

Covid19

David Jimeno

16/4/2020

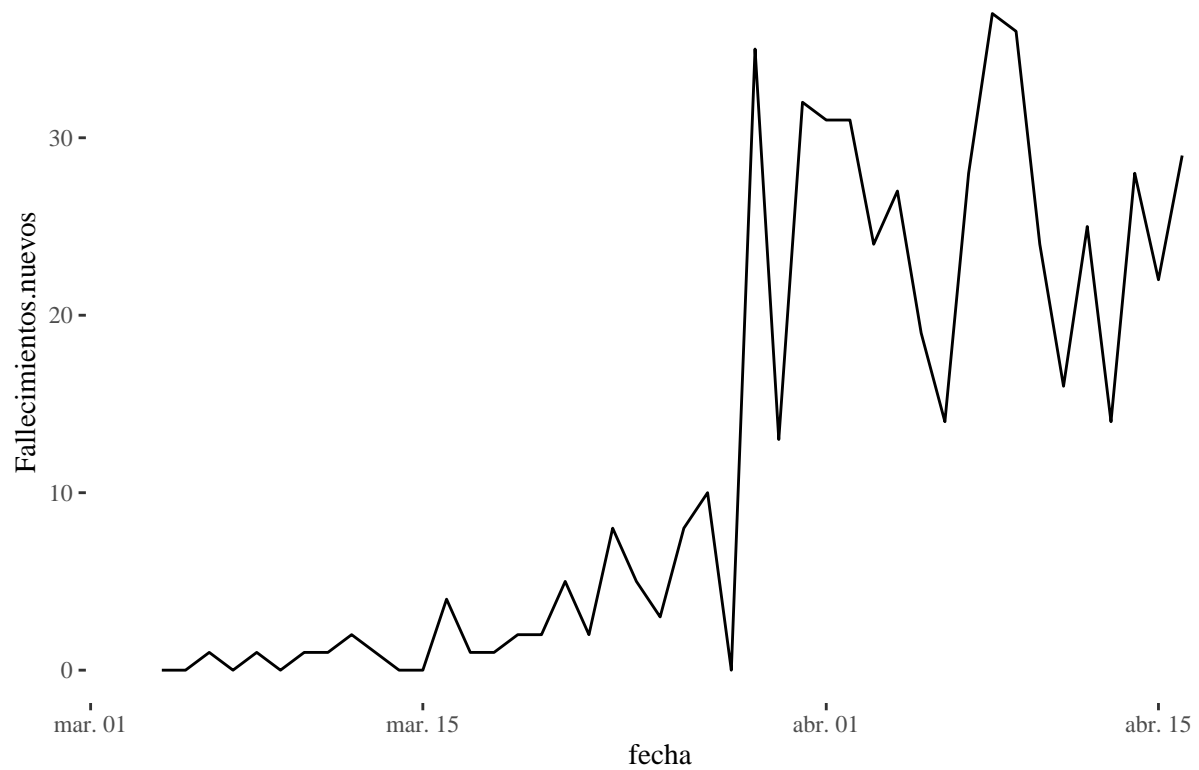
En este estudio queremos tener una visión por escalas desde nuestra Comunidad Autónoma Aragón, pasando a nivel nacional para finalmente hacer un análisis internacional. Queremos entender el virus, su comportamiento e incidencia por países y la visualización de datos de cada uno de ellos en el tiempo.

Lamentablemente nos centraremos en la mayor parte del estudio en los fallecidos que a pesar de proporcionar cifras con retraso, son más fiables que las de contagios detectados de los que se estima que se detecta a nivel nacional una fracción inferior al 10%.

Veamos la evolución de fallecidos diarios en Aragón.

```
ggplot(covar,aes(x=fecha,y=Fallecimientos.nuevos),na.rm =TRUE)+geom_line()+theme_tufte()+  
ggtitle( "Evolución de fallecidos diarios en Aragón")
```

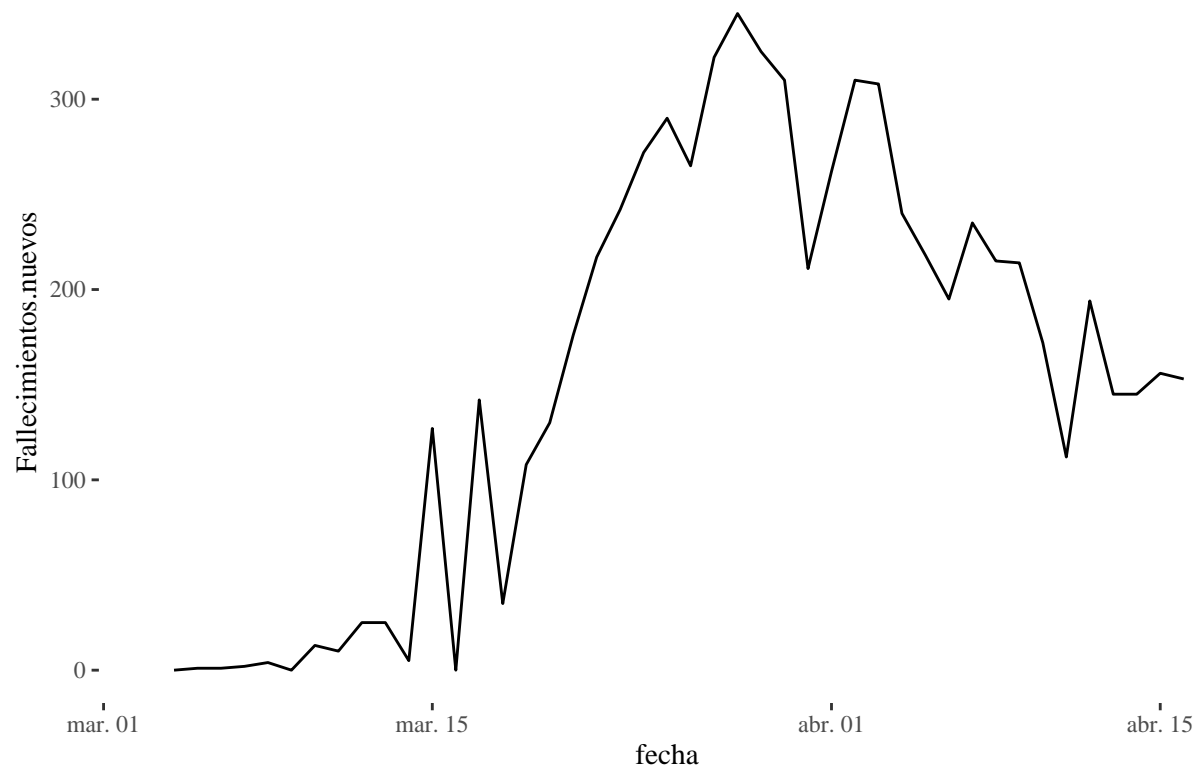
Evolución de fallecidos diarios en Aragón



Veamos a continuación la evolución fallecidos diarios en la Comunidad de Madrid.

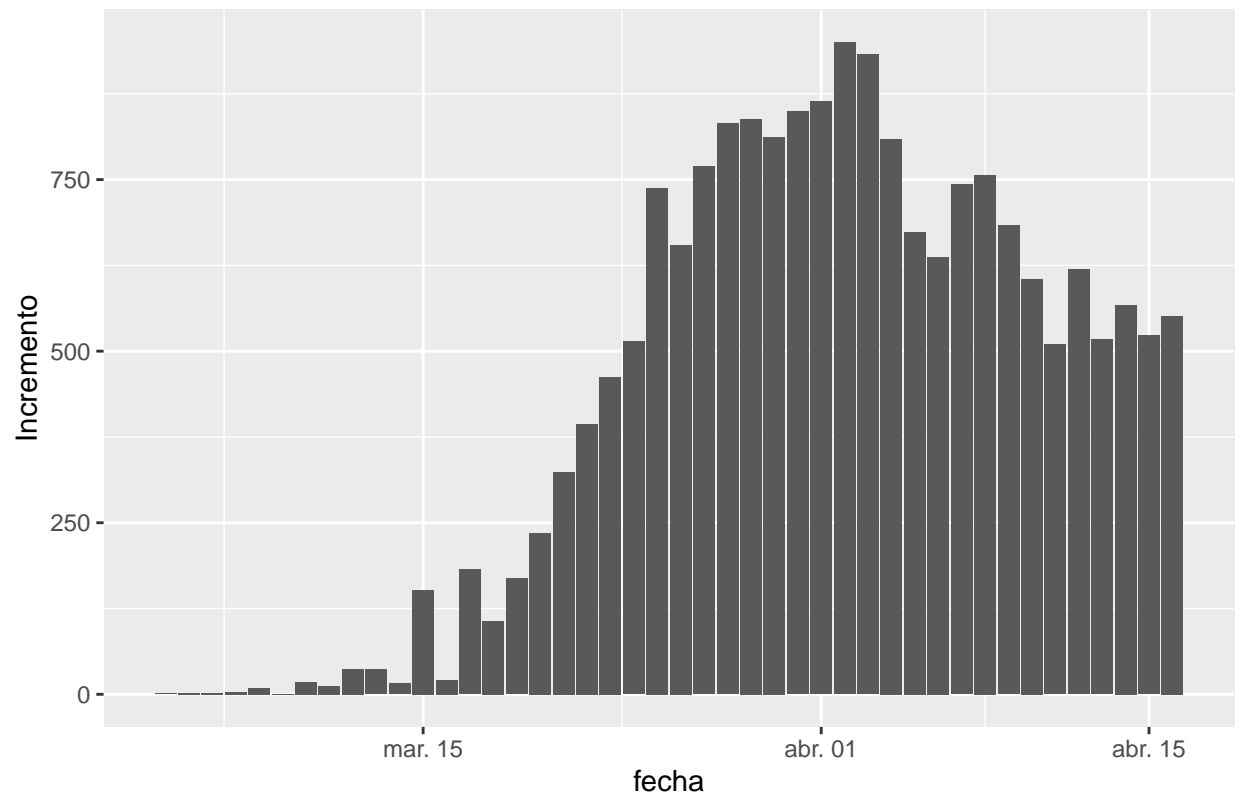
```
ggplot(covar,aes(x=fecha,y=Fallecimientos.nuevos),na.rm =TRUE)+geom_line()+theme_tufte()+  
ggtitle( "Fallecimientos diarios nuevos en la Comunidad de Madrid")
```

Fallecimientos diarios nuevos en la Comunidad de Madrid



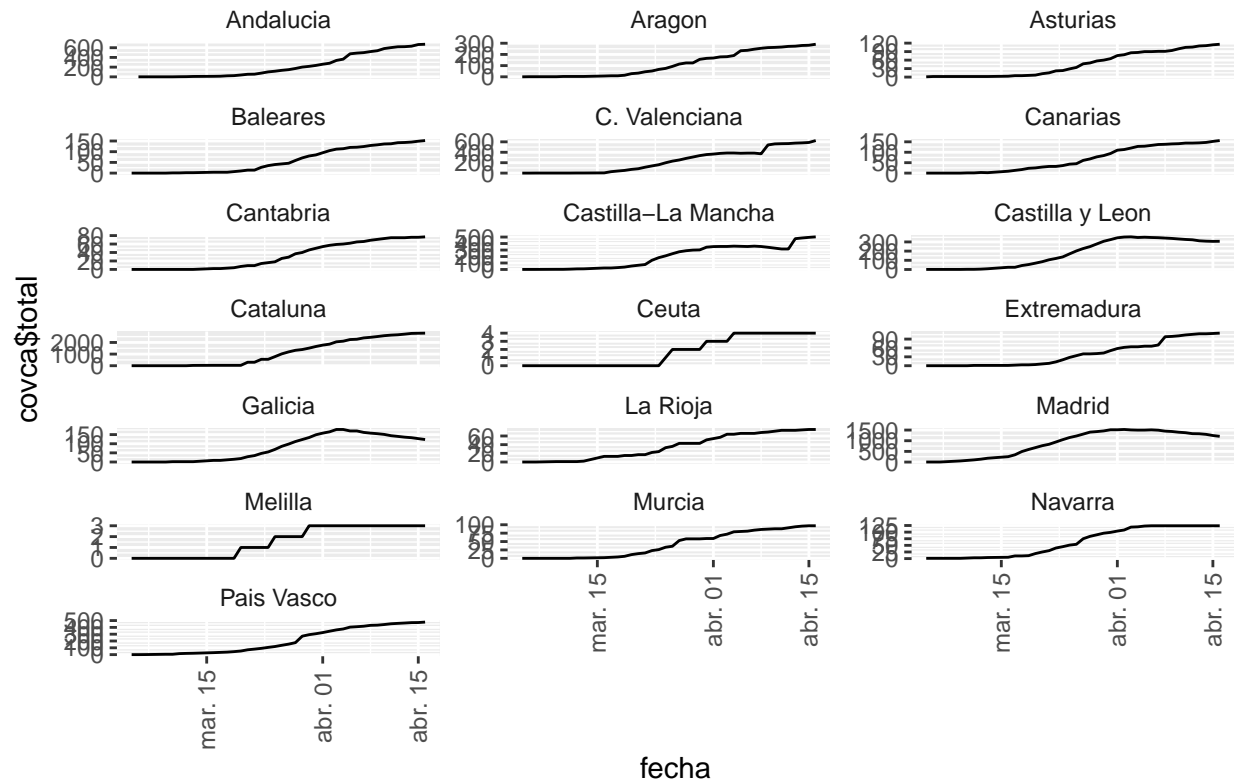
```
ccaa_covid19_fallecidos_long <- ccaa_covid19_fallecidos_long %>% filter( CCAA == "Total")
ggplot(data=ccaa_covid19_fallecidos_long, aes(x = fecha,y = Incremento)) +
  geom_bar(stat="identity", position="dodge")+
  ggtitle( "Fallecimientos diarios en España")
```

