1	0	Japan	Fukouka	East Asia	Fukouka	33.580412	130.396361	Facility/In

In [6]:
```
df.isnull().sum()
```

Out[6]:
```
Year              0
Month             0
Day               0
Country           0
state           421
Region            0
city            434
latitude       4556
longitude      4557
AttackType        0
Killed        10313
Wounded       16311
Target          636
Summary       66129
Group             0
Target_type       0
Weapon_type       0
Motive       131130
dtype: int64
```

- there are null values in data

In [7]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 181691 entries, 0 to 181690
Data columns (total 18 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   state        181270 non-null  object 
 5   Region       181691 non-null  object 
 6   city         181257 non-null  object 
 7   latitude     177135 non-null  float64
 8   longitude    177134 non-null  float64
 9   AttackType   181691 non-null  object 
 10  Killed       171378 non-null  float64
 11  Wounded      165380 non-null  float64
 12  Target       181055 non-null  object 
 13  Summary      115562 non-null  object 
 14  Group        181691 non-null  object 
 15  Target_type  181691 non-null  object 
 16  Weapon_type  181691 non-null  object 
 17  Motive       50561 non-null   object 
dtypes: float64(4), int64(3), object(11)
memory usage: 25.0+ MB
```

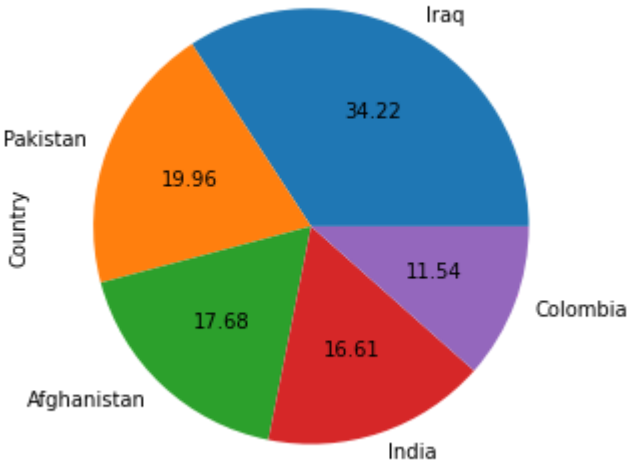
Top 5 Countries affected by terror attack

In [8]:
```
print("Top 5 Countries with most attacks:",df['Country'].value_counts())
```

```
Top 5 Countries with most attacks: Iraq                  24636
Pakistan               14368
Afghanistan            12731
India                  11960
Colombia                8306
                       ...
International              1
Wallis and Futuna          1
South Vietnam              1
Andorra                    1
Antigua and Barbuda        1
Name: Country, Length: 205, dtype: int64
```

In [9]:
```
plt.figure(figsize=(10,5))
df['Country'].value_counts().head(5).plot(kind='pie',autopct='%.2f')
```

Out[9]: <AxesSubplot:ylabel='Country'>



- Most of the times Iraq has been attacked by terrorists

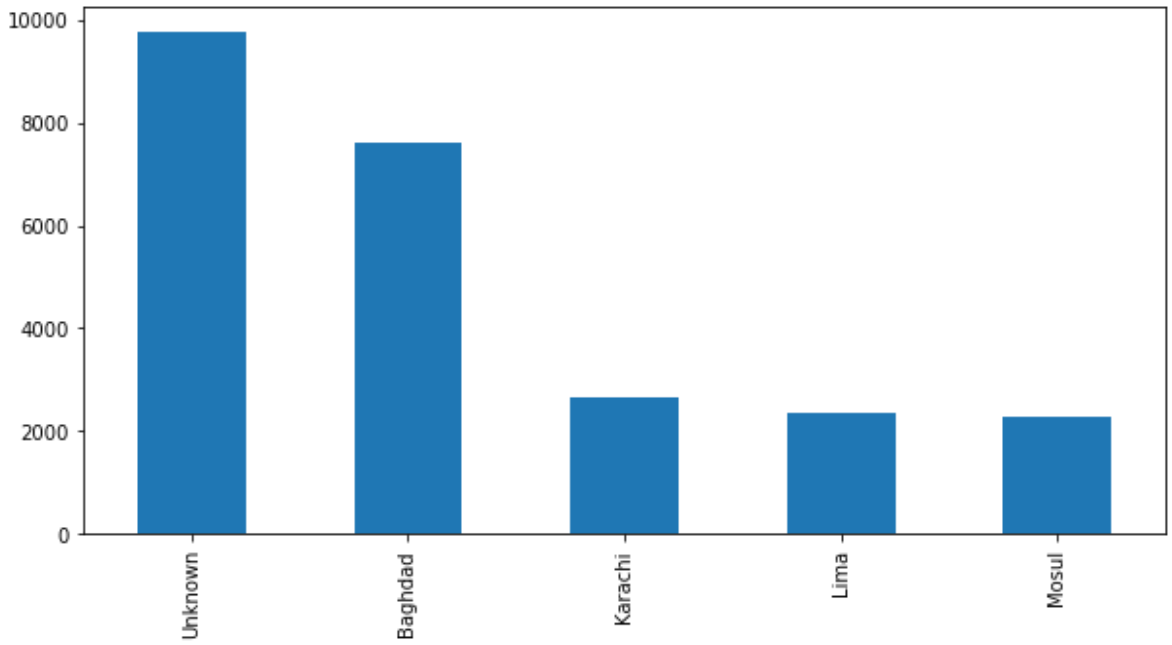
Top 5 Cities with most attack

In [10]:
```
print("Top 5 Cities with most attacks:",df['city'].value_counts().head(5))
```

