COVID-19 DASHBOARD REPORT

THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

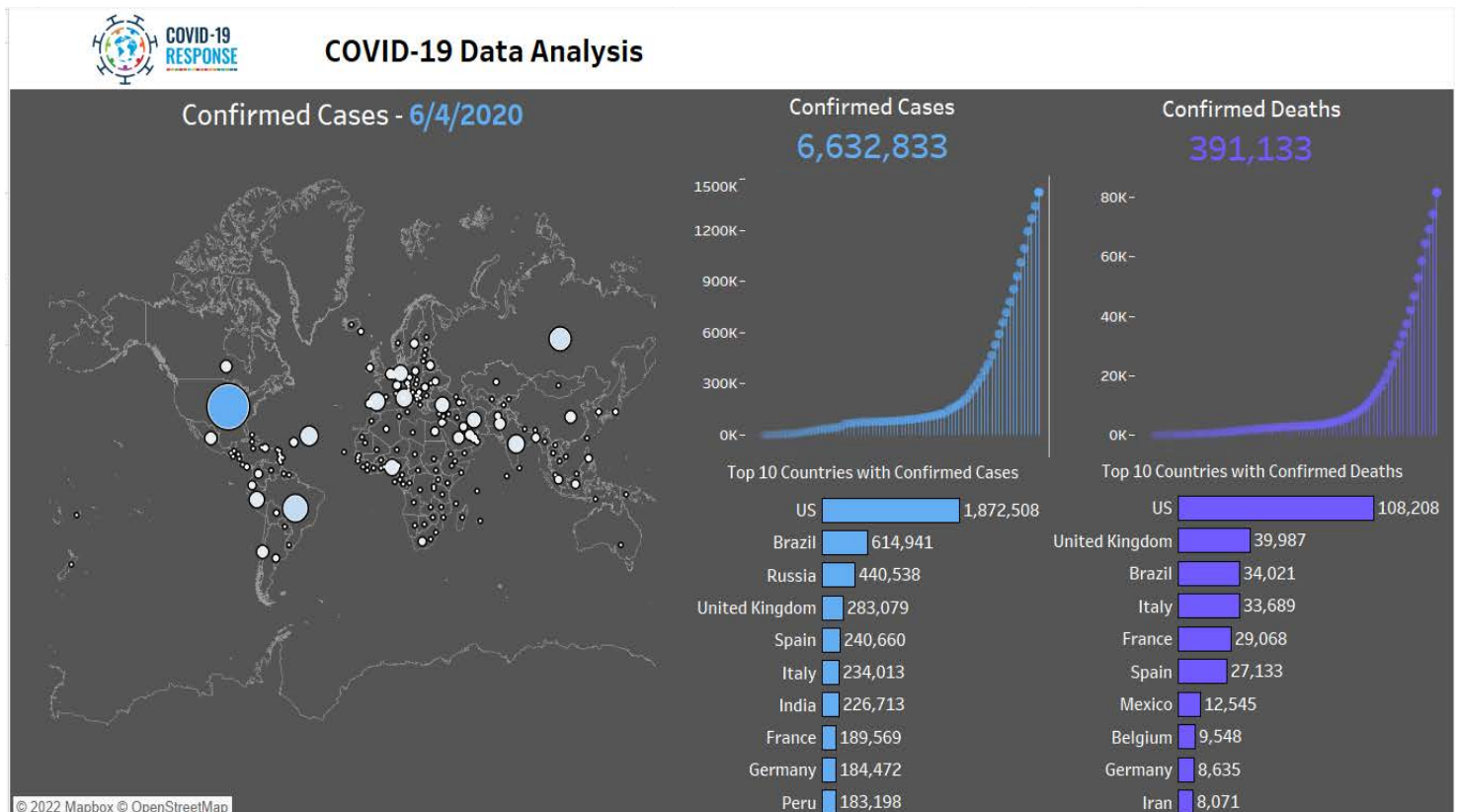## Submitted By:

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Subgroup- 3CO27

Submitted To:

Dr. Sharad Saxena

July 2022 – December 2022

1. Dashboard:

2. Dataset used:

The data set that is being used is of covid-19 and contains 17 features along with 950671 records. This is raw dataset containing NA values.

