```
library(dplyr)
library(tidyverse)
```

```
covid19 <- read_csv("Covid19_full_data.csv")
```

```
Rows: 231483 Columns: 10

── Column specification ────────────────────────────────────────────────────────
Delimiter: ","
chr  (1): location
dbl  (8): new_cases, new_deaths, total_cases, total_deaths, weekly_cases, we...
date (1): date

ℹ Use `spec()` to retrieve the full column specification for this data.
ℹ Specify the column types or set `show_col_types = FALSE` to quiet this messag
```

```
glimpse(covid19)
```

```
Rows: 231,483
Columns: 10
$ date            <date> 2020-02-24, 2020-02-25, 2020-02-26, 2020-02-27, 2020-…
$ location        <chr> "Afghanistan", "Afghanistan", "Afghanistan", "Afghanis…
$ new_cases       <dbl> 5, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 3, 0, 0, 0, 3, 0, …
$ new_deaths      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA…
$ total_cases     <dbl> 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 8, 8, 8, 8, 11, 11…
$ total_deaths    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA…
$ weekly_cases    <dbl> NA, NA, NA, NA, NA, 5, 5, 0, 0, 0, 0, 0, 3, 3, 3, 3, 6…
$ weekly_deaths   <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA…
$ biweekly_cases  <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, 8, 8, …
$ biweekly_deaths <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA…
```

```
head(covid19,10)
```

A tibble: 10 × 10

date	location	new_cases	new_deaths	total_cases	total_deaths	weekly_cases	weekly_deaths	biweekly_cas
<date>	<chr>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
2020-02-24	Afghanistan	5	NA	5	NA	NA	NA	NA
2020-02-25	Afghanistan	0	NA	5	NA	NA	NA	NA
2020-02-26	Afghanistan	0	NA	5	NA	NA	NA	NA
2020-02-27	Afghanistan	0	NA	5	NA	NA	NA	NA
2020-02-28	Afghanistan	0	NA	5	NA	NA	NA	NA
2020-02-29	Afghanistan	0	NA	5	NA	5	NA	NA
2020-03-01	Afghanistan	0	NA	5	NA	5	NA	NA
2020-03-02	Afghanistan	0	NA	5	NA	0	NA	NA
2020-03-03	Afghanistan	0	NA	5	NA	0	NA	NA
2020-03-04	Afghanistan	0	NA	5	NA	0	NA	NA

```
# clean NA
covid19 <- replace(covid19, is.na(covid19), 0)
```

1.Total Deaths

```
# total Deaths
covid19 %>%
    summarise(total_deaths = max(total_deaths)) %>%
    arrange(desc(total_deaths))
```

A tibble: 1 × 1

total_deaths
<dbl>
6679784

2.Total Deaths in 2021

```
# total deaths in 2021
covid19 %>%
    filter(date >= as.Date("2021-01-01") & date <= as.Date("2021-12-31")) %>%
    summarise(total_deaths_2021 = max(total_deaths)) %>%
    arrange(desc(total_deaths_2021))
```

A tibble: 1 × 1

total_deaths_2021
<dbl>
5469367

```
# Only contry(remove row)
covid19_country_only<-covid19[!(covid19$location=="World"
| covid19$location=="High income"
| covid19$location=="Upper middle income"
| covid19$location=="Europe"
| covid19$location=="North America"
| covid19$location=="Asia"
| covid19$location=="Lower middle income"
| covid19$location=="South America"
| covid19$location=="European Union"
| covid19$location=="North America"
),]
head(covid19_country_only,5)
```

A tibble: 5 × 10

date	location	new_cases	new_deaths	total_cases	total_deaths	weekly_cases	weekly_deaths	biweekly_cas
<date>	<chr>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
2020-02-24	Afghanistan	5	0	5	0	0	0	0
2020-02-25	Afghanistan	0	0	5	0	0	0	0
2020-02-26	Afghanistan	0	0	5	0	0	0	0
2020-02-27	Afghanistan	0	0	5	0	0	0	0
2020-02-28	Afghanistan	0	0	5	0	0	0	0

3.Most Deaths by Country

```
# Most deaths by country
most_deaths <- covid19_country_only %>%
    group_by(location) %>%
    summarise(total_deaths = max(total_deaths)) %>%
    arrange(desc(total_deaths))


head(most_deaths)
```

A tibble: 6 × 2

location	total_deaths
<chr>	<dbl>
United States	1090218
Brazil	692969
India	530696
Russia	385513
Mexico	331021
Africa	257427

4.Least Deaths by Country

```
#least dead by country
covid19_country_only %>%
    group_by(location) %>%
    summarise(total_deaths = max(total_deaths)) %>%
    arrange((total_deaths)) %>%
    head(1)
```

A tibble: 1 × 2

location	total_deaths
<chr>	<dbl>
Falkland Islands	0

5.Zero Deaths by Country

```
#0 deaths by country
covid19_country_only %>%
    group_by(location) %>%
    summarise(total_deaths = max(total_deaths)) %>%
    filter(total_deaths == 0) %>%
    arrange((total_deaths))
```

A tibble: 4 × 2

location	total_deaths
<chr>	<dbl>
Falkland Islands	0
Saint Helena	0
Tuvalu	0
Vatican	0

6.Most New Case in a day

```
covid19 %>%
    select(date,new_cases) %>%
    group_by(date) %>%
    summarise(total_new_cases = sum(new_cases)) %>%
    arrange(desc(total_new_cases)) %>%
    head(1)
```