```
Top 5 Cities with most attacks: Unknown    9775
Baghdad    7589
Karachi    2652
Lima       2359
Mosul      2265
Name: city, dtype: int64
```

In [11]:
```
plt.figure(figsize=(10,5))
df['city'].value_counts().head(5).plot(kind='bar')
```

Out[11]: <AxesSubplot:>



- As here 1st city is unknown, so, city with most attacks is Baghdad

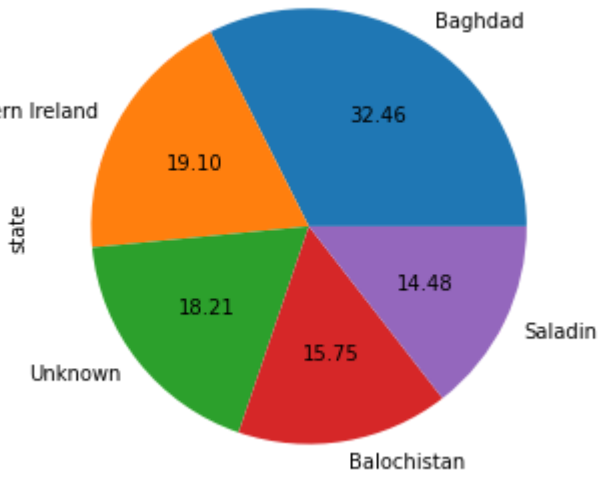
State With the Most attacks

In [12]:
```
df['state'].value_counts()
```

Out[12]:
```
Baghdad                  7645
Northern Ireland         4498
Unknown                  4290
Balochistan              3710
Saladin                  3411
                         ...
Federal Territory           1
Topaz (Province)            1
Obilic (Municipality)       1
East Timor (Region)         1
Vidzeme                     1
Name: state, Length: 2855, dtype: int64
```

In [13]:
```
plt.figure(figsize=(10,5))
df['state'].value_counts().head(5).plot(kind='pie',autopct='%.2f')
```

Out[13]: <AxesSubplot:ylabel='state'>



- Baghdad State has been Mostly Attacked by Terrorists.

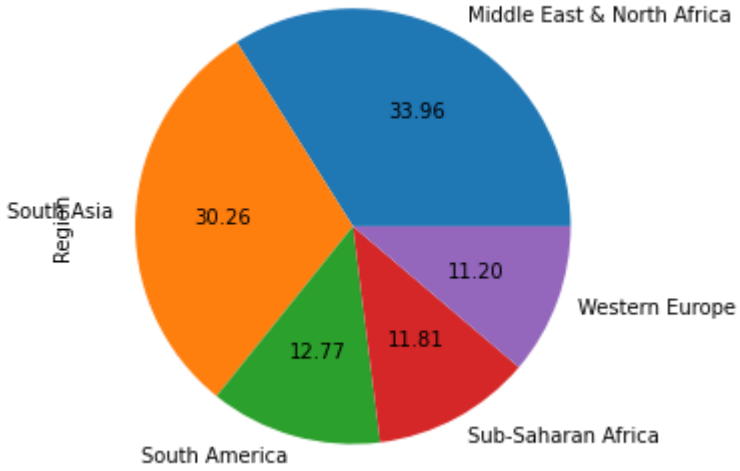
Top 5 Regions with most attack

In [14]:
```
print("Top 5 Regions with most attacks:",df['Region'].value_counts().head(5))
```

```
Top 5 Regions with most attacks: Middle East & North Africa    50474
South Asia                       44974
South America                    18978
Sub-Saharan Africa               17550
Western Europe                   16639
Name: Region, dtype: int64
```

In [15]:
```
plt.figure(figsize=(10,5))
df['Region'].value_counts().head(5).plot(kind='pie',autopct='%.2f')
```

Out[15]: <AxesSubplot:ylabel='Region'>



- Region with most attacks is Middle East & North Africa

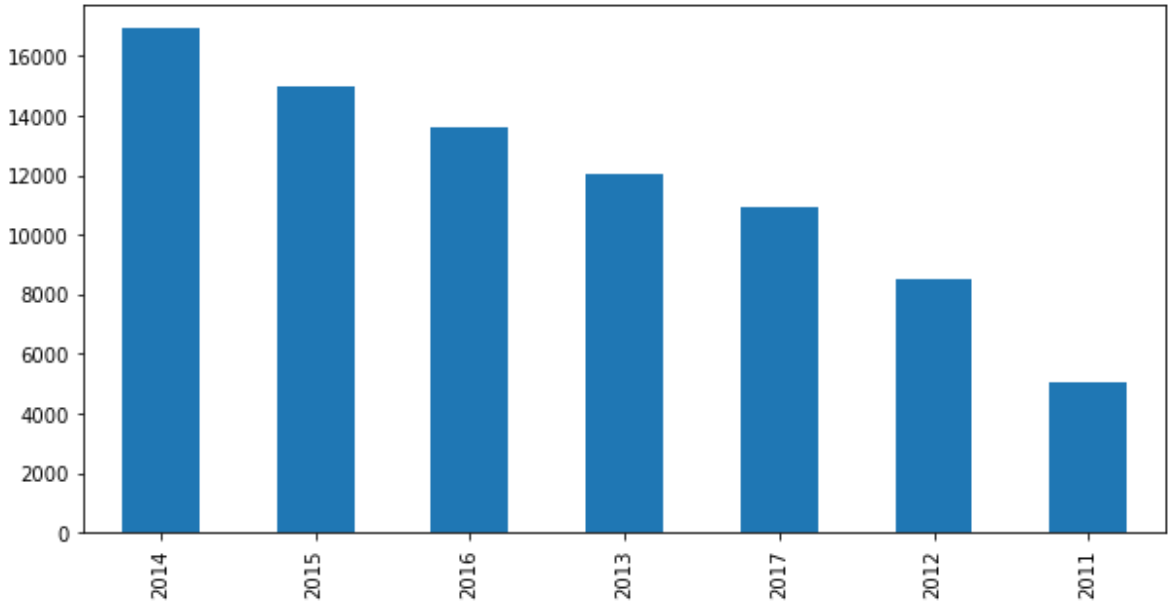
Top Year with most attacks

In [16]:
```
print("Year with most attacks:",df['Year'].value_counts())
```