Fallecimientos diarios en España



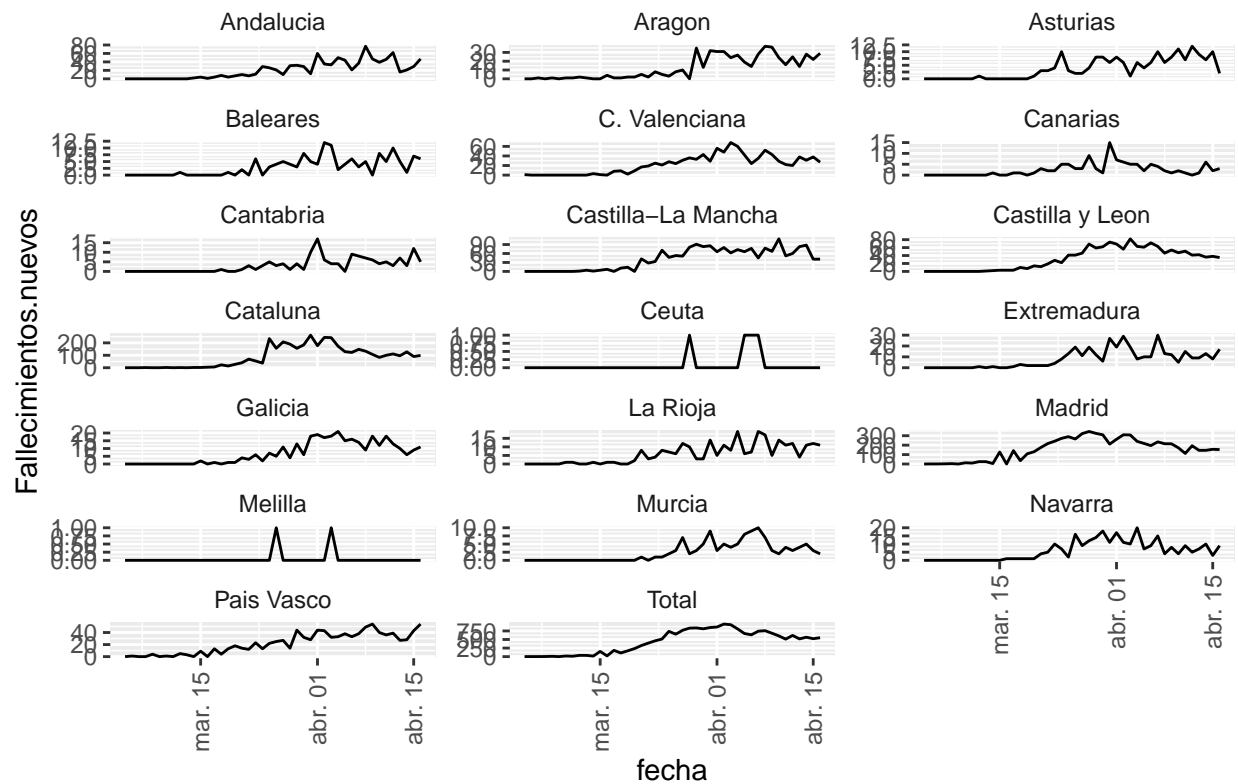
```
covca<-na.omit(covca)
ggplot(covca, aes(fecha,covca$total,group = 1)) +
  geom_line() +
  facet_wrap(vars(CCAA), scales = "free_y", ncol = 3, strip.position = "top") +
  theme(strip.background = element_blank(), strip.placement = "outside")+
  theme(axis.text.x=element_text(angle=90,hjust=1,vjust=0.5))+
  ggtitle( "Pacientes totales en Ucis comparativa por Comunidades Autónomas")
```

Pacientes totales en Ucis comparativa por Comunidades Autónomas



```
covca<-na.omit(covca)
ggplot(covca, aes(fecha,Fallecimientos.nuevos,group = 1)) +
  geom_line() +
  facet_wrap(vars(CCAA), scales = "free_y", ncol = 3, strip.position = "top") +
  theme(strip.background = element_blank(), strip.placement = "outside")+
  theme(axis.text.x=element_text(angle=90,hjust=1,vjust=0.5))+
  ggtitle("Fallecimientos diarios comparativa por Comunidades Autónomas y Total")
```

Fallecimientos diarios comparativa por Comunidades Autónomas y Total

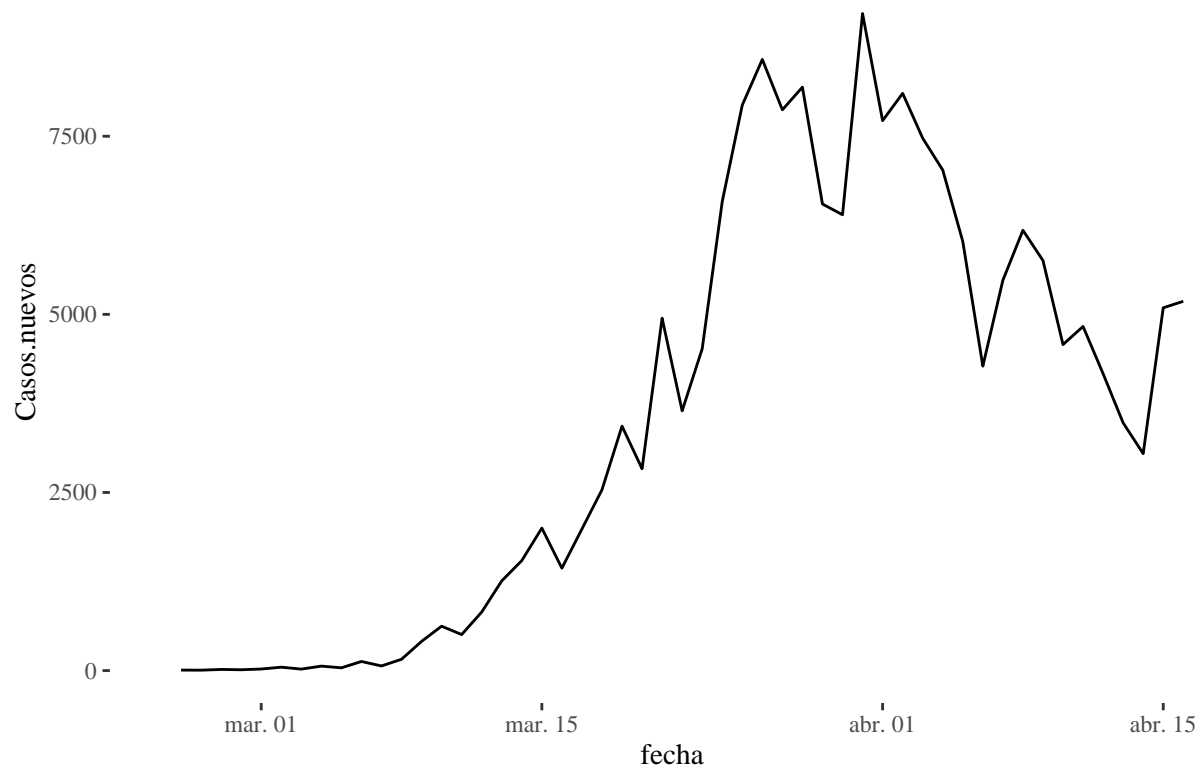


Ahora continuaremos con el analisis a nivel nacional.

Nuevos casos diarios a nivel nacional.

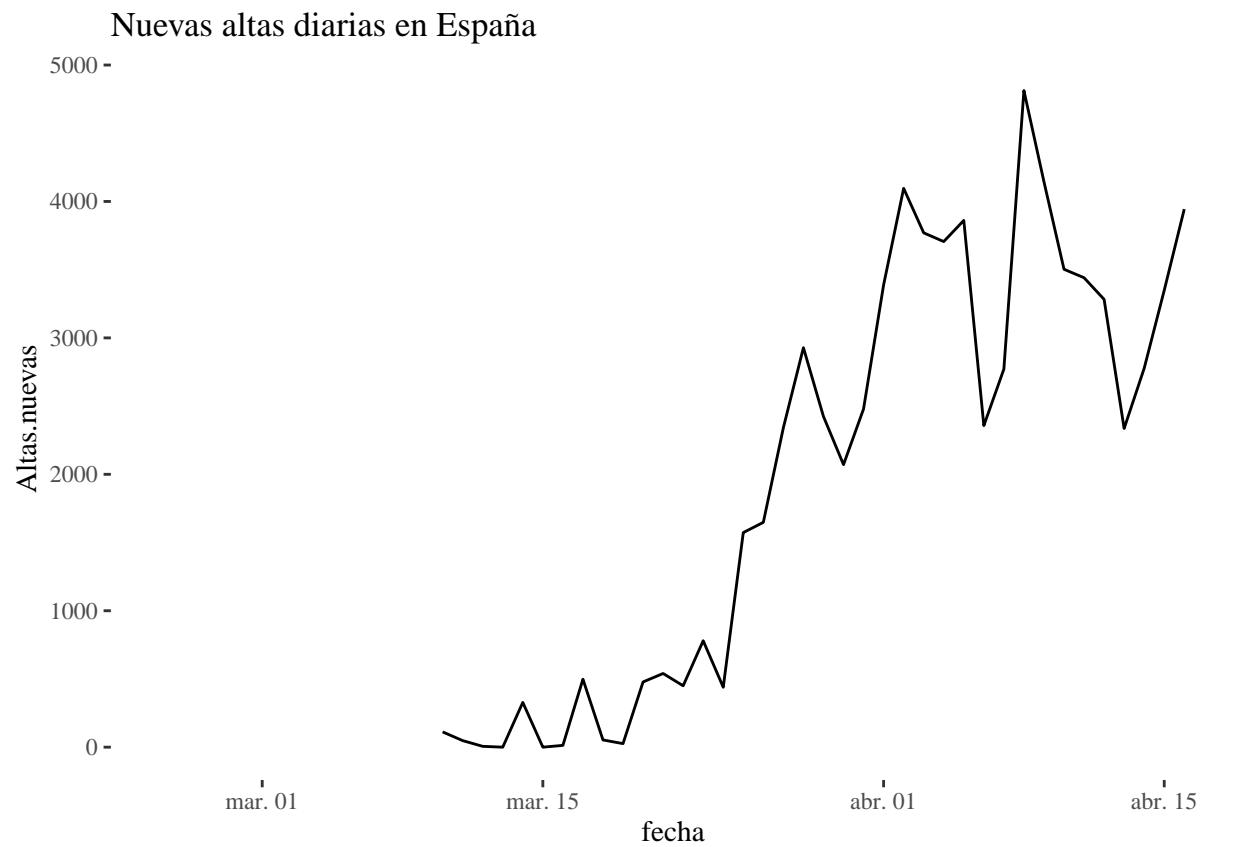
```
ggplot(covsp,aes(x=fecha,y=Casos.nuevos),na.rm = TRUE)+geom_line()+theme_tufte()+
  ggtitle( "Nuevos casos diarios a nivel nacional")
```

Nuevos casos diarios a nivel nacional



Las nuevas altas diarias en España.

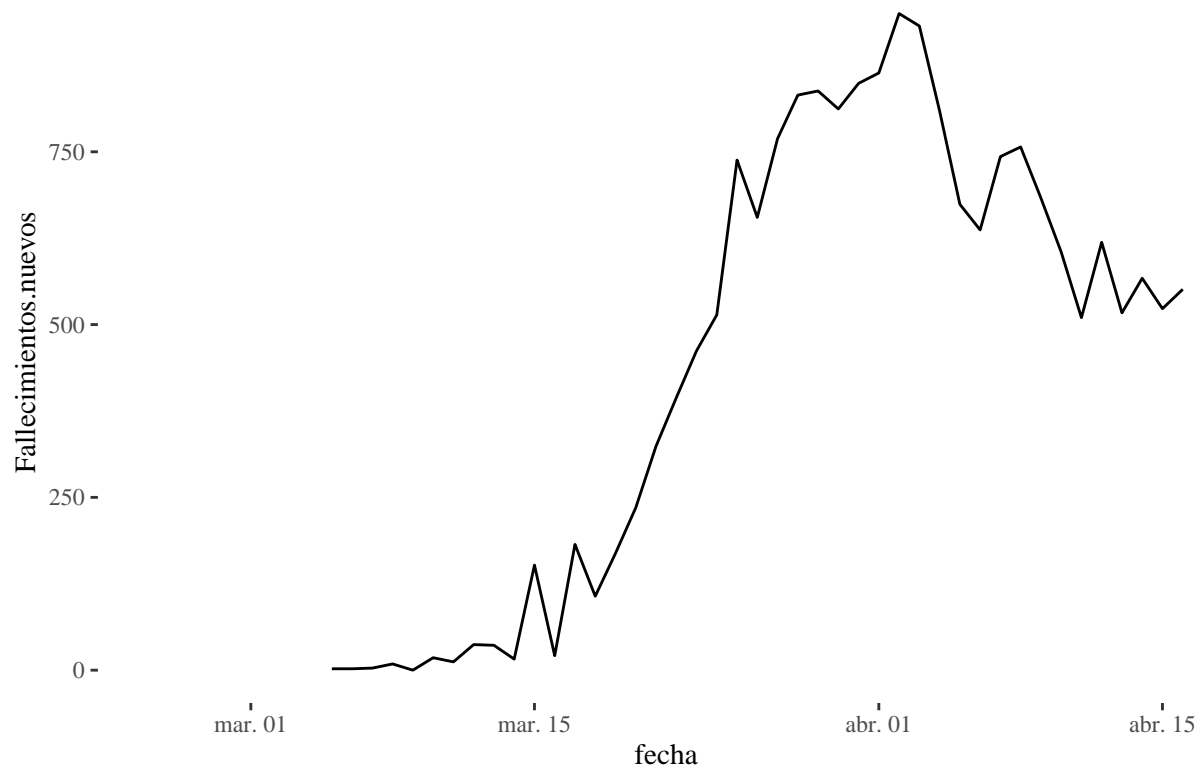
```
ggplot(covsp,aes(x=fecha,y=Altas.nuevas),na.rm = TRUE)+geom_line()+theme_tufte()+  
ggtitle( "Nuevas altas diarias en España")
```



Los nuevos fallecimientos por día España.