Case_Type	People_Total_Tested	Cases	Difference	Date	Combined_Key	Country_Region	Province_Stat	Admin2	iso2	iso3	Lat	Long	Populati	Data_Source	Prep_Flow_Runtime
Confirmed		6	0	5/22/2020	Western Sahara	Western Sahara	N/A		EH	ESH	24.2155	-12.886	597330	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		0	0	2/3/2020	Switzerland	Switzerland	N/A		CH	CHE	46.8182	8.2275	8654618	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	3/1/2020	Cyprus	Cyprus	N/A		CY	CYP	35.1264	33.4299	1207361	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		23	0	4/21/2020	Antigua and Barbuda	Antigua and Ba	N/A		AG	ATG	17.0608	-61.796	97928	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		56	0	5/11/2020	Thailand	Thailand	N/A		TH	THA	15.87	100.993	7E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	2/11/2020	Jamaica	Jamaica	N/A		JM	JAM	18.1096	-77.298	2961161	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		0	0	2/6/2020	Belize	Belize	N/A		BZ	BLZ	17.1899	-88.498	397621	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		1	0	3/18/2020	Central African Republic	Central African	N/A		CF	CAF	6.6111	20.9394	4829764	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		23	0	6/2/2020	Grenada	Grenada	N/A		GD	GRD	12.1165	-61.679	112519	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		2710	19	5/9/2020	Greece	Greece	N/A		GR	GRC	39.0742	21.8243	1E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	5/2/2020	Bonaire, Sint Eustatius and Sa	Netherlands	Bonaire, Sint Eustatius	BQ	BES	12.1784	-68.239	26221	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		5	1	4/13/2020	Bermuda, United Kingdom	United Kingdom	Bermuda		BM	BMU	32.3078	-64.751	62273	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		1	0	3/19/2020	Central African Republic	Central African	N/A		CF	CAF	6.6111	20.9394	4829764	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		18	0	4/29/2020	New Caledonia, France	France	New Caledonia		NC	NCL	-20.904	165.618	285491	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		31	9	3/30/2020	Poland	Poland	N/A		PL	POL	51.9194	19.1451	3.8E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		3	0	4/9/2020	Manitoba, Canada	Canada	Manitoba		CA	CAN	53.7609	-98.814	1377517	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	2/19/2020	Tibet, China	China	Tibet		CN	CHN	31.6927	88.0924	3440000	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		25	0	4/25/2020	Kazakhstan	Kazakhstan	N/A		KZ	KAZ	48.0196	66.9237	1.9E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		0	0	3/4/2020	South Sudan	South Sudan	N/A		SS	SSD	6.877	31.307	1.1E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	2/23/2020	Inner Mongolia, China	China	Inner Mongolia		CN	CHN	44.0935	113.945	2.5E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		15970	402	4/27/2020	Ontario, Canada	Canada	Ontario		CA	CAN	51.2538	-85.323	1.5E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		6	0	5/10/2020	Hebei, China	China	Hebei		CN	CHN	37.8957	114.904	7.6E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		0	0	3/28/2020	Bonaire, Sint Eustatius and Sa	Netherlands	Bonaire, Sint Eustatius	BQ	BES	12.1784	-68.239	26221	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		18863	1041	5/14/2020	Bangladesh	Bangladesh	N/A		BD	BGD	23.685	90.3563	1.6E+08	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		47	8	4/19/2020	Croatia	Croatia	N/A		HR	HRV	45.1	15.2	4105268	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	4/12/2020	Chad	Chad	N/A		TD	TCD	15.4542	18.7322	1.6E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		109	10	4/13/2020	Hungary	Hungary	N/A		HU	HUN	47.1625	19.5033	9660350	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	5/16/2020	Yukon, Canada	Canada	Yukon		CA	CAN	64.2823	-135	41078	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	2/7/2020	Sudan	Sudan	N/A		SD	SDN	12.8628	30.2176	4.4E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		3	0	5/31/2020	Sichuan, China	China	Sichuan		CN	CHN	30.6171	102.71	8.3E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	2/7/2020	Aruba, Netherlands	Netherlands	Aruba		AW	ABW	12.5211	-69.968	106766	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		1	0	5/25/2020	Tibet, China	China	Tibet		CN	CHN	31.6927	88.0924	3440000	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		1	0	5/1/2020	Turks and Caicos Islands, Unit	United Kingdom	Turks and Caicos Islan	TC	TCA	21.694	-71.798	38718	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		33998	384	5/15/2020	United Kingdom	United Kingdom	N/A		GB	GBR	55.3781	-3.436	6.8E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		6	0	4/15/2020	Saint Barthelemy, France	France	Saint Barthelemy		BL	BLM	17.9	-62.833	9885	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		659	2	5/9/2020	Shanghai, China	China	Shanghai		CN	CHN	31.202	121.449	2.4E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	2/23/2020	Singapore	Singapore	N/A		SG	SGP	1.2833	103.833	5850343	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	1/24/2020	Hungary	Hungary	N/A		HU	HUN	47.1625	19.5033	9660350	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	1/31/2020	Bermuda, United Kingdom	United Kingdom	Bermuda		BM	BMU	32.3078	-64.751	62273	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		0	0	3/8/2020	Bulgaria	Bulgaria	N/A		BG	BGR	42.7339	25.4858	6948445	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		15	0	4/17/2020	Saint Lucia	Saint Lucia	N/A		LC	LCA	13.9094	-60.979	183629	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		24112	845	5/28/2020	Kuwait	Kuwait	N/A		KW	KWT	29.3117	47.4818	4270563	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		21648	734	4/24/2020	Peru	Peru	N/A		PE	PER	-9.19	-75.015	3.3E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Confirmed		1	0	2/8/2020	Nepal	Nepal	N/A		NP	NPL	28.1667	84.25	2.9E+07	2019 Novel Coronavirus CC	6/4/2020 23:15
Deaths		2	0	3/21/2020	United Arab Emirates	United Arab Em	N/A		AE	ARE	23.4241	53.8478	9890400	2019 Novel Coronavirus CC	6/4/2020 23:15