```
Year with most attacks: 2014    16903
2015    14965
2016    13587
2013    12036
2017    10900
2012     8522
2011     5076
1992     5071
2010     4826
2008     4805
2009     4721
1991     4683
1989     4324
1990     3887
1988     3721
1984     3495
1994     3456
2007     3242
1997     3197
1987     3183
1995     3081
1996     3058
1985     2915
1983     2870
1986     2860
2006     2758
1979     2662
1980     2662
1981     2586
1982     2544
2005     2017
2001     1906
2000     1814
1978     1526
1999     1395
2002     1333
1977     1319
2003     1278
2004     1166
1998      934
1976      923
1975      740
1970      651
1974      581
1972      568
1973      473
1971      471
Name: Year, dtype: int64
```

In [17]:
```
plt.figure(figsize=(10,5))
df['Year'].value_counts().head(7).plot(kind='bar')
```

Out[17]: <AxesSubplot:>



- 2014 is the year in which most of the terror attcks happened.

Month with most attack

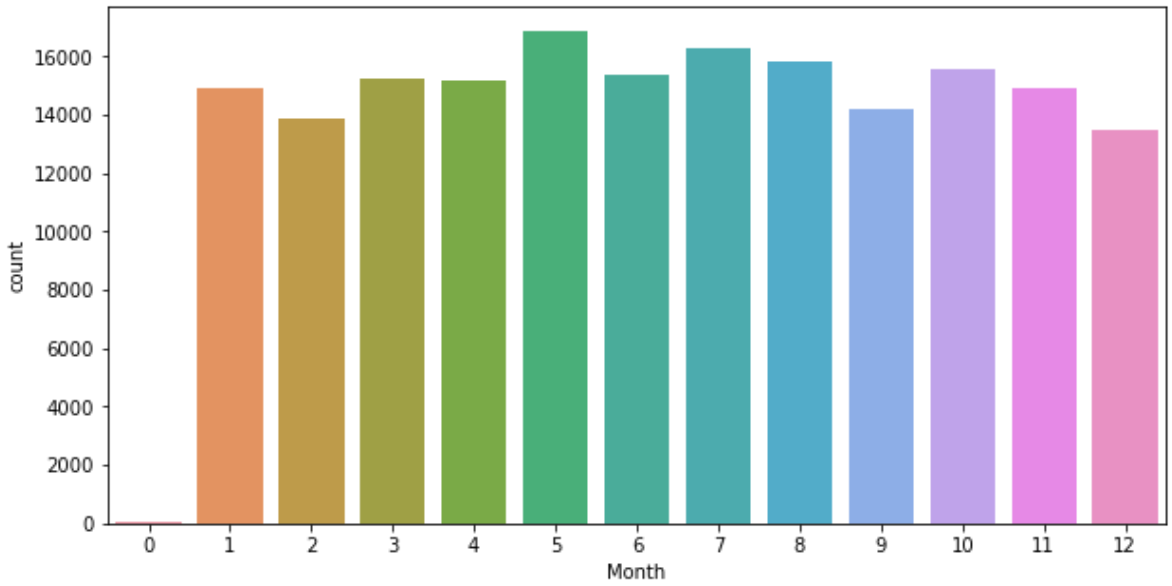
In [18]:
```
print("Month with most attacks:",df['Month'].value_counts())
```

```
Month with most attacks: 5     16875
7     16268
8     15800
10    15563
6     15359
3     15257
4     15152
1     14936
11    14906
9     14180
2     13879
12    13496
0        20
Name: Month, dtype: int64
```

In [19]:
```
plt.figure(figsize=(10,5))
sns.countplot(df['Month'])
```