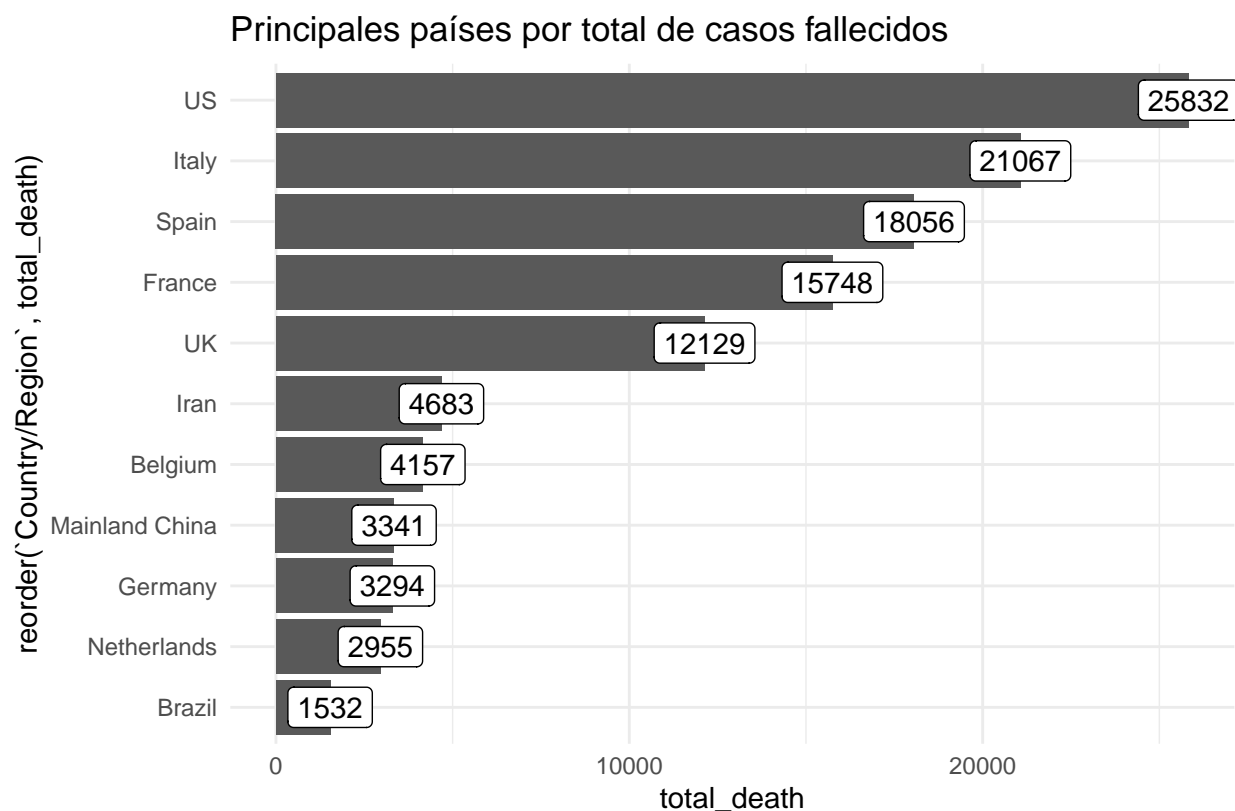
```
ggplot(covsp,aes(x=fecha,y=Fallecimientos.nuevos),na.rm = TRUE)+geom_line()+theme_tufte()+  
ggtitle( "Nuevos fallecimientos por día España")
```


Nuevos fallecimientos por día España



Fallecidos por países.

```
corona28 <- corona_latest
corona28_country <- corona28 %>%
group_by(`Country/Region`) %>%
summarize(total_death = sum(Deaths),
           total_recovered = sum(Recovered),
           total_confirmed = sum(Confirmed)) %>%
mutate(recovery_rate = round(total_recovered / total_confirmed,2))
corona28_country %>%
filter(!`Country/Region` %in% 'Others') %>%
arrange(desc(total_death)) %>%
head(11) %>%
ggplot() + geom_bar(aes(x=reorder(`Country/Region`, total_death), y= total_death), stat = "identity") +
geom_label(aes(`Country/Region`, total_death, label = total_death)) +
coord_flip() +
theme_minimal() +
labs(title = "Principales países por total de casos fallecidos",
     caption = "Fuente: Kaggle")
```



Fuente: Kaggle

Letalidad descendente en países con más de 136 fallecidos.

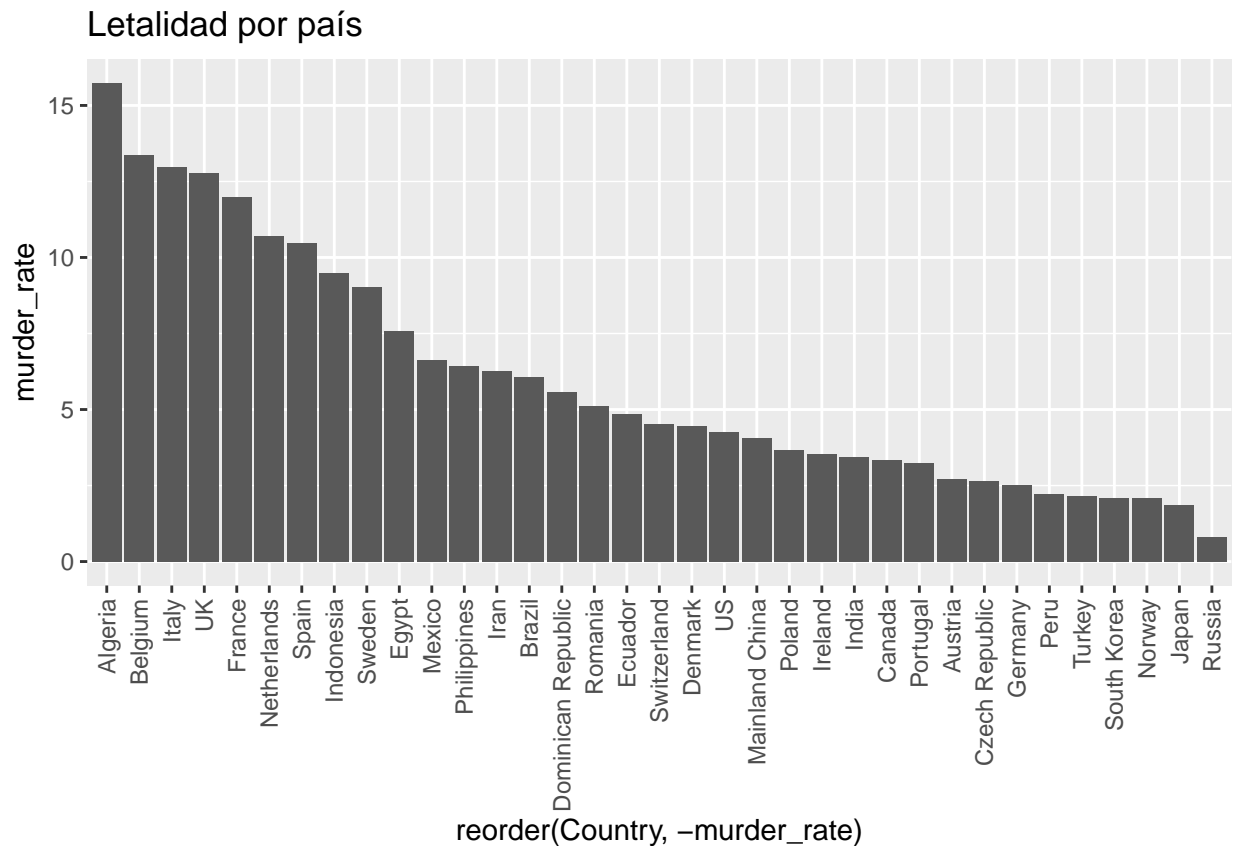
```
filtered <- filter(df, df$Date==max(df$Date)) %>% group_by(Country) %>%
summarise(Confirmed = sum(Confirmed) , Deaths = sum(Deaths) , Recovered = sum(Recovered))
murder_rate <- filtered$Deaths / filtered$Confirmed * 100
filtered$murder_rate <- murder_rate
filtered<- filtered%>% filter (Deaths >= 136)
filtered <- filtered[order(filtered$murder_rate,decreasing = TRUE),]
filtered[0:10,]
```

```
## # A tibble: 10 x 5
##   Country      Confirmed Deaths Recovered murder_rate
##   <fct>         <dbl>   <dbl>     <dbl>     <dbl>
## 1 Algeria         2070     326       691       15.7
## 2 Belgium        31119    4157      6868       13.4
## 3 Italy          162488   21067     37130       13.0
## 4 UK             94845   12129       323       12.8
## 5 France         131361   15748     29098       12.0
## 6 Netherlands    27580    2955       297       10.7
## 7 Spain          172541   18056     67504       10.5
## 8 Indonesia       4839     459       426        9.49
## 9 Sweden          11445    1033       381        9.03
## 10 Egypt           2350     178       589        7.57
```

```
filtered <- filtered[order(filtered$murder_rate),]
filtered[0:10,]
```

```
## # A tibble: 10 x 5
##   Country      Confirmed Deaths Recovered murder_rate
##   <fct>         <dbl>   <dbl>     <dbl>     <dbl>
## 1 Russia         21102    170      1694      0.806
## 2 Japan           7645    143       799      1.87
## 3 Norway          6623    139        32      2.10
## 4 South Korea     10564    222      7534      2.10
## 5 Turkey          65111   1403     4799      2.15
## 6 Peru            10303    230     2869      2.23
## 7 Germany        131359   3294    68200      2.51
## 8 Czech Republic   6111    161      642      2.63
## 9 Austria         14226    384     7633      2.70
## 10 Portugal        17448    567      347      3.25
```

```
ggplot(data=filtered, aes(x=reorder(Country,-murder_rate), y=murder_rate)) +
  geom_bar(stat="identity", position="dodge") + theme(axis.text.x=element_text(angle=90,hjust=1,vjust=1))
ggtitle("Letalidad por país")
```