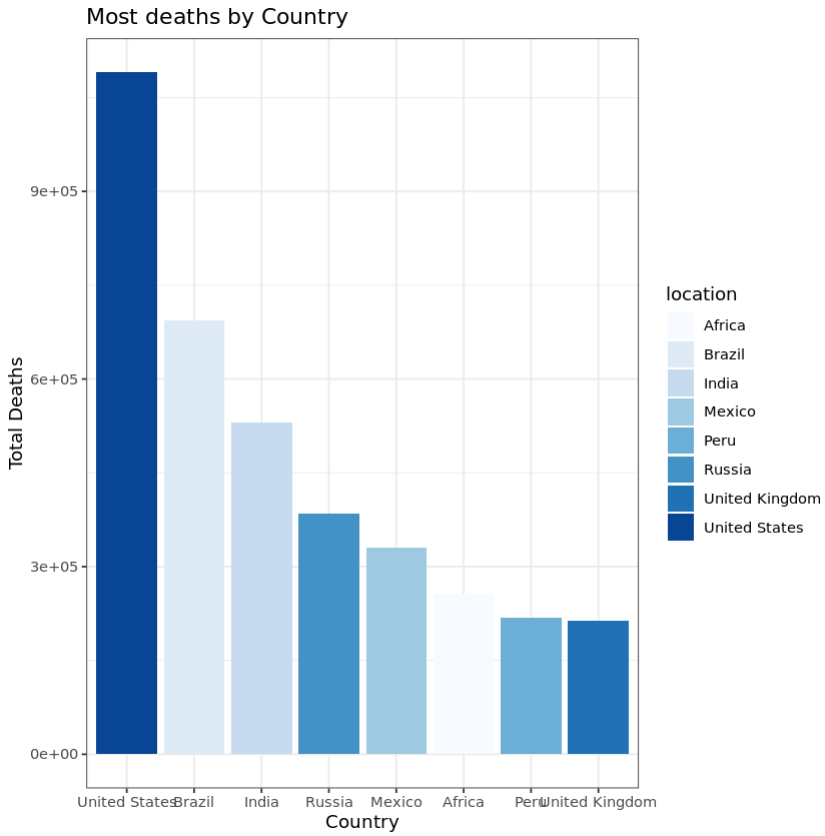
A tibble: 1 × 2

date	total_new_cases
<date>	<dbl>
2022-01-19	17682010

7.Chart Most Deaths by Country

```
ggplot(data = head(most_deaths,8),
mapping = aes(x = fct_reorder(location, total_deaths,  .desc = TRUE),
y = total_deaths,
fill = location)) +
  geom_bar(stat = 'identity')+
  theme_bw()+
  scale_fill_brewer(palette = "Blues")+
  labs(title = "Most deaths by Country",x = "Country", y="Total Deaths")
```

Download




```
covid19_world <- covid19 %>%
    select(date,new_cases,location) %>%
    filter(location == "World") %>%
    group_by(date)

head(covid19_world,5)
```

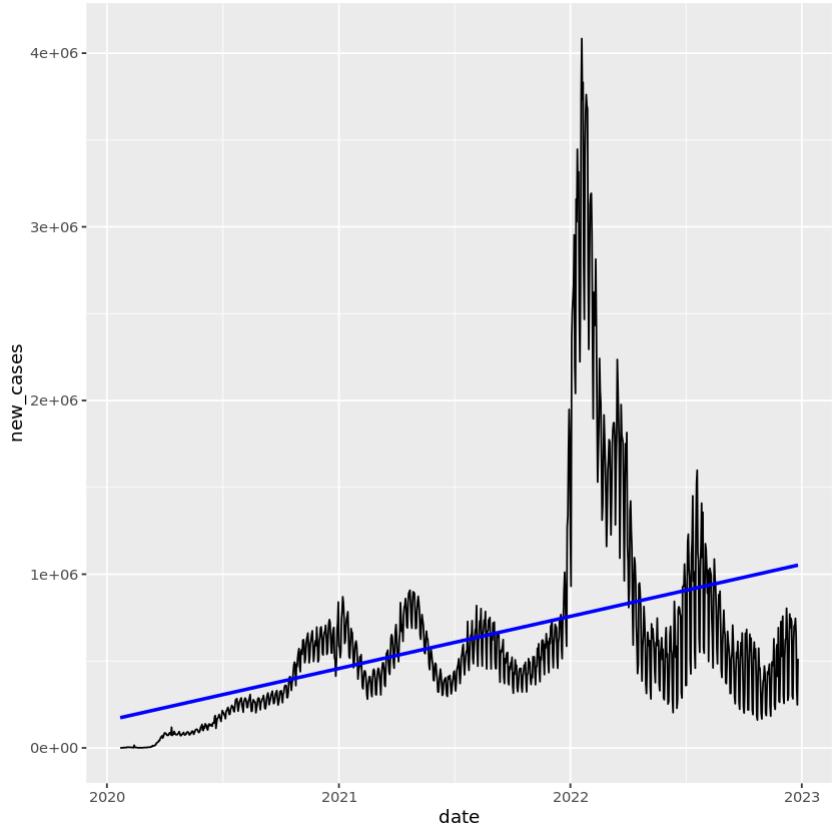
A grouped_df: 5 × 3

date	new_cases	location
<date>	<dbl>	<chr>
2020-01-22	0	World
2020-01-23	100	World
2020-01-24	287	World
2020-01-25	493	World
2020-01-26	683	World

8.Line Chart New Case

```
ggplot(covid19_world,aes(x = date,y = new_cases)) +
  geom_line() +
  geom_smooth(method = "lm",col = "blue",se = F)
```

Download




```
`geom_smooth()` using formula 'y ~ x'
```