```
C:\ProgramData\Anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureW
arning: Pass the following variable as a keyword arg: x. From version 0.12, t
he only valid positional argument will be `data`, and passing other arguments
without an explicit keyword will result in an error or misinterpretation.
  warnings.warn(
```

Out[19]:
```
<AxesSubplot:xlabel='Month', ylabel='count'>
```



- In Month of 5 or May Most of the terror attack has been done.

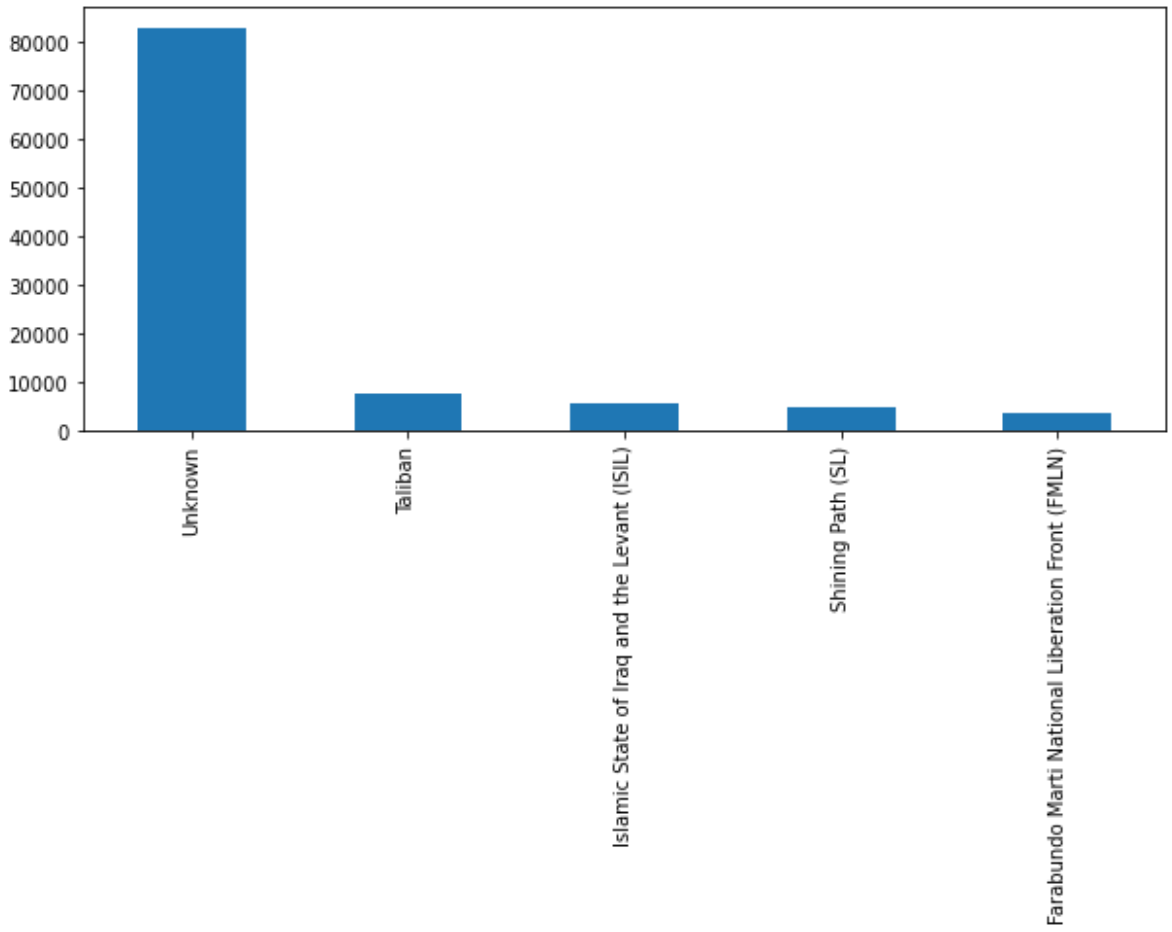
Groups which attacks most

In [20]:
```
print("Top 5 Groups which attacks most:",df['Group'].value_counts())
```

```
Top 5 Groups which attacks most: Unknown
82782
Taliban                                                 7478
Islamic State of Iraq and the Levant (ISIL)             5613
Shining Path (SL)                                       4555
Farabundo Marti National Liberation Front (FMLN)        3351
                                                        ...
Ansar Sarallah                                             1
Sword of Islam                                             1
Support of Ocalan-The Hawks of Thrace                      1
Arab Revolutionary Front                                   1
MANO-D                                                     1
Name: Group, Length: 3537, dtype: int64
```

In [21]:
```
plt.figure(figsize=(10,4))
df['Group'].value_counts().head(5).plot(kind='bar')
```

Out[21]: <AxesSubplot:>



- as 1st group is unknown so, Taliban attacks or do more terror.

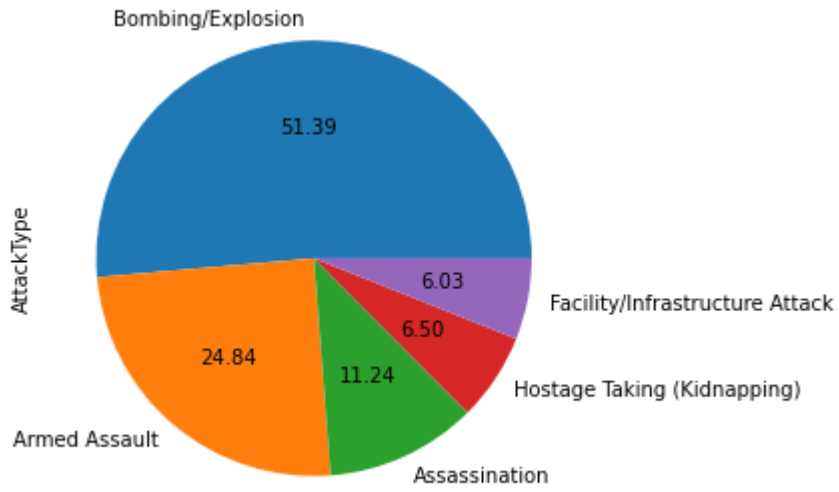
Most of terrorism done by using which AttackType

In [22]:
```
print("Top 5 attack types:",df['AttackType'].value_counts())
```

```
Top 5 attack types: Bombing/Explosion                      88255
Armed Assault                              42669
Assassination                              19312
Hostage Taking (Kidnapping)                11158
Facility/Infrastructure Attack             10356
Unknown                                     7276
Unarmed Assault                             1015
Hostage Taking (Barricade Incident)          991
Hijacking                                    659
Name: AttackType, dtype: int64
```

In [23]:
```
plt.figure(figsize=(10,5))
df['AttackType'].value_counts().head(5).plot(kind='pie',autopct='%.2f')
```

Out[23]: <AxesSubplot:ylabel='AttackType'>



- Most of the time attack has been done with Bombing/Explosion

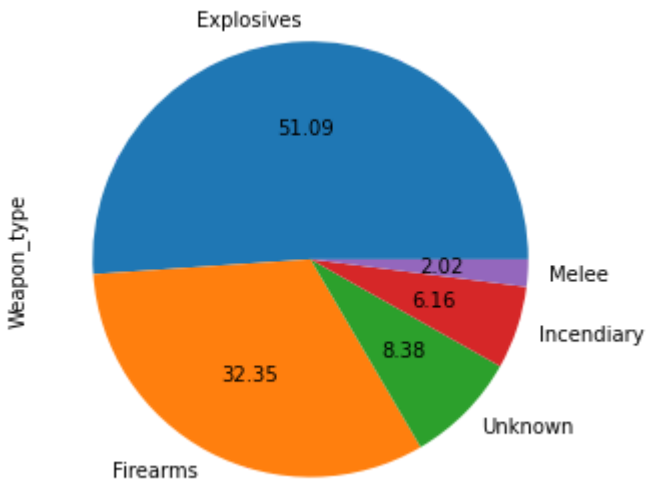
Weapons used for attack

In [24]:
```
print("Top 5 attack types:",df['Weapon_type'].value_counts())
```

