

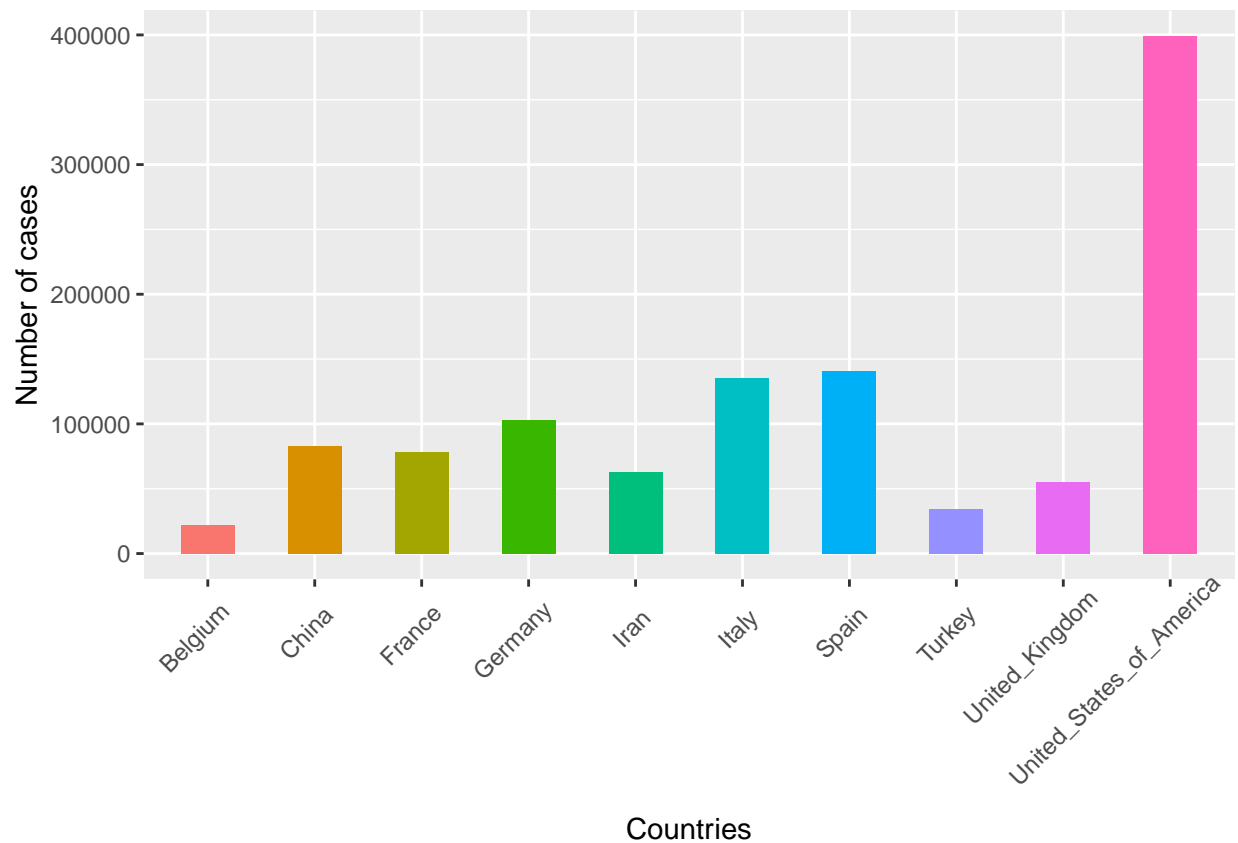
COVID19 ggplot

```
library(readxl)
covid19_data <- read_excel("COVID-19-geographic-disbtribution-worldwide.xlsx")

## Registered S3 methods overwritten by 'tibble':
##   method      from
##   format.tbl  pillar
##   print.tbl   pillar

total_cases <- aggregate(covid19_data["cases"], covid19_data["countriesAndTerritories"], sum)
sort_data <- total_cases[order(-total_cases$cases),]
top10_countr <- subset(sort_data[1:10,])

library(ggplot2)
ggplot(top10_countr, aes(x = countriesAndTerritories, y = cases, fill = countriesAndTerritories)) +
  geom_bar(stat="identity", width = 0.5) +
  theme(axis.text.x = element_text(angle = 45, hjust = 0.8, vjust = 0.9)) +
  xlab("Countries") + theme(legend.position="none") +
  scale_y_continuous("Number of cases", labels = c("0", "100000", "200000", "300000", "400000"))
```



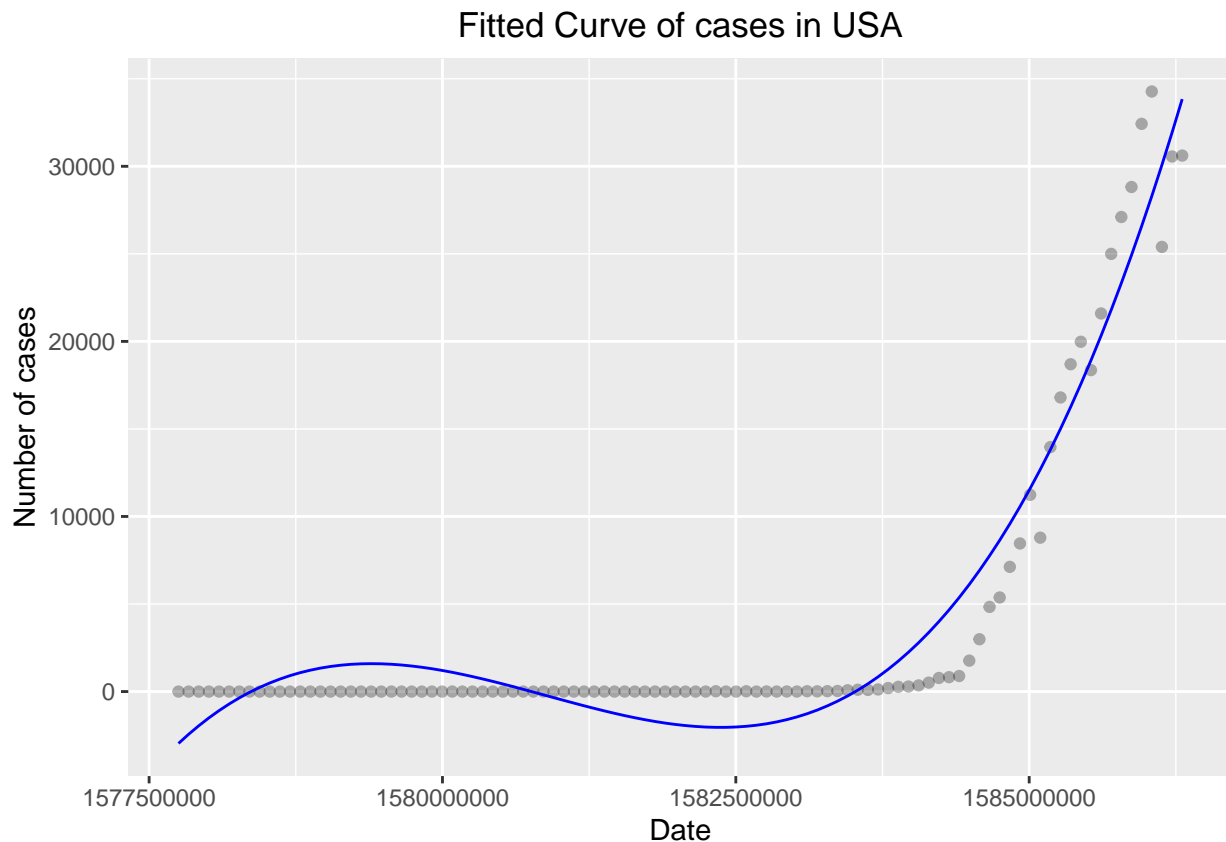
```
CaseAndDeath <- aggregate(c(covid19_data["cases"],covid19_data["deaths"]), covid19_data["countriesAndTerritories"],
CaseAndDeath["deathrate"] <- CaseAndDeath$deaths/CaseAndDeath$cases
sort_deathrate <- CaseAndDeath[order(-CaseAndDeath$deathrate),]
top1_coutr <- subset(sort_deathrate[1,])
print(paste("The country having the highest death rate is",top1_coutr$countriesAndTerritories))
```

```
## [1] "The country having the highest death rate is Gambia"
```

```