3. Preprocessing of dataset:

```r
1  df=read.csv('/Users/amrit/Downloads/COVID-19 Cases.csv')
2  df
3
4  #preprocessing-data
5  #dropping col. having null values
6  df <- df[,colSums(is.na(df))<nrow(df)]
7
8  #converting char date to date format
9  df$Date<-as.Date(df$Date, format = "%m/%d/%Y")
10 df$Date
11
```

```
9:1    (Top Level)                                                    R Script

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> df$Date<-as.Date(df$Date, format = "%m/%d/%Y")
> df$Date
  [1] "2020-05-22" "2020-02-03" "2020-03-01" "2020-04-21" "2020-05-11" "2020-02-11" "2020-02-06"
  [8] "2020-03-18" "2020-06-02" "2020-05-09" "2020-05-02" "2020-04-13" "2020-03-19" "2020-04-29"
 [15] "2020-03-30" "2020-04-09" "2020-02-19" "2020-04-25" "2020-03-04" "2020-02-23" "2020-04-27"
 [22] "2020-05-10" "2020-03-28" "2020-05-14" "2020-04-19" "2020-04-12" "2020-04-13" "2020-05-16"
 [29] "2020-02-07" "2020-05-31" "2020-02-07" "2020-05-25" "2020-05-01" "2020-05-15" "2020-04-15"
 [36] "2020-05-09" "2020-02-23" "2020-01-24" "2020-01-31" "2020-03-08" "2020-04-17" "2020-05-28"
 [43] "2020-04-24" "2020-02-08" "2020-03-21" "2020-04-14" "2020-06-01" "2020-03-09" "2020-02-25"
 [50] "2020-04-15" "2020-04-14" "2020-02-21" "2020-02-20" "2020-05-11" "2020-05-17" "2020-04-08"
 [57] "2020-02-19" "2020-03-11" "2020-03-26" "2020-05-12" "2020-05-24" "2020-02-12" "2020-04-12"
 [64] "2020-04-19" "2020-02-23" "2020-04-10" "2020-01-23" "2020-04-28" "2020-03-26" "2020-05-20"
 [71] "2020-04-02" "2020-04-25" "2020-05-24" "2020-04-29" "2020-04-21" "2020-03-28" "2020-02-11"
 [78] "2020-05-16" "2020-03-26" "2020-05-21" "2020-03-06" "2020-03-25" "2020-02-15" "2020-04-03"
 [85] "2020-05-18" "2020-05-31" "2020-03-04" "2020-04-03" "2020-05-31" "2020-02-14" "2020-03-02"
 [92] "2020-03-09" "2020-05-30" "2020-04-04" "2020-03-23" "2020-04-26" "2020-03-31" "2020-04-07"
 [99] "2020-03-22" "2020-04-16" "2020-05-30" "2020-04-13" "2020-04-15" "2020-05-12" "2020-04-14"
[106] "2020-03-03" "2020-02-24" "2020-04-10" "2020-04-09" "2020-02-26" "2020-03-20" "2020-05-31"
[113] "2020-03-17" "2020-02-05" "2020-04-10" "2020-04-07" "2020-05-24" "2020-03-08" "2020-04-30"
```