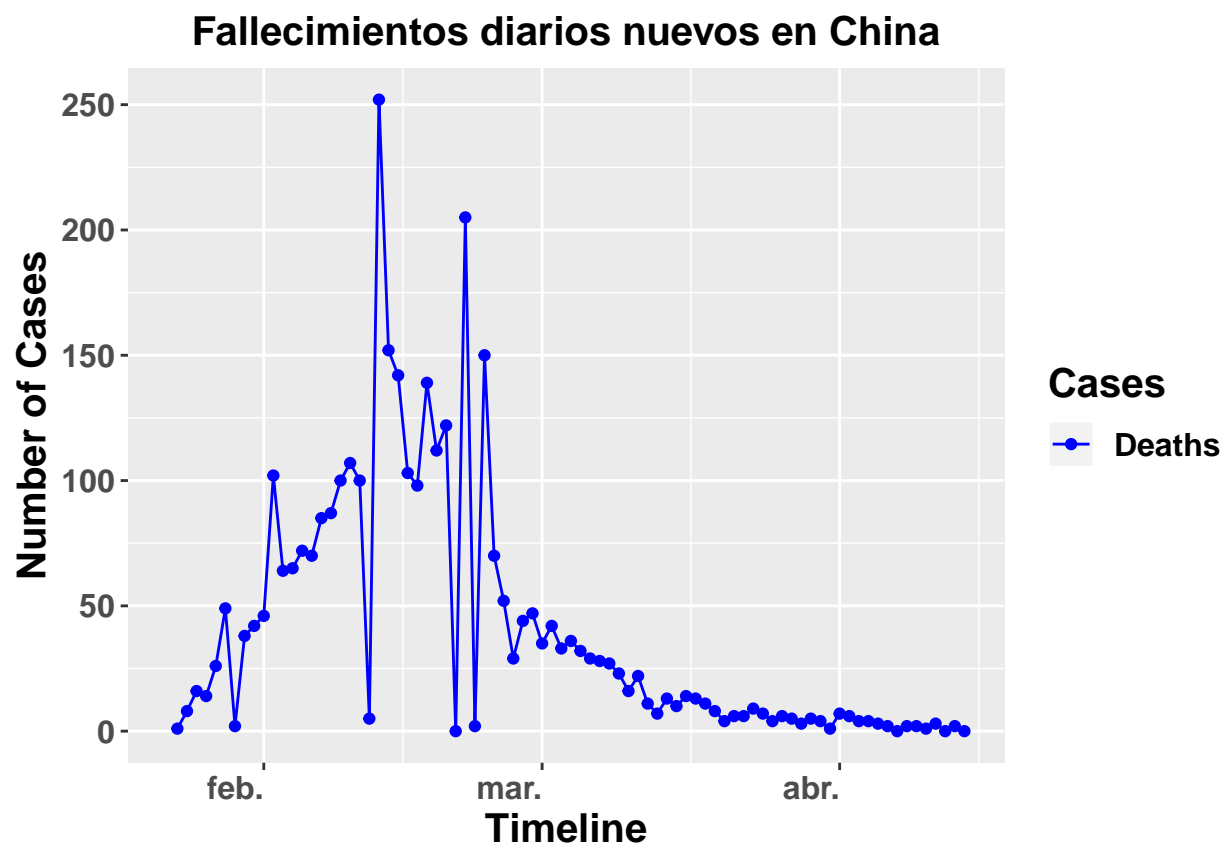


```
China <- filter(df, Country == "Mainland China") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed), Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
China2 <- filter(China, Cases == "Deaths",)
China2$Fallecimientos.nuevos <- c( NA, diff(China2$Count))

China_plot2<- ggplot(China2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , group=
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "Fallecimientos diarios nuevos en China", fil
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

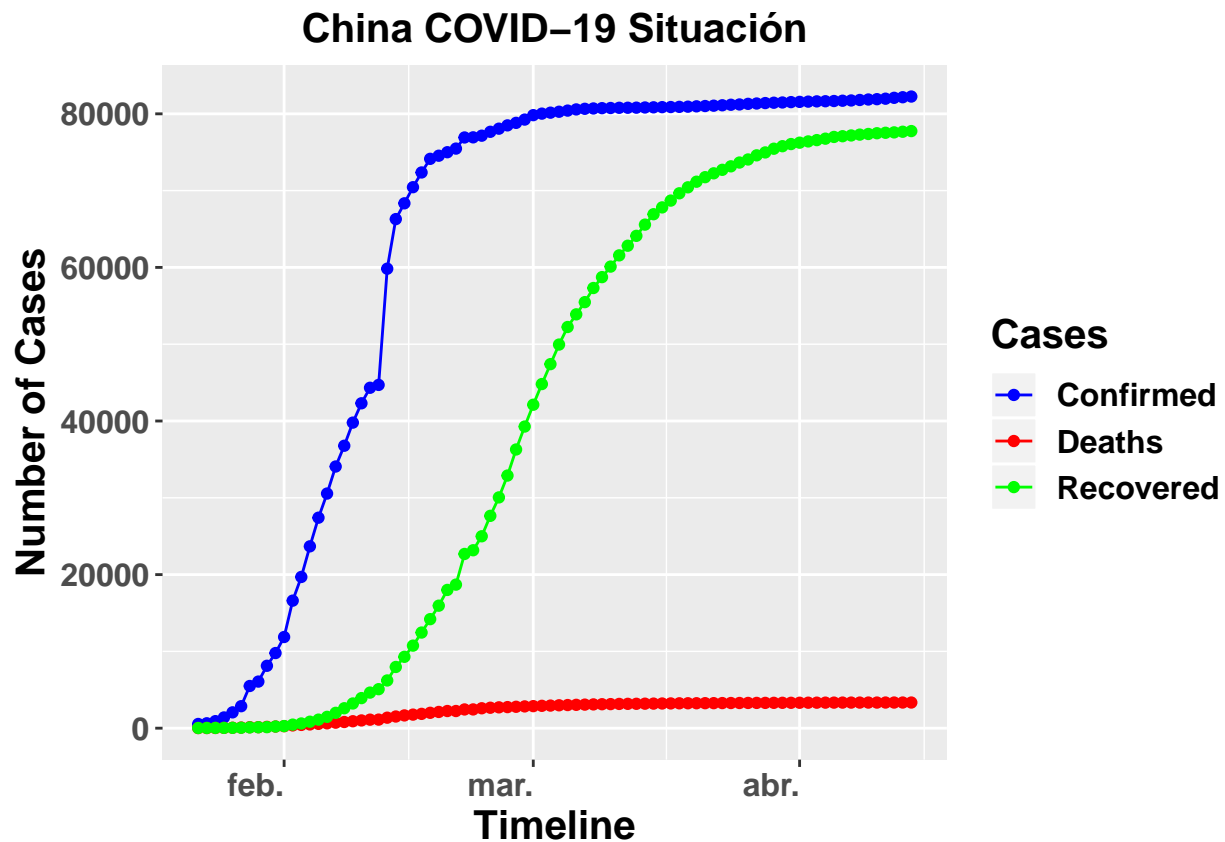
China_plot2



#Line Plot

```
China_plot<- ggplot(China, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "China COVID-19 Situación", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

China_plot



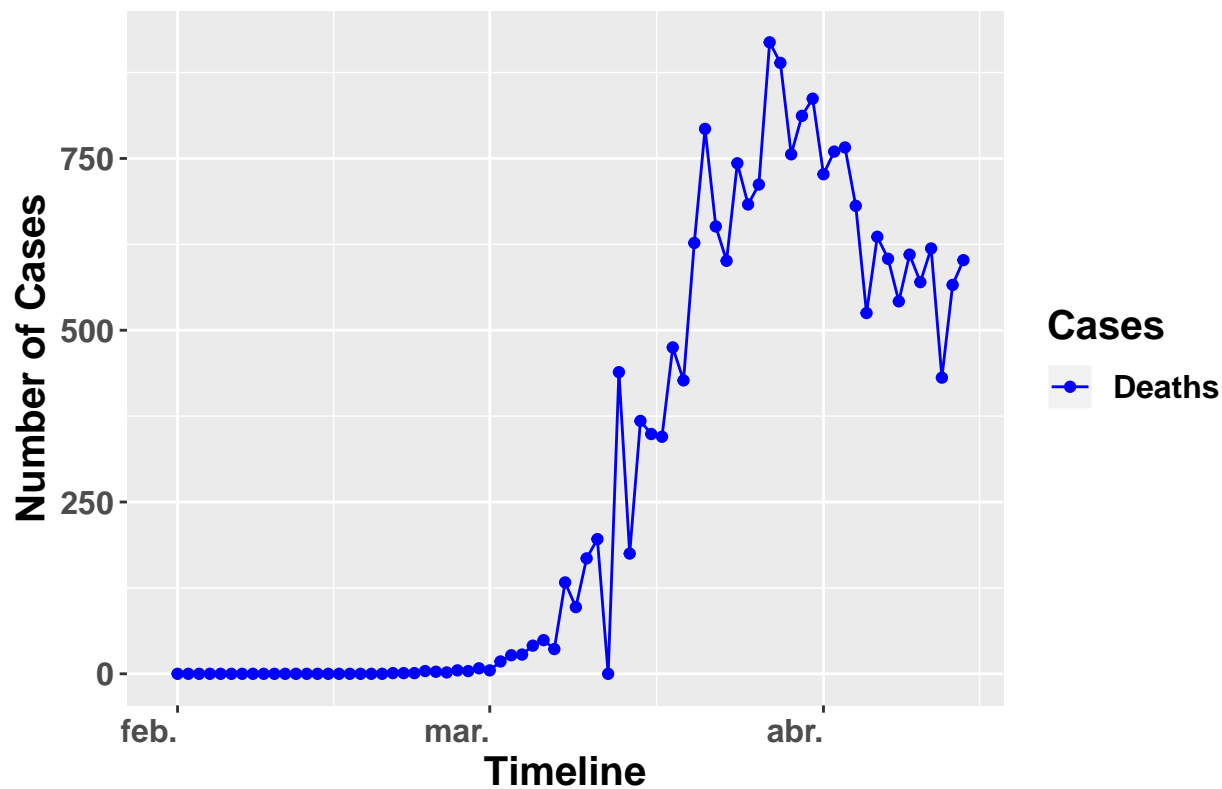
```
italy <- filter(df, Country == "Italy") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed) , Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
italy2 <- filter(italy, Cases == "Deaths",)
italy2$Fallecimientos.nuevos <- c( NA, diff(italy2$Count))
```

```
italy_plot2 <- ggplot(italy2, aes(x= Date, y= Fallecimientos.nuevos , fill = Cases, color = Cases , group = Cases)) +
  geom_line(aes(colour = Cases)) + geom_point() +
  scale_fill_manual(values = c("blue", "red", "green")) + scale_colour_manual(values = c("blue", "red", "green"))
labs(x="Timeline", y="Number of Cases", title = "Fallecimientos diarios nuevos en Italia", fill = Cases)
theme(plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
       text = element_text(hjust = 1, face = "bold", size = 15),
       axis.title.x = element_text(hjust = 0.5),
       axis.title.y = element_text(hjust = 0.5))
```

italy_plot2

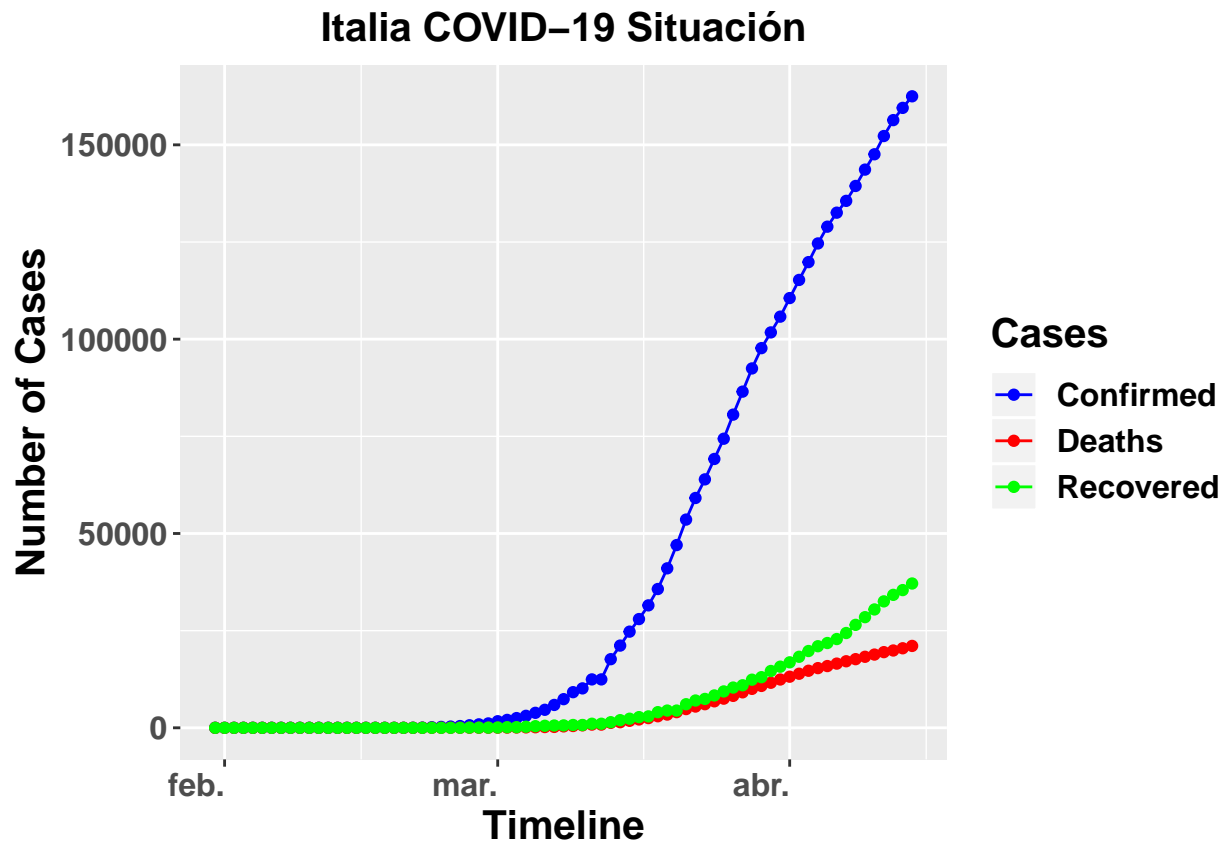
Fallecimientos diarios nuevos en Italia



#Line Plot

```
Italy_plot <- ggplot(italy, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases",title = "Italia COVID-19 Situación", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

Italy_plot

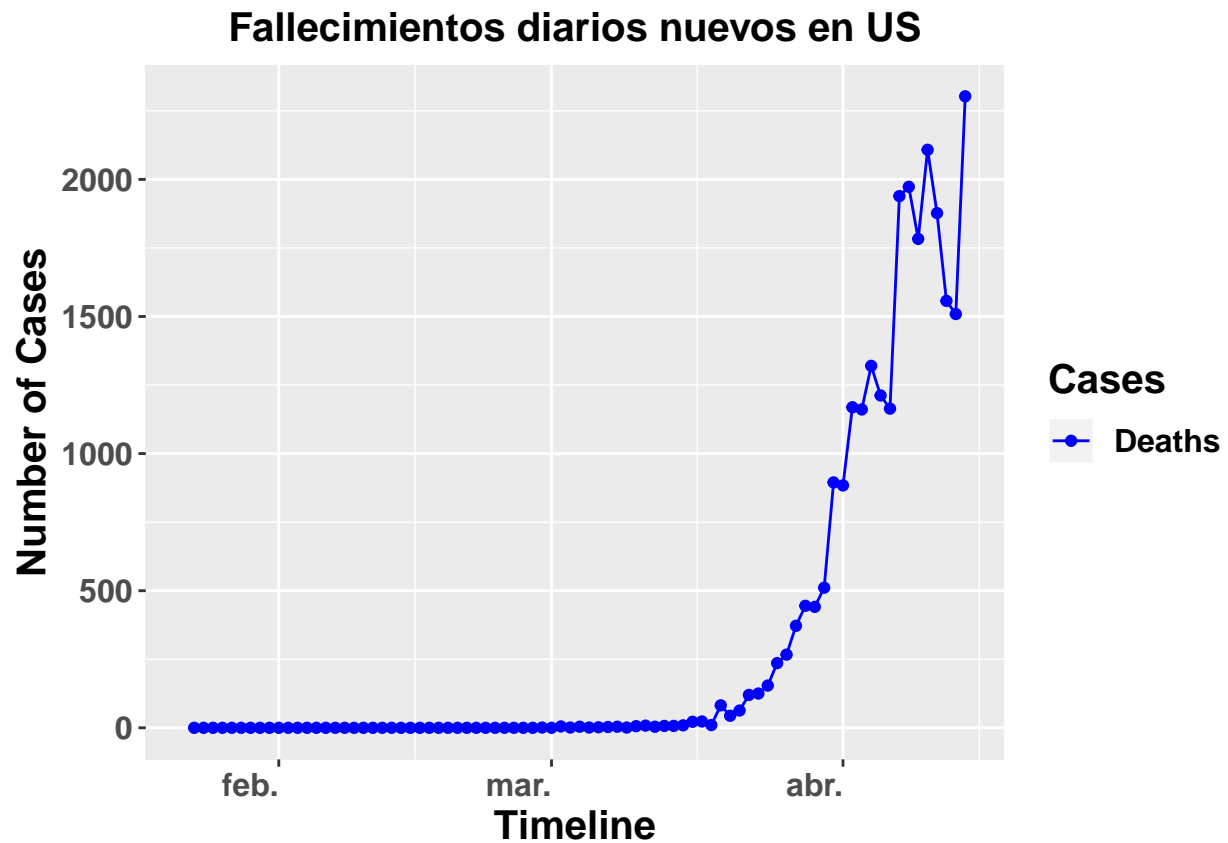