```
Top 5 attack types: Explosives
92426
Firearms
58524
Unknown
15157
Incendiary
11135
Melee
3655
Chemical
321
Sabotage Equipment
141
Vehicle (not to include vehicle-borne explosives, i.e., car or truck bombs)
136
Other
114
Biological
35
Fake Weapons
33
Radiological
14
Name: Weapon_type, dtype: int64
```

In [25]:
```
plt.figure(figsize=(10,5))
df['Weapon_type'].value_counts().head(5).plot(kind='pie',autopct='%.2f')
```

Out[25]: <AxesSubplot:ylabel='Weapon_type'>



- Explosives are mostly used by terrorist to carryout attacks

In [26]:
```
df['Wounded'] = df['Wounded'].fillna(0).astype(int)
df['Killed'] = df['Killed'].fillna(0).astype(int)
df['casualities'] = df['Killed'] + df['Wounded']
```

In [27]:
```
df1 = df.sort_values(by='casualities',ascending=False)[:40]
```

In [28]:
```
df1.head()
```

Out[28]:

	Year	Month	Day	Country	state	Region	city	latitude	longitude	Atta
73126	2001	9	11	United States	New York	North America	New York City	40.697132	-73.931351	H
73127	2001	9	11	United States	New York	North America	New York City	40.697132	-73.931351	H
58841	1995	3	20	Japan	Tokyo	East Asia	Tokyo	35.689125	139.747742	Unarmec
68071	1998	8	7	Kenya	Nairobi	Sub-Saharan Africa	Nairobi	-1.285180	36.821107	Bombing/E
133518	2014	6	12	Iraq	Saladin	Middle East & North Africa	Tikrit	34.621521	43.668377	Hostag (Kidr

- as we can see in above dataframe most casualities done in US

In [29]:
```
heat=df1.pivot_table(index='Country',columns='Year',values='casualities')
heat.fillna(0,inplace=True)
```

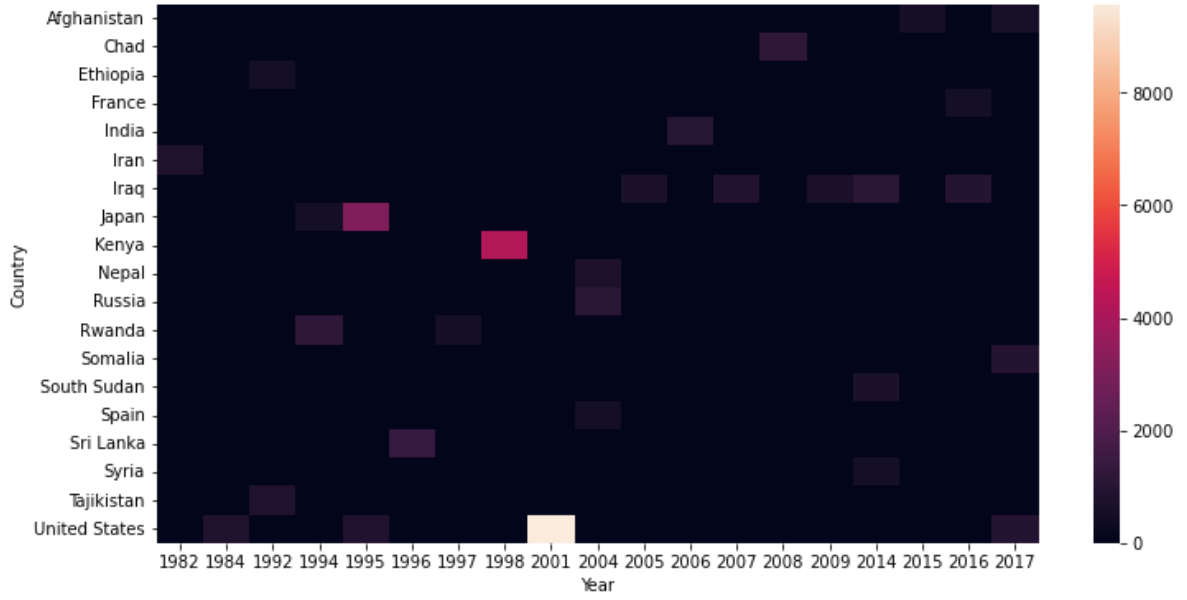
In [30]:
```
heat.head()
```

Out[30]:

Year	1982	1984	1992	1994	1995	1996	1997	1998	2001	2004	2005	2006	2007
Country													
Afghanistan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chad	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethiopia	0.0	0.0	500.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
France	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1005.0	0.0

In [39]:
```
plt.figure(figsize=(12,6))
sns.heatmap(heat)
```

Out[39]:
```
<AxesSubplot:xlabel='Year', ylabel='Country'>
```



- Most Casualities happened in US in 2001

In [31]:
```
#Number of Killed in Terrorist Attacks by Countries
countryData = df.loc[:,'Country']
killData = df.loc[:,'Killed']
# countyData
countryKillData = pd.concat([countryData, killData], axis=1)
```

In [32]:
```
countryKillData.head()
```

Out[32]:

	Country	Killed
0	Dominican Republic	1
1	Mexico	0
2	Philippines	1
3	Greece	0
4	Japan	0

In [33]:
```
countryKill = countryKillData.pivot_table(columns='Country', values='Killed',
countryKill
```

Out[33]:

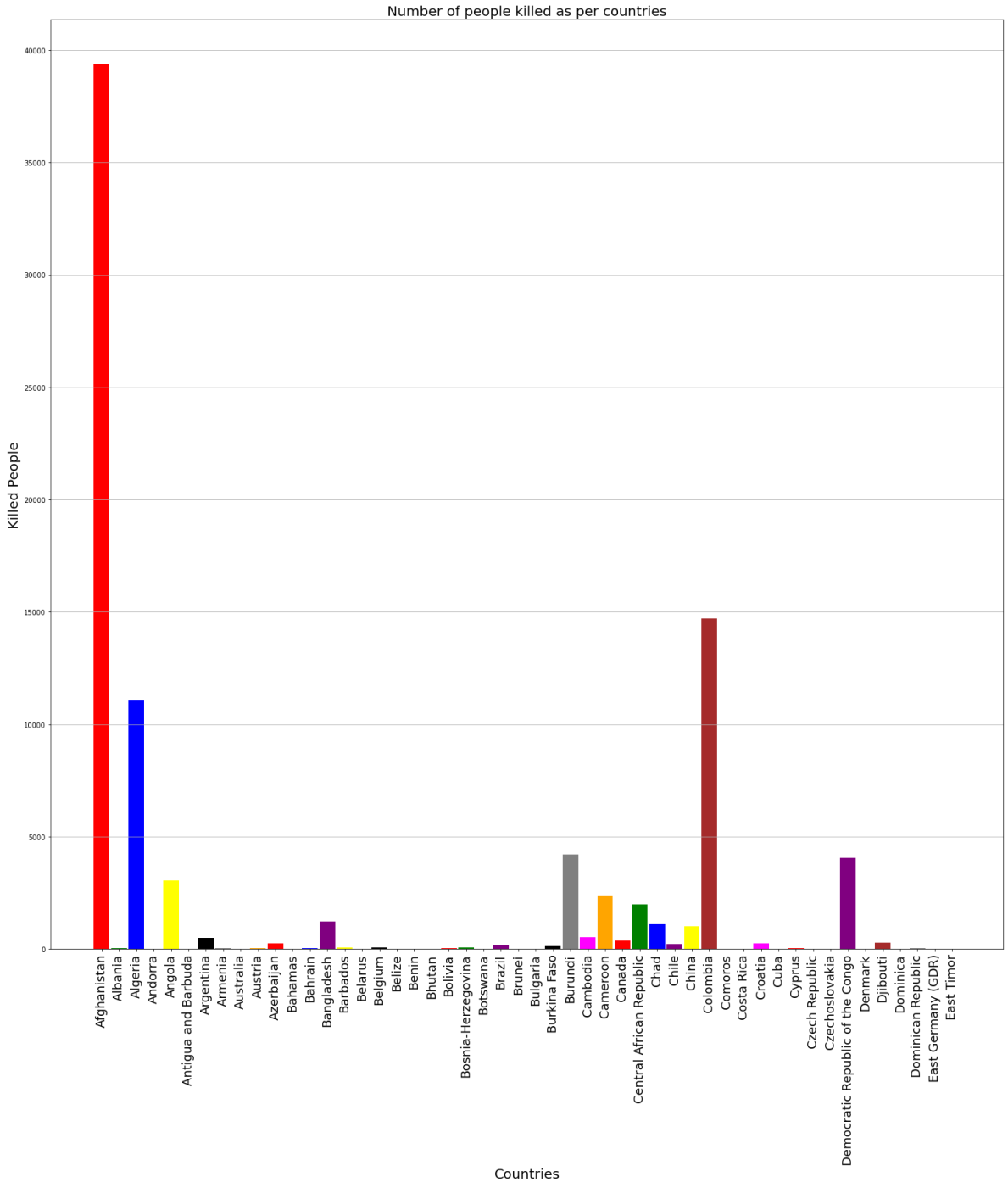
Country	Afghanistan	Albania	Algeria	Andorra	Angola	Antigua and Barbuda	Argentina	Armenia	Australi
Killed	39384	42	11066	0	3043	0	490	37	2

1 rows × 205 columns

In [34]:
```
fig_size = plt.rcParams["figure.figsize"]
fig_size[0]=25
fig_size[1]=25
plt.rcParams["figure.figsize"] = fig_size
```

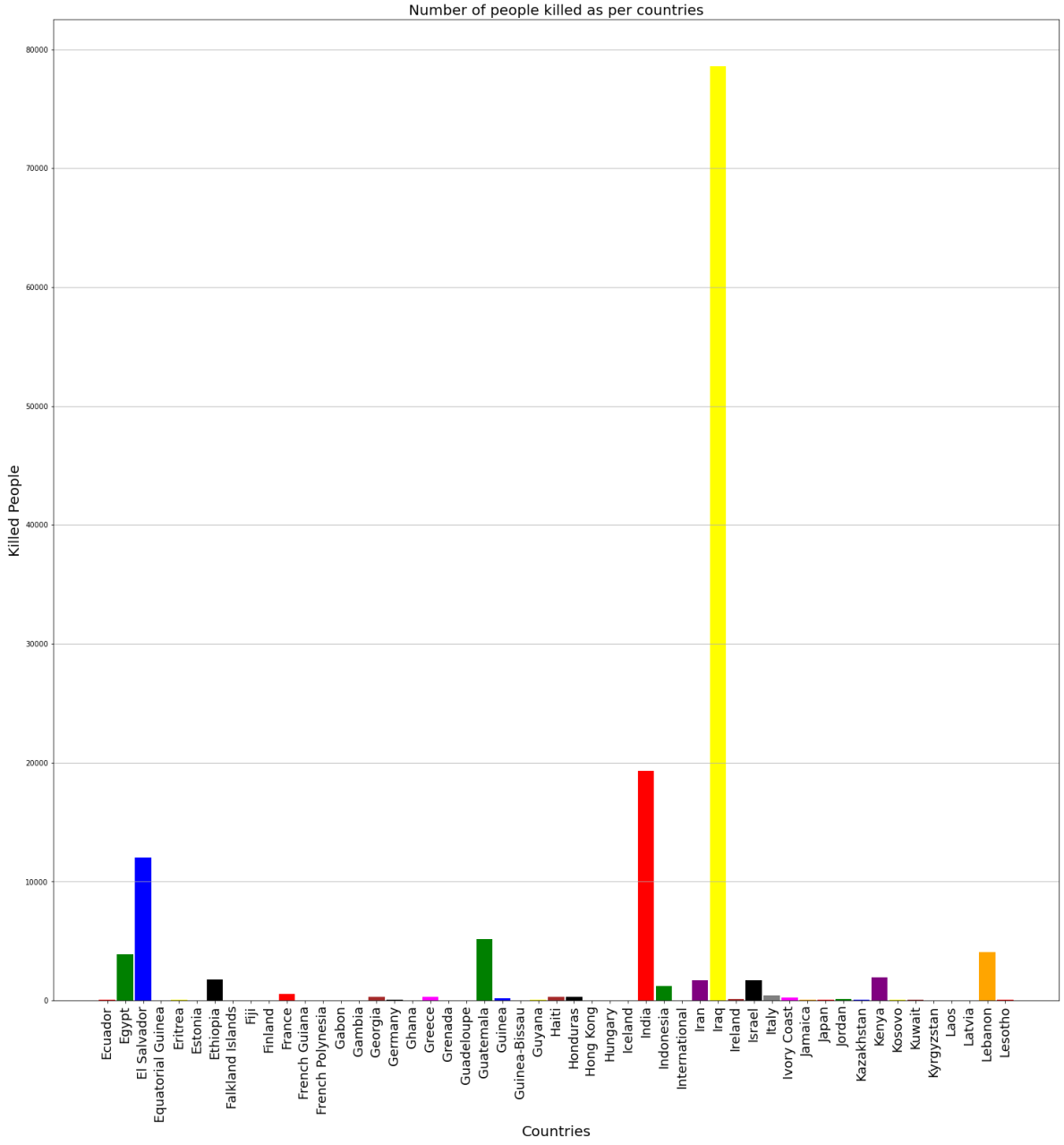
In [35]:

```
labels = countryKill.columns.tolist()
labels = labels[:50] #50 bar provides nice view
index = np.arange(len(labels))
transpoze = countryKill.T
values = transpoze.values.tolist()
values = values[:50]
values = [int(i[0]) for i in values] # convert float to int
colors = ['red', 'green', 'blue', 'purple', 'yellow', 'brown', 'black', 'gray'
fig, ax = plt.subplots(1, 1)
ax.yaxis.grid(True)
fig_size = plt.rcParams["figure.figsize"]
fig_size[0]=25
fig_size[1]=25
plt.rcParams["figure.figsize"] = fig_size
plt.bar(index, values, color = colors, width = 0.9)
plt.ylabel('Killed People', fontsize=20)
plt.xlabel('Countries', fontsize = 20)
plt.xticks(index, labels, fontsize=18, rotation=90)
plt.title('Number of people killed as per countries', fontsize = 20)
# print(fig_size)
plt.show()
```


Number of people killed as per countries
Killed People
Countries
0
5000
10000
15000
20000
25000
30000
35000
40000
Afghanistan
Albania
Algeria
Andorra
Angola
Antigua and Barbuda
Argentina
Armenia
Australia
Austria
Azerbaijan
Bahamas
Bahrain
Bangladesh
Barbados
Belarus
Belgium
Belize
Benin
Bhutan
Bolivia
Bosnia-Herzegovina
Botswana
Brazil
Brunei
Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Canada
Central African Republic
Chad
Chile
China
Colombia
Comoros
Costa Rica
Croatia
Cuba
Cyprus
Czech Republic
Czechoslovakia
Democratic Republic of the Congo
Denmark
Djibouti
Dominica
Dominican Republic
East Germany (GDR)
East Timor

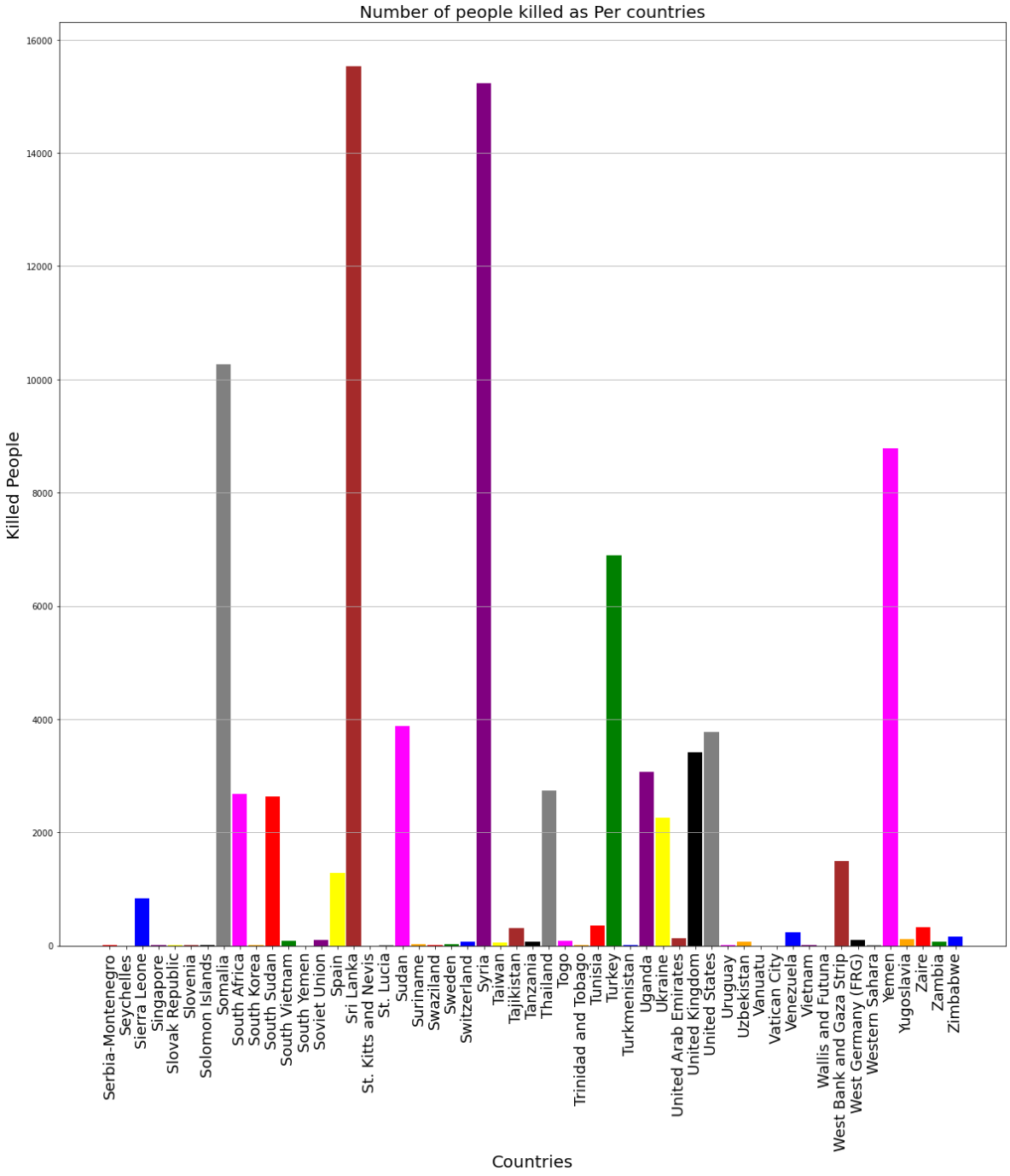
In [36]:

```
labels = countryKill.columns.tolist()
labels = labels[50:101]
index = np.arange(len(labels))
transpoze = countryKill.T
values = transpoze.values.tolist()
values = values[50:101]
values = [int(i[0]) for i in values]
colors = ['red', 'green', 'blue', 'purple', 'yellow', 'brown', 'black', 'gray'
fig, ax = plt.subplots(1, 1)
ax.yaxis.grid(True)
fig_size = plt.rcParams["figure.figsize"]
fig_size[0]=20
fig_size[1]=20
plt.rcParams["figure.figsize"] = fig_size
plt.bar(index, values, color = colors, width = 0.9)
plt.ylabel('Killed People', fontsize=20)
plt.xlabel('Countries', fontsize = 20)
plt.xticks(index, labels, fontsize=18, rotation=90)
plt.title('Number of people killed as per countries', fontsize = 20)
plt.show()
```


Number of people killed as per countries
Killed People
Countries
0
10000
20000
30000
40000
50000
60000
70000
80000
Ecuador
Egypt
El Salvador
Equatorial Guinea
Eritrea
Estonia
Ethiopia
Falkland Islands
Fiji
Finland
France
French Guiana
French Polynesia
Gabon
Gambia
Georgia
Germany
Ghana
Greece
Grenada
Guadeloupe
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras
Hong Kong
Hungary
Iceland
India
Indonesia
International
Iran
Iraq
Ireland
Israel
Italy
Ivory Coast
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Kosovo
Kuwait
Kyrgyzstan
Laos
Latvia
Lebanon
Lesotho

In [37]:

```
labels = countryKill.columns.tolist()
labels = labels[152:206]
index = np.arange(len(labels))
transpoze = countryKill.T
values = transpoze.values.tolist()
values = values[152:206]
values = [int(i[0]) for i in values]
colors = ['red', 'green', 'blue', 'purple', 'yellow', 'brown', 'black', 'gray'
fig, ax = plt.subplots(1, 1)
ax.yaxis.grid(True)
fig_size = plt.rcParams["figure.figsize"]
fig_size[0]=25
fig_size[1]=25
plt.rcParams["figure.figsize"] = fig_size
plt.bar(index, values, color = colors, width = 0.9)
plt.ylabel('Killed People', fontsize=20)
plt.xlabel('Countries', fontsize = 20)
plt.xticks(index, labels, fontsize=18, rotation=90)
plt.title('Number of people killed as Per countries', fontsize = 20)
plt.show()
```



- Terrorist acts in the Middle East and northern Africa have been seen to have fatal consequences. The Middle East and North Africa are seen to be the places of serious terrorist attacks. In addition, even though there is a perception that Muslims are supporters of terrorism, Muslims are the people who are most damaged by terrorist attacks. If you look at the graphics, it appears that Iraq, Afghanistan and Pakistan are the most damaged countries. All of these countries are Muslim countries.