3. Updated dataset:

	A	C	D	E	F	G	H	I	J	K	M	N	O
1	Case_Type	Cases	Difference	Date	Combined_Key	Country_Region	Province_Stat	Admin2	iso2	iso3	Lat	Long	Populati
2	Confirmed	6	0	5/22/2020	Western Sahara	Western Sahara	N/A		EH	ESH	24.2155	-12.886	597330
3	Confirmed	0	0	2/3/2020	Switzerland	Switzerland	N/A		CH	CHE	46.8182	8.2275	8654618
4	Deaths	0	0	3/1/2020	Cyprus	Cyprus	N/A		CY	CYP	35.1264	33.4299	1207361
5	Confirmed	23	0	4/21/2020	Antigua and Barbuda	Antigua and Ba	N/A		AG	ATG	17.0608	-61.796	97928
6	Confirmed	56	0	5/11/2020	Thailand	Thailand	N/A		TH	THA	15.87	100.993	7E+07
7	Deaths	0	0	2/11/2020	Jamaica	Jamaica	N/A		JM	JAM	18.1096	-77.298	2961161
8	Confirmed	0	0	2/6/2020	Belize	Belize	N/A		BZ	BLZ	17.1899	-88.498	397621
9	Confirmed	1	0	3/18/2020	Central African Republic	Central African	N/A		CF	CAF	6.6111	20.9394	4829764
10	Confirmed	23	0	6/2/2020	Grenada	Grenada	N/A		GD	GRD	12.1165	-61.679	112519
11	Confirmed	2710	19	5/9/2020	Greece	Greece	N/A		GR	GRC	39.0742	21.8243	1E+07
12	Deaths	0	0	5/2/2020	Bonaire, Sint Eustatius and Sa	Netherlands	Bonaire, Sint Eustatius		BQ	BES	12.1784	-68.239	26221
13	Deaths	5	1	4/13/2020	Bermuda, United Kingdom	United Kingdon	Bermuda		BM	BMU	32.3078	-64.751	62273
14	Confirmed	1	0	3/19/2020	Central African Republic	Central African	N/A		CF	CAF	6.6111	20.9394	4829764
15	Confirmed	18	0	4/29/2020	New Caledonia, France	France	New Caledonia		NC	NCL	-20.904	165.618	285491
16	Deaths	31	9	3/30/2020	Poland	Poland	N/A		PL	POL	51.9194	19.1451	3.8E+07
17	Deaths	3	0	4/9/2020	Manitoba, Canada	Canada	Manitoba		CA	CAN	53.7609	-98.814	1377517
18	Deaths	0	0	2/19/2020	Tibet, China	China	Tibet		CN	CHN	31.6927	88.0924	3440000
19	Deaths	25	0	4/25/2020	Kazakhstan	Kazakhstan	N/A		KZ	KAZ	48.0196	66.9237	1.9E+07
20	Confirmed	0	0	3/4/2020	South Sudan	South Sudan	N/A		SS	SSD	6.877	31.307	1.1E+07
21	Deaths	0	0	2/23/2020	Inner Mongolia, China	China	Inner Mongolia		CN	CHN	44.0935	113.945	2.5E+07
22	Confirmed	15970	402	4/27/2020	Ontario, Canada	Canada	Ontario		CA	CAN	51.2538	-85.323	1.5E+07