```
US <- filter(df, Country == "US") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed), Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
US2 <- filter(US, Cases == "Deaths",)
US2$Fallecimientos.nuevos <- c( NA, diff(US2$Count))
```

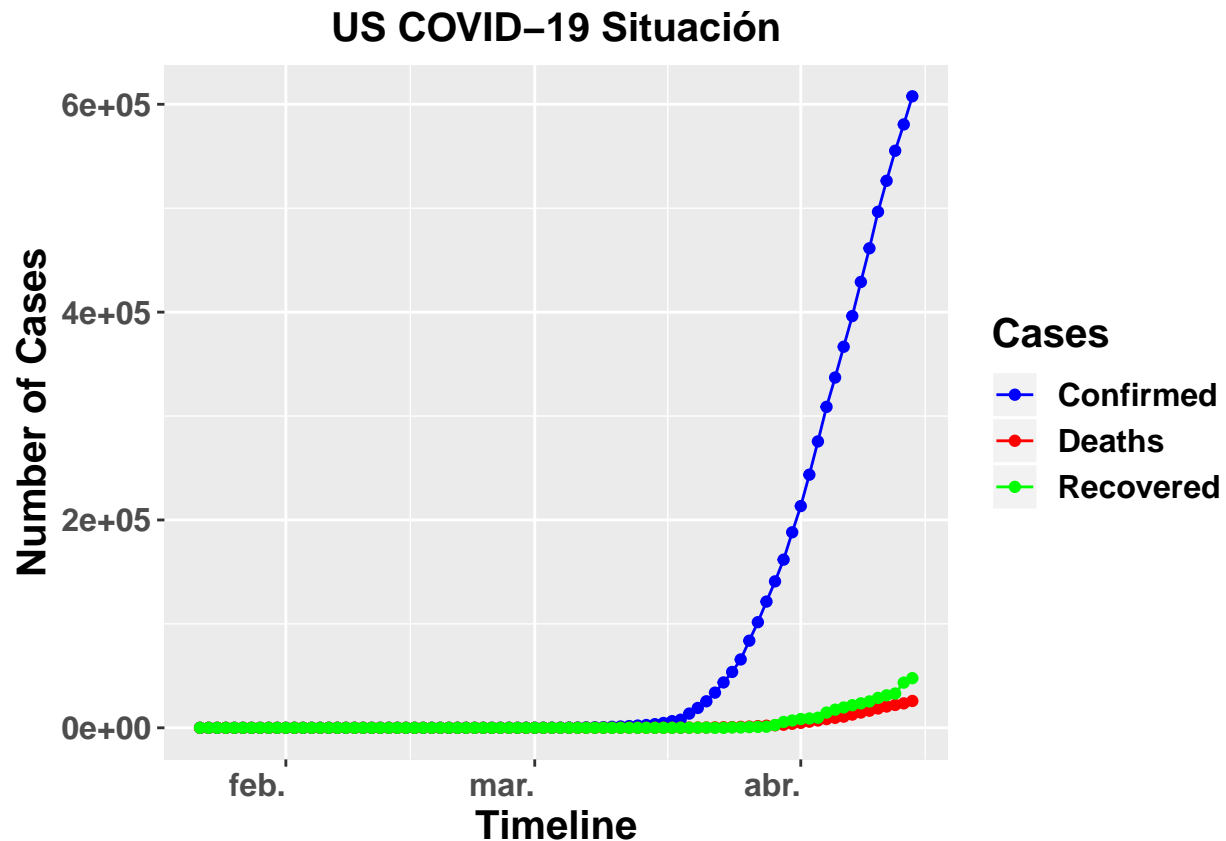
```
US_plot2<- ggplot(US2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , group=Cases
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "Fallecimientos diarios nuevos en US", fill =
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
    text = element_text(hjust = 1,face = "bold", size = 15),
    axis.title.x = element_text(hjust = 0.5),
    axis.title.y = element_text(hjust = 0.5))
```

```
US_plot2
```



```
#Line Plot
US_plot <- ggplot(US, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases",title = "US COVID-19 Situación", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))

US_plot
```

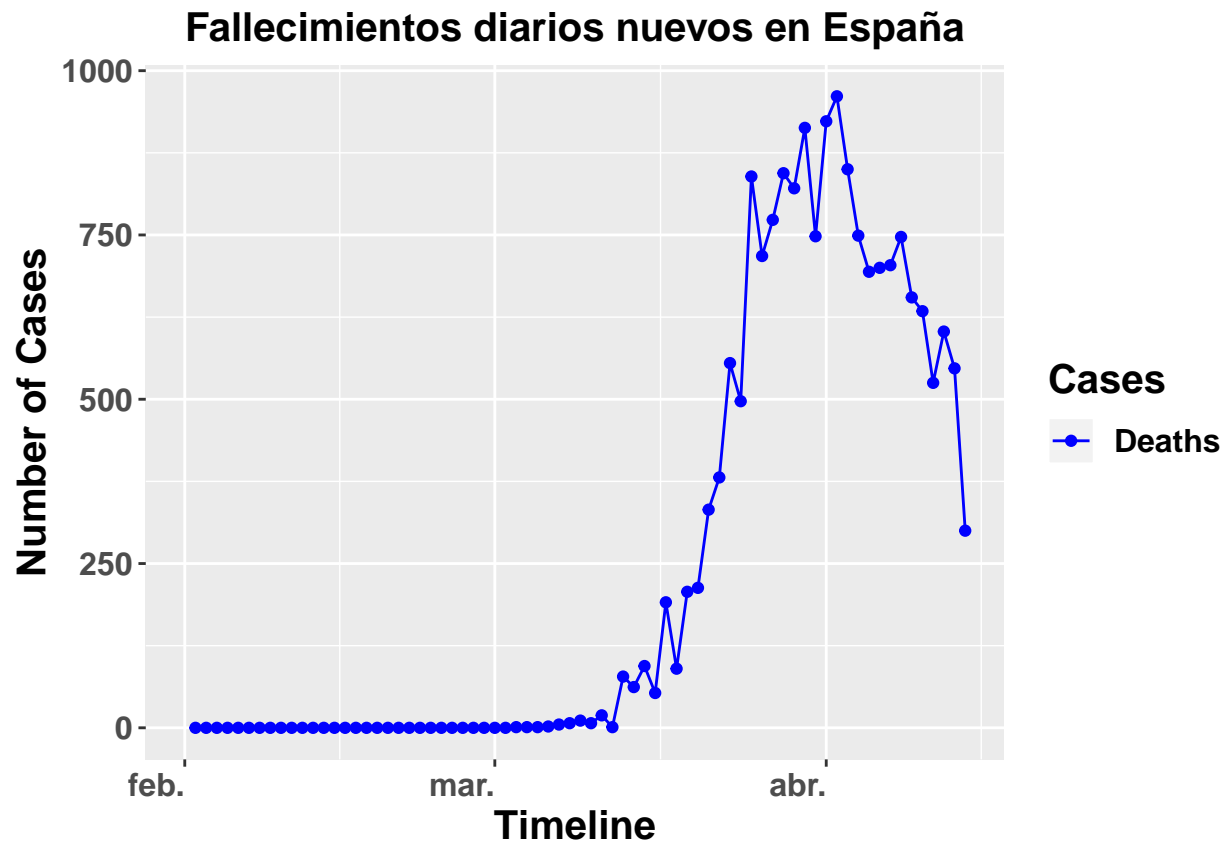



```
Spain <- filter(df, Country == "Spain") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed), Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
Spain2 <- filter(Spain, Cases == "Deaths",)
Spain2$Fallecimientos.nuevos <- c( NA, diff(Spain2$Count))
```

```
Spain_plot2<- ggplot(Spain2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , group= Cases)) +
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases", title = "Fallecimientos diarios nuevos en España", fill = Cases, color = Cases) +
  theme(plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1, face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

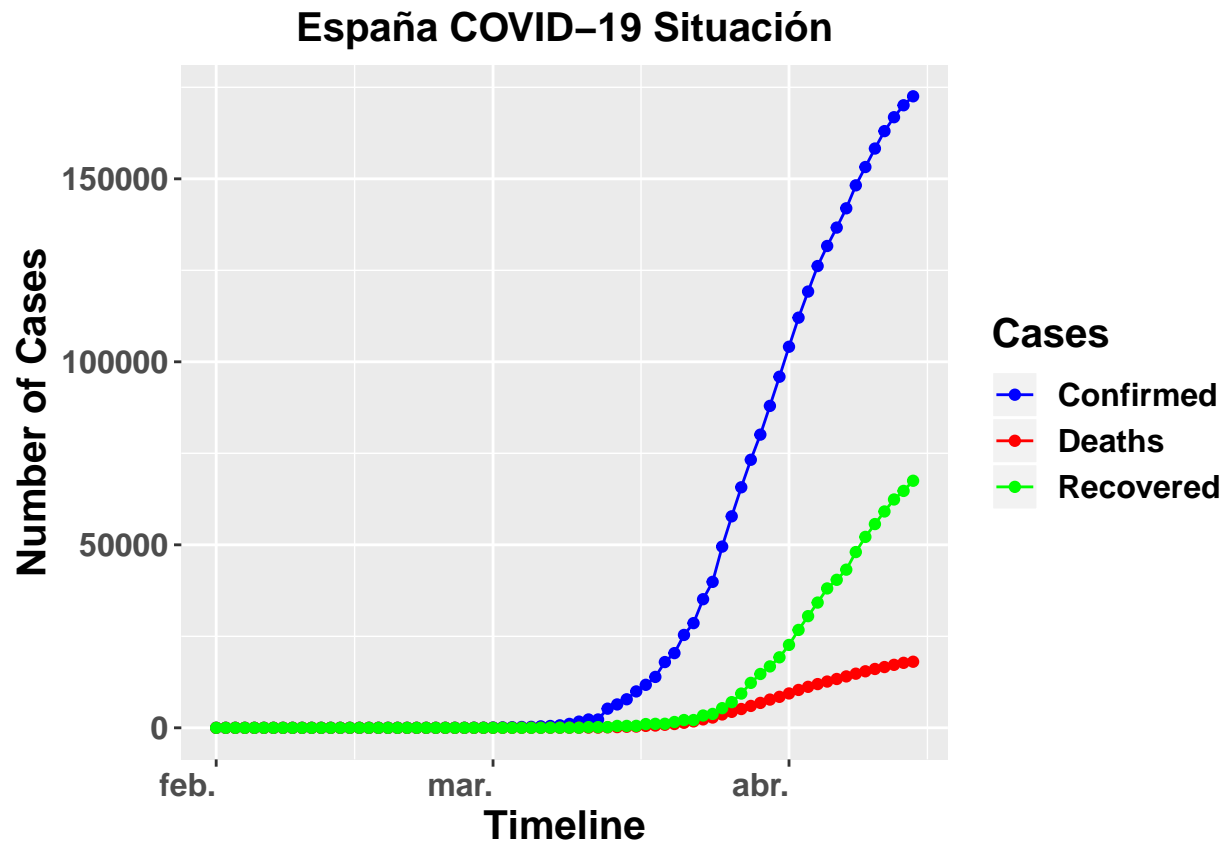
```
Spain_plot2
```



#Line Plot

```
Spain_plot <- ggplot(Spain, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases",title = "España COVID-19 Situación", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

Spain_plot

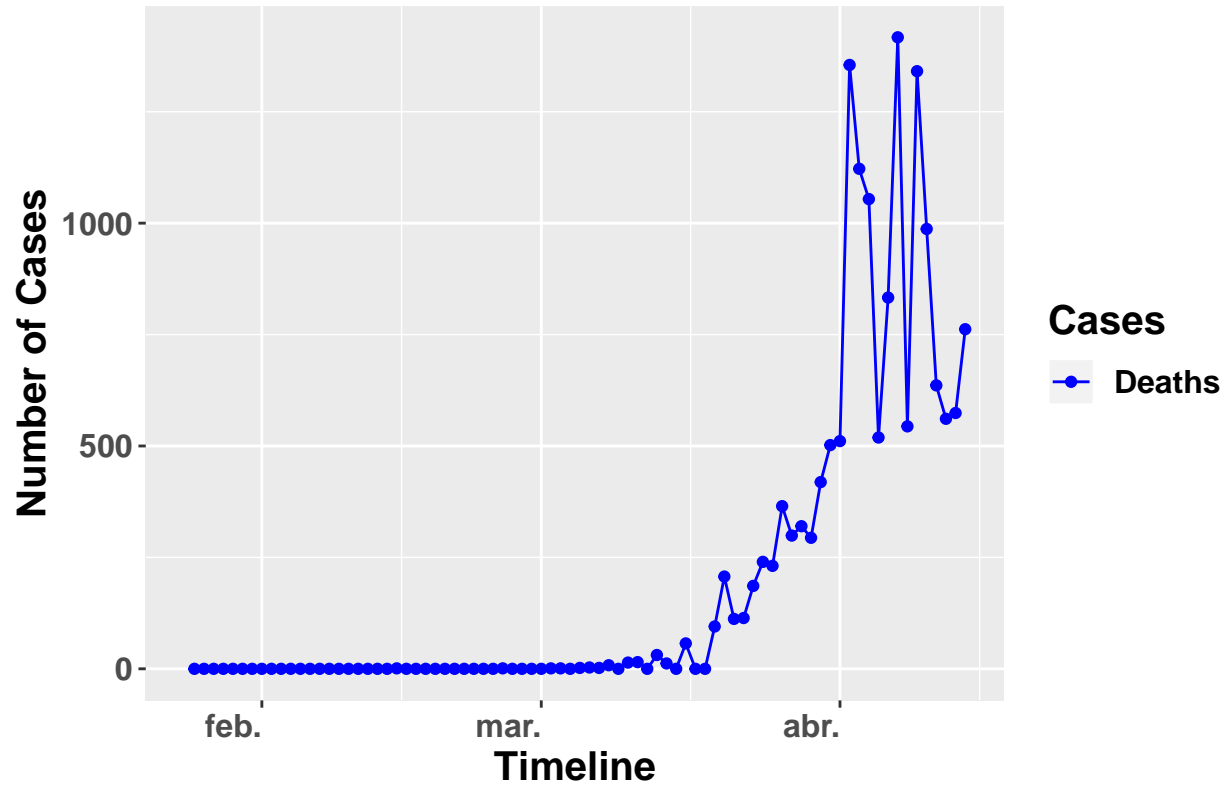


```
France <- filter(df, Country == "France") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed), Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
France2 <- filter(France, Cases == "Deaths",)
France2$Fallecimientos.nuevos <- c( NA, diff(France2$Count))
France_plot2<- ggplot(France2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , group = Cases))
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))
  labs(x="Timeline", y="Number of Cases", title = "Fallecimientos diarios nuevos en Francia", fill = Cases, color = Cases)
  theme(plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1, face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

```
France_plot2
```

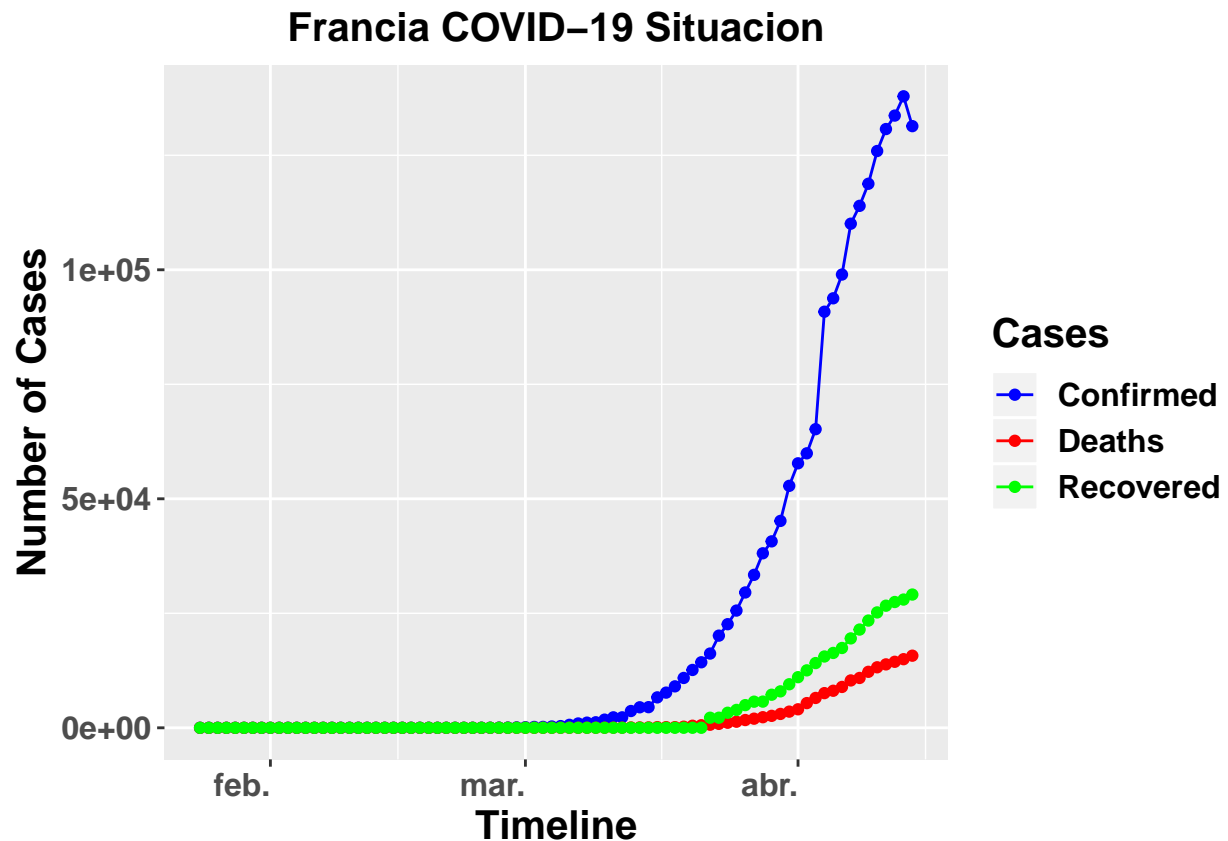
Fallecimientos diarios nuevos en Francia



#Line Plot

```
France_plot <- ggplot(France, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "Francia COVID-19 Situacion", fill = 'Cases').
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
    text = element_text(hjust = 1,face = "bold", size = 15),
    axis.title.x = element_text(hjust = 0.5),
    axis.title.y = element_text(hjust = 0.5))
```

France_plot

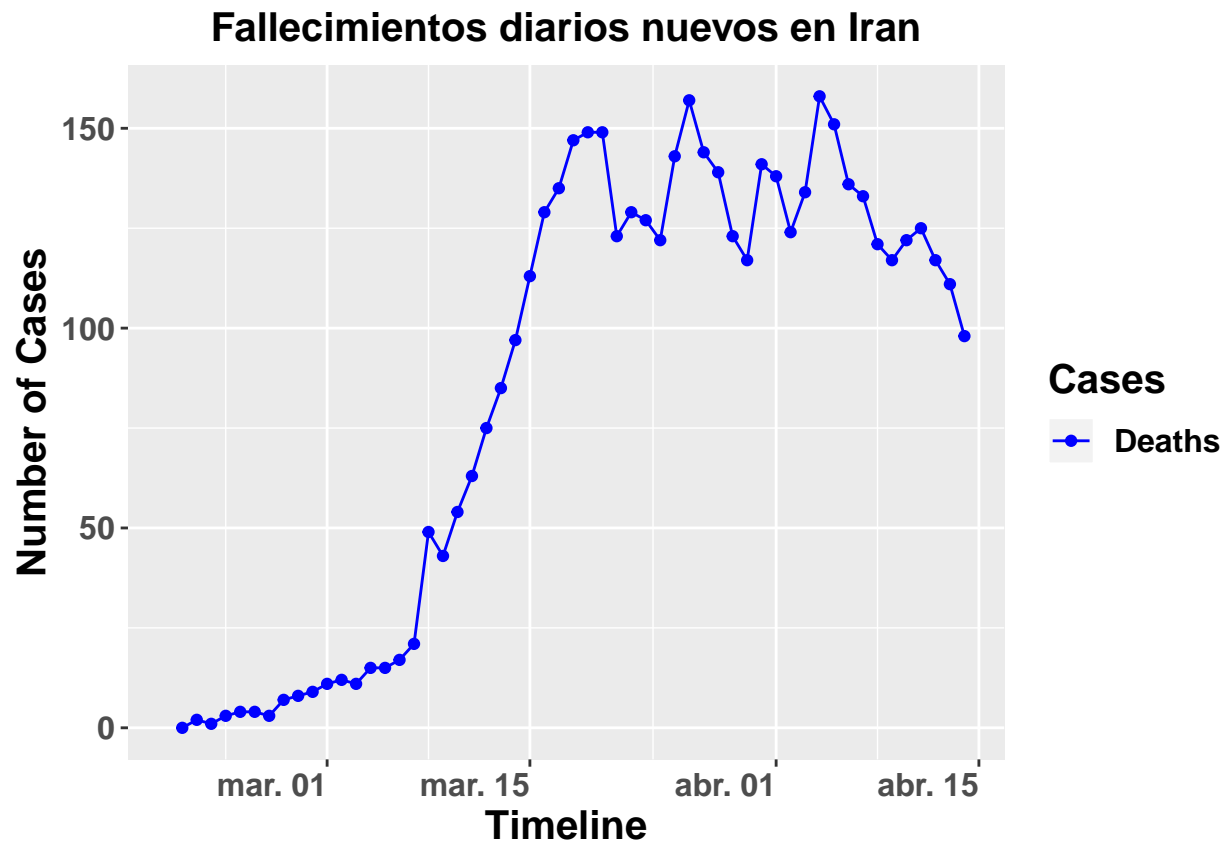


```
Iran <- filter(df, Country == "Iran") %>% group_by(Date) %>%
summarise(Confirmed = sum(Confirmed) , Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
Iran2 <- filter(Iran, Cases == "Deaths",)
Iran2$Fallecimientos.nuevos <- c( NA, diff(Iran2$Count))
```

```
Iran_plot2<- ggplot(Iran2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , group=Cases))
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))
  labs(x="Timeline", y="Number of Cases",title = "Fallecimientos diarios nuevos en Iran", fill = "Cases",
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