23	Deaths	6	0	5/10/2020	Hebei, China	China	Hebei		CN	CHN	37.8957	114.904	7.6E+07
24	Confirmed	0	0	3/28/2020	Bonaire, Sint Eustatius and Sa	Netherlands	Bonaire, Sint Eustatius		BQ	BES	12.1784	-68.239	26221
25	Confirmed	18863	1041	5/14/2020	Bangladesh	Bangladesh	N/A		BD	BGD	23.685	90.3563	1.6E+08
26	Deaths	47	8	4/19/2020	Croatia	Croatia	N/A		HR	HRV	45.1	15.2	4105268
27	Deaths	0	0	4/12/2020	Chad	Chad	N/A		TD	TCD	15.4542	18.7322	1.6E+07
28	Deaths	109	10	4/13/2020	Hungary	Hungary	N/A		HU	HUN	47.1625	19.5033	9660350
29	Deaths	0	0	5/16/2020	Yukon, Canada	Canada	Yukon		CA	CAN	64.2823	-135	41078
30	Deaths	0	0	2/7/2020	Sudan	Sudan	N/A		SD	SDN	12.8628	30.2176	4.4E+07
31	Deaths	3	0	5/31/2020	Sichuan, China	China	Sichuan		CN	CHN	30.6171	102.71	8.3E+07
32	Confirmed	0	0	2/7/2020	Aruba, Netherlands	Netherlands	Aruba		AW	ABW	12.5211	-69.968	106766
33	Confirmed	1	0	5/25/2020	Tibet, China	China	Tibet		CN	CHN	31.6927	88.0924	3440000
34	Deaths	1	0	5/1/2020	Turks and Caicos Islands, Unit	United Kingdon	Turks and Caicos Islan		TC	TCA	21.694	-71.798	38718
35	Deaths	33998	384	5/15/2020	United Kingdom	United Kingdon	N/A		GB	GBR	55.3781	-3.436	6.8E+07
36	Confirmed	6	0	4/15/2020	Saint Barthelemy, France	France	Saint Barthelemy		BL	BLM	17.9	-62.833	9885
37	Confirmed	659	2	5/9/2020	Shanghai, China	China	Shanghai		CN	CHN	31.202	121.449	2.4E+07
38	Deaths	0	0	2/23/2020	Singapore	Singapore	N/A		SG	SGP	1.2833	103.833	5850343
39	Deaths	0	0	1/24/2020	Hungary	Hungary	N/A		HU	HUN	47.1625	19.5033	9660350
40	Deaths	0	0	1/31/2020	Bermuda, United Kingdom	United Kingdon	Bermuda		BM	BMU	32.3078	-64.751	62273
41	Deaths	0	0	3/8/2020	Bulgaria	Bulgaria	N/A		BG	BGR	42.7339	25.4858	6948445
42	Confirmed	15	0	4/17/2020	Saint Lucia	Saint Lucia	N/A		LC	LCA	13.9094	-60.979	183629
43	Confirmed	24112	845	5/28/2020	Kuwait	Kuwait	N/A		KW	KWT	29.3117	47.4818	4270563
44	Confirmed	21648	734	4/24/2020	Peru	Peru	N/A		PE	PER	-9.19	-75.015	3.3E+07
45	Confirmed	1	0	2/8/2020	Nepal	Nepal	N/A		NP	NPL	28.1667	84.25	2.9E+07
46	Deaths	2	0	3/21/2020	United Arab Emirates	United Arab Em	N/A		AE	ARE	23.4241	53.8478	9890400