```
Iran_plot2
```

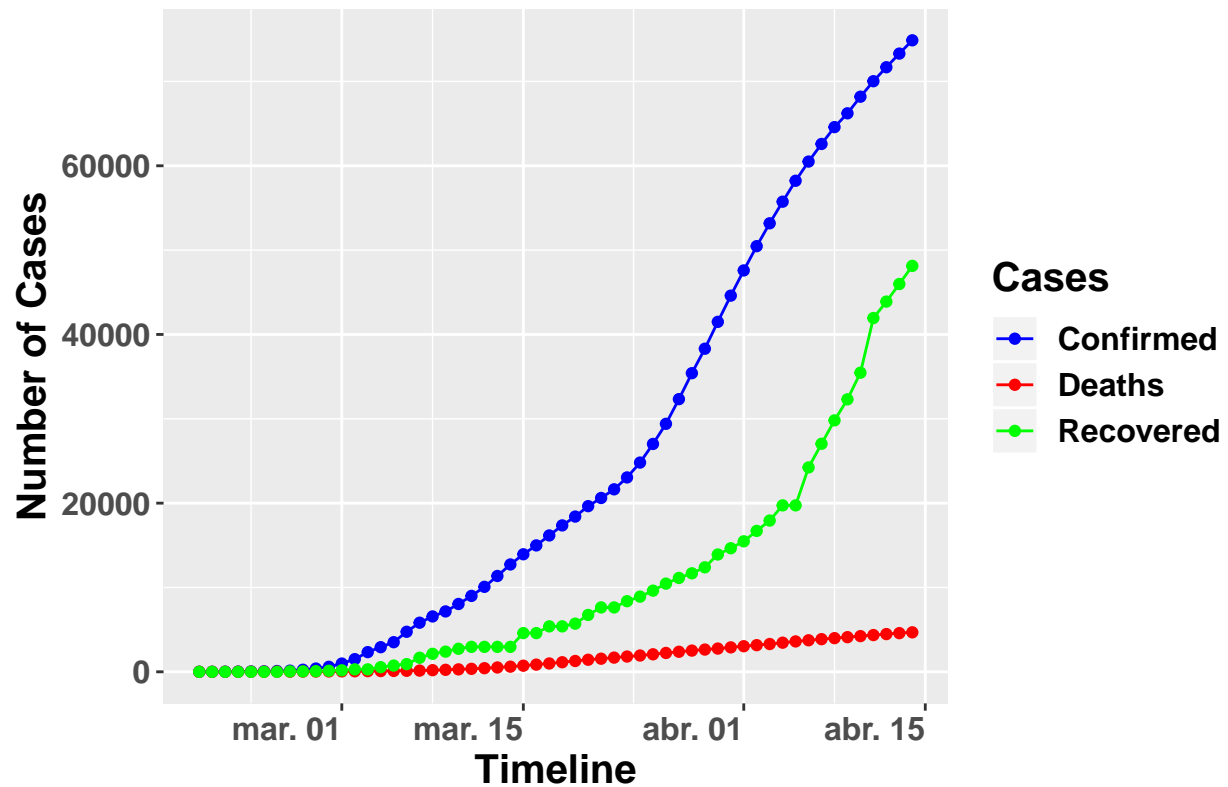


#Line Plot

```
Iran_plot <- ggplot(Iran, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "Iran's COVID-19 Status", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
    text = element_text(hjust = 1,face = "bold", size = 15),
    axis.title.x = element_text(hjust = 0.5),
    axis.title.y = element_text(hjust = 0.5))
```

Iran_plot

Iran's COVID-19 Status

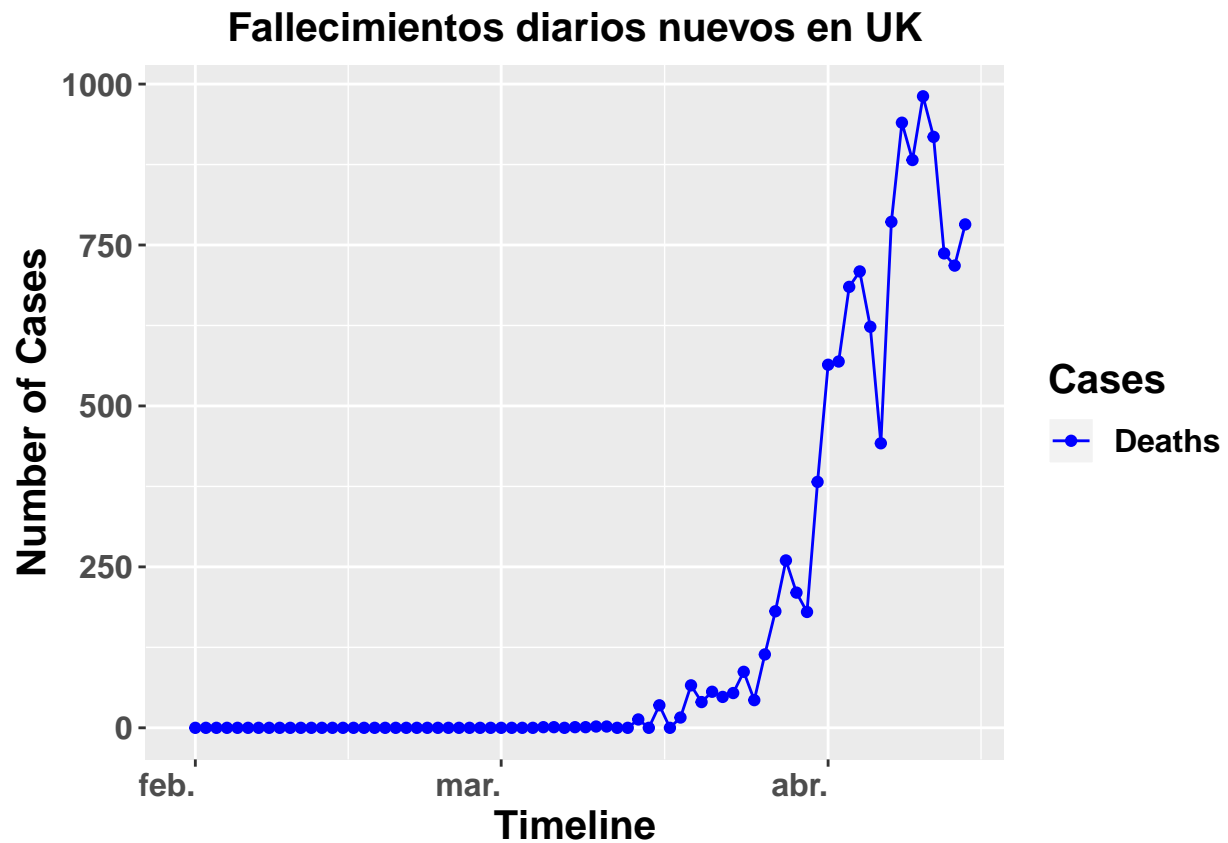


```
UK <- filter(df, Country == "UK") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed), Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
UK2 <- filter(UK, Cases == "Deaths",)
UK2$Fallecimientos.nuevos <- c( NA, diff(UK2$Count))
```

```
UK_plot2<- ggplot(UK2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , group=Cases
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "Fallecimientos diarios nuevos en UK", fill =
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
    text = element_text(hjust = 1,face = "bold", size = 15),
    axis.title.x = element_text(hjust = 0.5),
    axis.title.y = element_text(hjust = 0.5))
```

```
UK_plot2
```

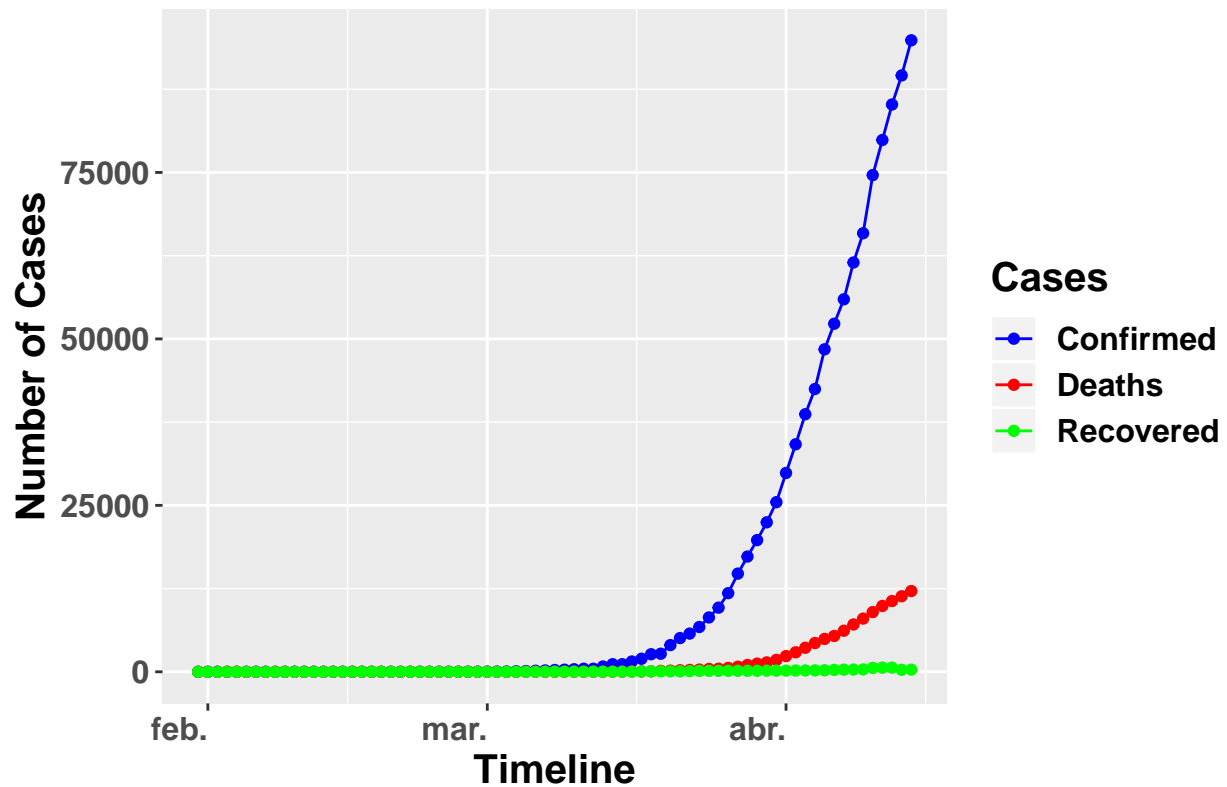


#Line Plot

```
UK_plot <- ggplot(UK, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","r
  labs(x="Timeline", y="Number of Cases",title = "UK's COVID-19 Status", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
    text = element_text(hjust = 1,face = "bold", size = 15),
    axis.title.x = element_text(hjust = 0.5),
    axis.title.y = element_text(hjust = 0.5))
```

UK_plot

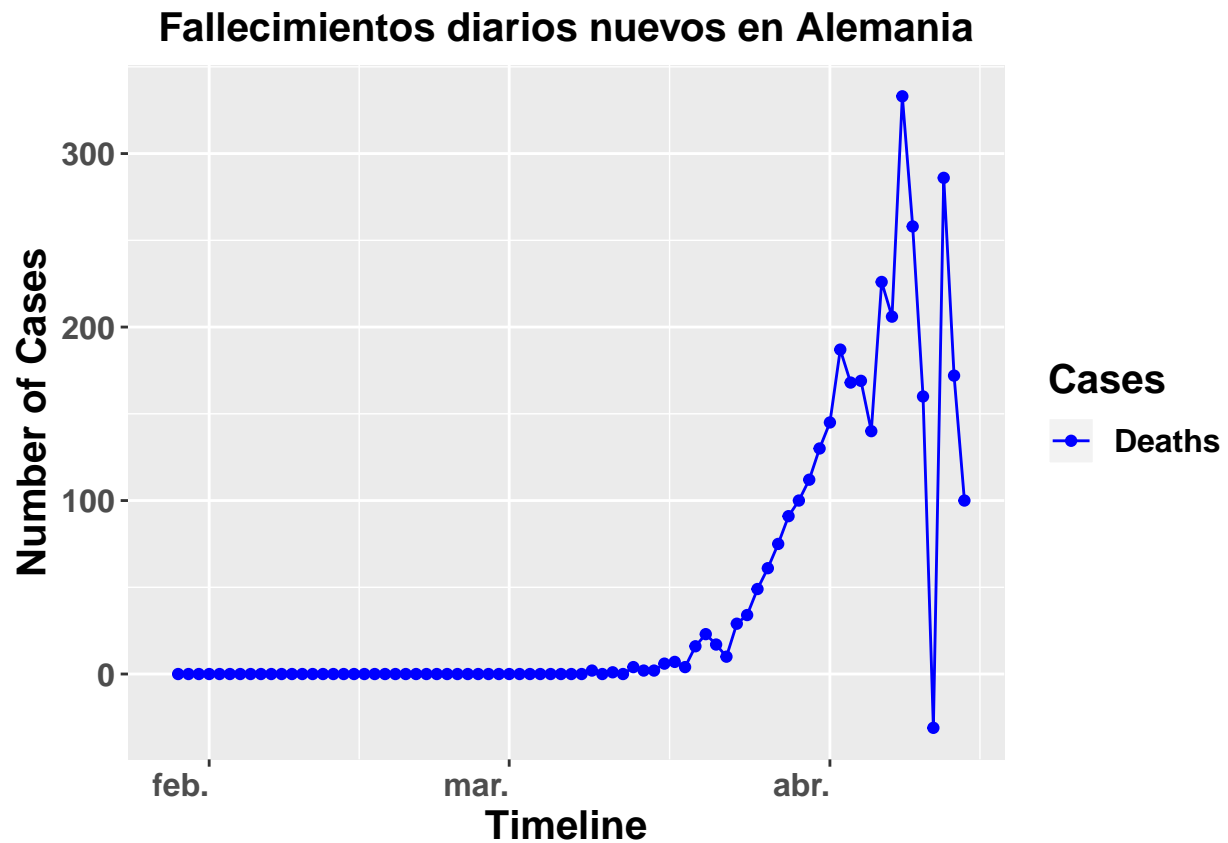
UK's COVID-19 Status



```
Germany <- filter(df, Country == "Germany") %>% group_by(Date) %>%
  summarise(Confirmed = sum(Confirmed), Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
  gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

```
Germany2 <- filter(Germany, Cases == "Deaths",)
Germany2$Fallecimientos.nuevos <- c( NA, diff(Germany2$Count))
Germany_plot2<- ggplot(Germany2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases , geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases",title = "Fallecimientos diarios nuevos en Alemania",
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
    text = element_text(hjust = 1,face = "bold", size = 15),
    axis.title.x = element_text(hjust = 0.5),
    axis.title.y = element_text(hjust = 0.5))
```

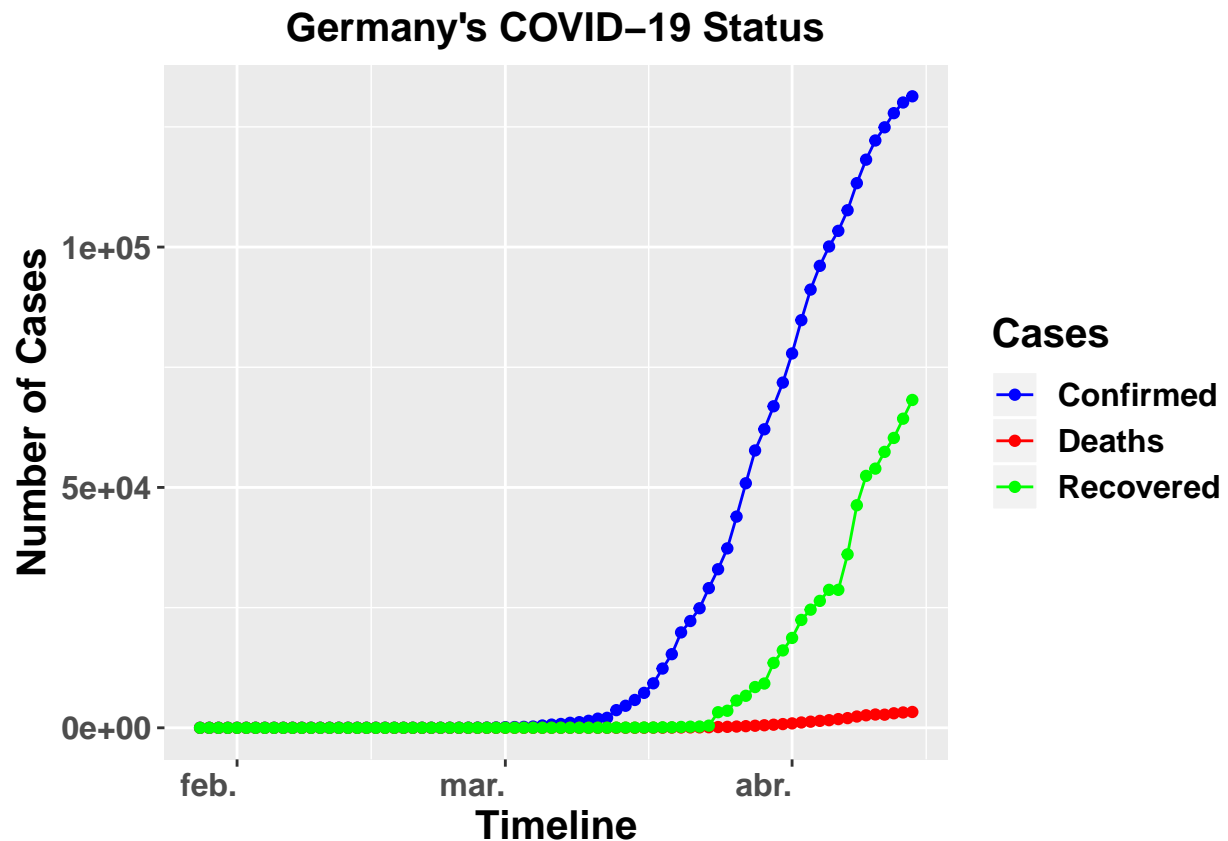
Germany_plot2



#Line Plot

```
Germany_plot <- ggplot(Germany, aes(x= Date, y= Count ,fill = Cases, color = Cases , group=Cases ))+
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases",title = "Germany's COVID-19 Status", fill = 'Cases')+
  theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1,face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

Germany_plot



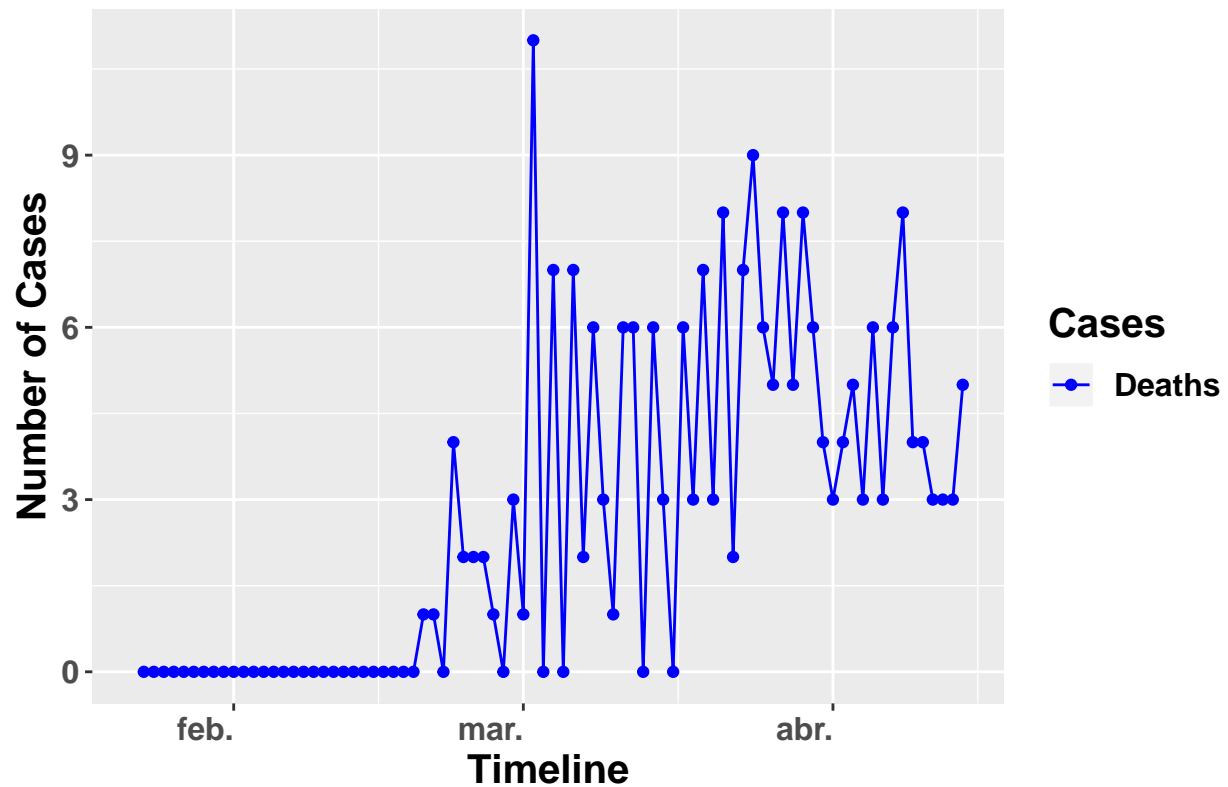
```
South_Korea <- filter(df, Country == "South Korea") %>% group_by(Date) %>%
summarise(Confirmed = sum(Confirmed) , Deaths = sum(Deaths), Recovered = sum(Recovered)) %>%
gather(key = Cases, value = Count, c(Confirmed, Deaths, Recovered))
```

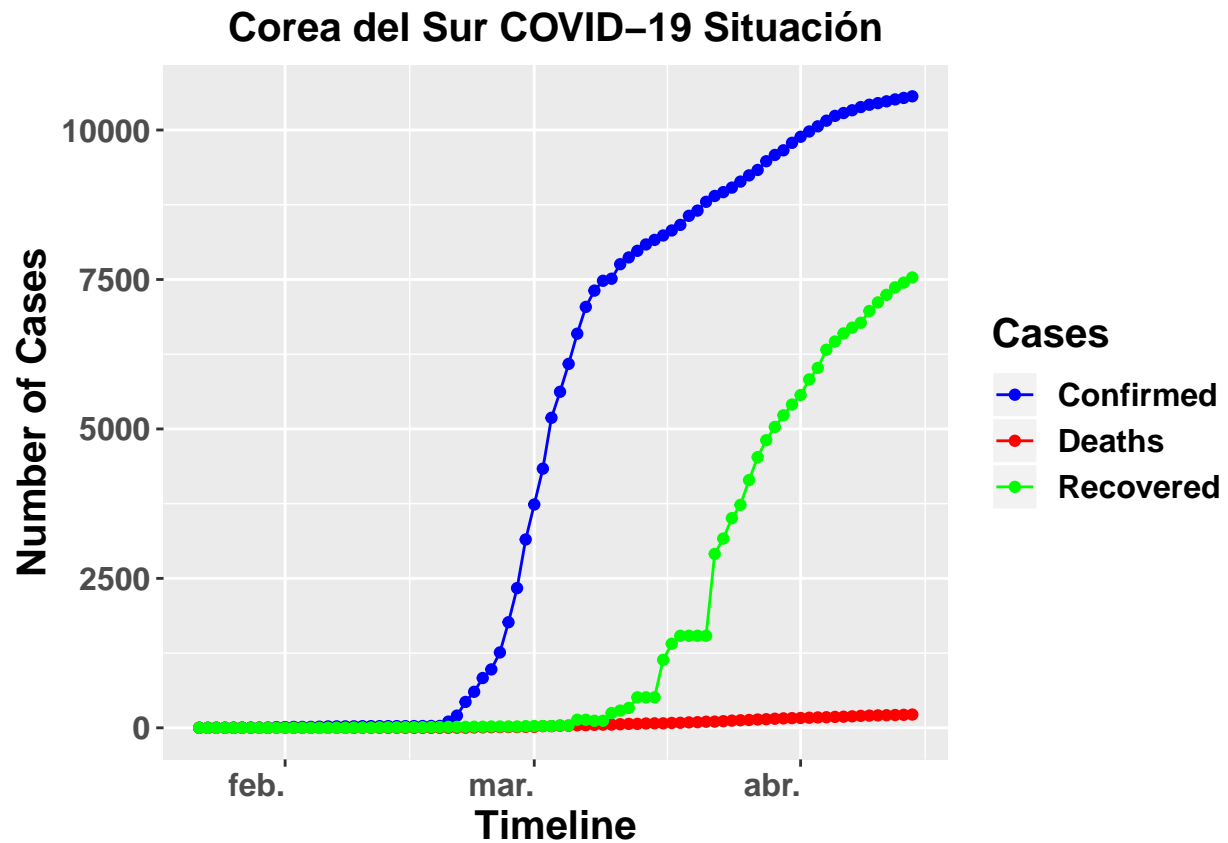
```
South_Korea2 <- filter(South_Korea, Cases == "Deaths",)
South_Korea2$Fallecimientos.nuevos <- c( NA, diff(South_Korea2$Count))
```

```
South_Korea_plot2<- ggplot(South_Korea2, aes(x= Date, y= Fallecimientos.nuevos ,fill = Cases, color = Cases)) +
  geom_line(aes(colour = Cases))+geom_point()+
  scale_fill_manual(values = c("blue","red","green"))+scale_colour_manual(values = c("blue","red","green"))+
  labs(x="Timeline", y="Number of Cases", title = "Fallecimientos diarios nuevos en Corea del Sur") +
  theme(plot.title = element_text(hjust = 0.5 , face = "bold", size = 15),
        text = element_text(hjust = 1, face = "bold", size = 15),
        axis.title.x = element_text(hjust = 0.5),
        axis.title.y = element_text(hjust = 0.5))
```

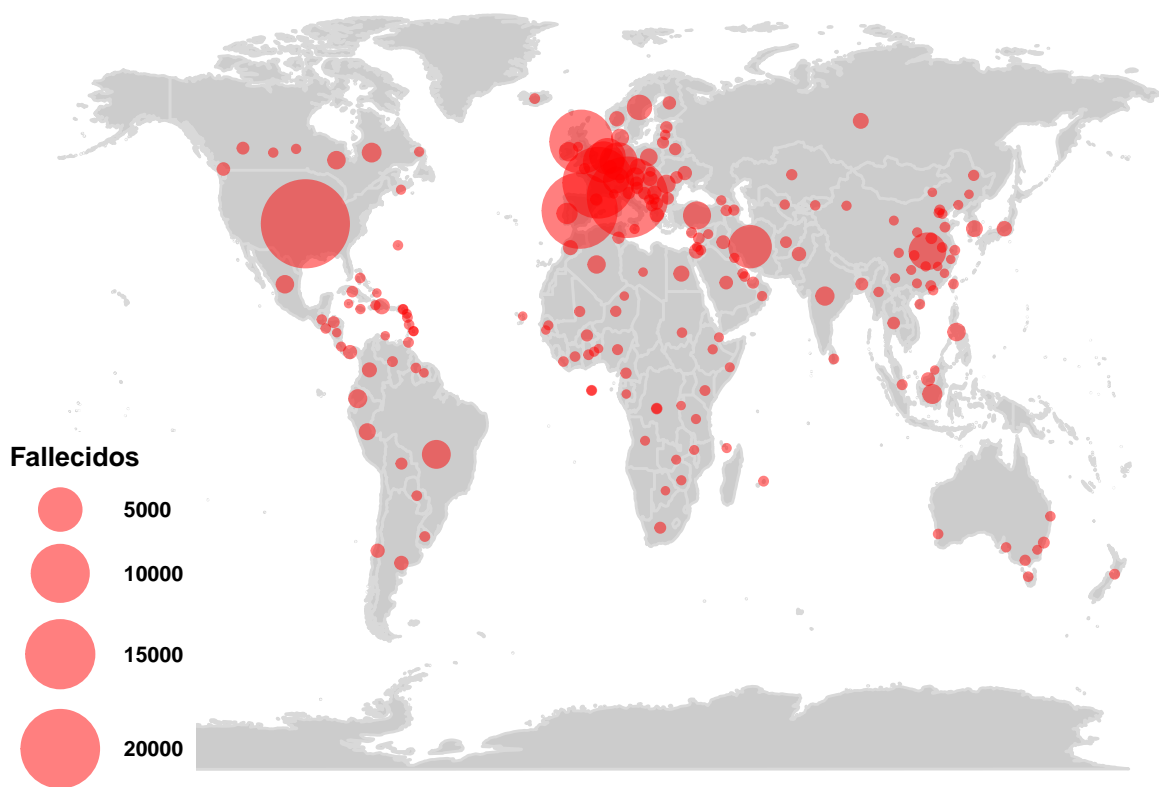
```
South_Korea_plot2
```

Fallecimientos diarios nuevos en Corea del Sur





```
data <- filter(df_deaths,df_deaths[,ncol(df_deaths)]>0)
world <- ggplot() +
  borders("world", colour = "gray85", fill = "gray80") +theme_map()
map_death <- world +
  geom_point(aes(x = data$Long, y = data$Lat, size = as.integer(unlist(data[,ncol(df_deaths)]))),
    data = data,
    colour = 'red', alpha = .5) +
  scale_size_continuous(range = c(1, 15),
    breaks = c(5000, 10000, 15000, 20000)) +
  labs(size = 'Fallecidos')+ theme( plot.title = element_text(hjust = 0.5 , face = "bold", size = 10)
    text = element_text(hjust = 1,face = "bold", size = 10))
map_death
```



Links

Gracias especialmente a datadista por mantener base de datos actualizada del

Ministerio de Sanidad.

Enlaces a bases de datos.

https://www.kaggle.com/sudalairajkumar/novel-corona-virus-2019-dataset/download/uMF6QnlPB7ScS6BxTw1I%2Fversions%2FXDJvWcErFIHv3R7zGrDD%2Ffiles%2Ftime__19__data.csv?datasetVersionNumber=56

https://www.kaggle.com/sudalairajkumar/novel-corona-virus-2019-dataset/download/uMF6QnlPB7ScS6BxTw1I%2Fversions%2FXDJvWcErFIHv3R7zGrDD%2Ffiles%2Ftime__series__covid__19__confirmed.csv?datasetVersionNumber=56

https://www.kaggle.com/sudalairajkumar/novel-corona-virus-2019-dataset/download/uMF6QnlPB7ScS6BxTw1I%2Fversions%2FXDJvWcErFIHv3R7zGrDD%2Ffiles%2Ftime__series__covid__19__deaths.csv?datasetVersionNumber=56

https://www.kaggle.com/sudalairajkumar/novel-corona-virus-2019-dataset/download/uMF6QnlPB7ScS6BxTw1I%2Fversions%2FXDJvWcErFIHv3R7zGrDD%2Ffiles%2Ftime__series__covid__19__recovered.csv?datasetVersionNumber=56

https://raw.githubusercontent.com/datadista/datasets/master/COVID%2019/ccaa__covid19__fallecidos__long.csv

https://raw.githubusercontent.com/datadista/datasets/master/COVID%2019/nacional__covid19.csv

https://raw.githubusercontent.com/datadista/datasets/master/COVID%2019/ccaa__covid19__uci__long.csv

- Map tracks coronavirus outbreak in near real time
- Coronavirus COVID-19 Global Cases by Johns Hopkins CSSE
- Coronavirus disease (COVID-19) outbreak - WHO
- coronavirus R package provides a tidy format dataset
- An AI Epidemiologist Sent the First Warnings of the Wuhan Virus