4. Creating different datasets:

```
23   #Creating Table1
24   dataframe1<-subset(df,select = c(Case_Type,Cases,Country_Region))
25   dataframe1
26
27   #Calculating top10 countries with confirmed cases
28   dataframe1<-dataframe1[dataframe1$Case_Type=='Confirmed',]
29   dataframe1
```
24:1   (Top Level) ▾

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```
> dataframe1<-subset(df,select = c(Case_Type,Cases,Country_Region))
> dataframe1
      Case_Type  Cases              Country_Region
1     Confirmed      6               Western Sahara
2     Confirmed      0                  Switzerland
3        Deaths      0                       Cyprus
4     Confirmed     23          Antigua and Barbuda
5        Deaths     56                     Thailand
6        Deaths      0                      Jamaica
7     Confirmed      0                       Belize
8     Confirmed      1     Central African Republic
9     Confirmed     23                      Grenada
10    Confirmed   2710                       Greece
11       Deaths      0                  Netherlands
12       Deaths      5               United Kingdom
13    Confirmed      1     Central African Republic
14    Confirmed     18                       France
15       Deaths     31                       Poland
16       Deaths      3                       Canada
```

Zoom

```
37   #Creating Table2
38   dataframe2<-subset(df,select = c(Case_Type,Cases,Country_Region))
39   dataframe2
```
38:1   (Top Level) ▾

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```
> dataframe2<-subset(df,select = c(Case_Type,Cases,Country_Region))
> dataframe2
      Case_Type  Cases              Country_Region
1     Confirmed      6               Western Sahara
2     Confirmed      0                  Switzerland
3        Deaths      0                       Cyprus
4     Confirmed     23          Antigua and Barbuda
5        Deaths     56                     Thailand
6        Deaths      0                      Jamaica
7     Confirmed      0                       Belize
8     Confirmed      1     Central African Republic
9     Confirmed     23                      Grenada
10    Confirmed   2710                       Greece
11       Deaths      0                  Netherlands
```

## 5. Queries and Outputs:

```r
##calculating total confirmed cases
md<-subset(df,select = c(Case_Type,Cases))
md<-md[md$Case_Type=='Confirmed',]
sum(md$Cases)
```

```r
> md<-subset(df,select = c(Case_Type,Cases))
> md<-md[md$Case_Type=='Confirmed',]
> sum(md$Cases)
[1] 244187571
>
```

```r
##calculating total confirmed deaths
md<-subset(df,select = c(Case_Type,Cases))
md<-md[md$Case_Type=='Deaths',]
sum(md$Cases)
```

```r
> md<-subset(df,select = c(Case_Type,Cases))
> md<-md[md$Case_Type=='Confirmed',]
> sum(md$Cases)
[1] 244187571
> ##calculating total confirmed deaths
> md<-subset(df,select = c(Case_Type,Cases))
> md<-md[md$Case_Type=='Deaths',]
> sum(md$Cases)
[1] 15838408
>
```

```
#Calculating top10 countries with confirmed cases
dataframe1<-dataframe1[dataframe1$Case_Type=='Confirmed',]
dataframe1
a<-aggregate(dataframe1$Cases,list(dataframe1$Country_Region),FUN=sum)
b<-head(a[order(a$x, decreasing = TRUE),], 10)
xi<-as.integer((b$x))
barplot(xi,names.arg = c(b$Group.1) )
```
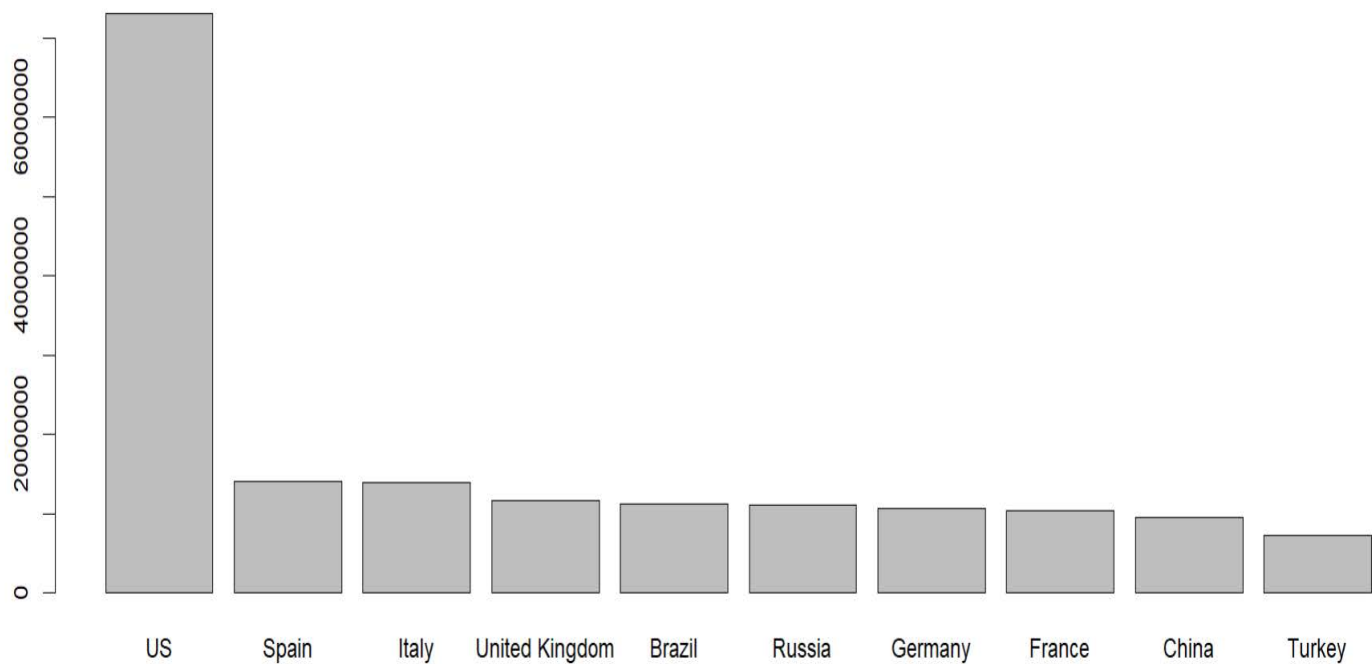
```r
#Calculating top10 countries with confirmed deaths
dataframe2<-dataframe1[dataframe1$Case_Type=='Deaths',]
dataframe2
a<-aggregate(dataframe1$Cases,list(dataframe1$Country_Region),FUN=sum)
b<-head(a[order(a$x, decreasing = TRUE),], 10)
barplot(b$x,names.arg = c(b$Group.1) )
```