print(paste("The death rate of this country is ",top1_coutr$deathrate))
```

```
## [1] "The death rate of this country is 0.25"
```

```
US_data <- subset(covid19_data, geoId == "US")
US_data$dateRep <- as.numeric(US_data$dateRep)
model <- lm(cases ~ poly(dateRep,3), US_data)
pd_model <- data.frame(US_data$dateRep, model$fitted.values)
ggplot(US_data, aes(x=dateRep, y=cases))+
  geom_point(alpha=0.3,fill='white')+
  geom_line(data=pd_model, aes(y=model.fitted.values,x=US_data$dateRep), colour="blue")+
  labs(title = "Fitted Curve of cases in USA", x = "Date", y = "Number of cases")+
  theme(plot.title = element_text(hjust = 0.5))
```



```
hk_data <- read.csv("enhanced_sur_covid_19_eng.csv")
summary(hk_data)
```

```
##      Case.no.      Report.date      Date.of.onset Gender      Age
## Min.   : 1.0    27/03/2020: 65    Asymptomatic:155    F:431    20      : 46
## 1st Qu.:234.8   28/03/2020: 64    19/03/2020 : 43    M:505    19      : 40
## Median :468.5   29/03/2020: 59    23/03/2020 : 41                21      : 38
## Mean   :468.5   01/04/2020: 51    24/03/2020 : 39                18      : 37
## 3rd Qu.:702.2   20/03/2020: 48    16/03/2020 : 38                29      : 26
## Max.   :936.0   22/03/2020: 44    18/03/2020 : 38                23      : 24
##              (Other) :605    (Other)      :582                (Other):725
##              Name.of.hospital.admitted
## Princess Margaret Hospital      :116
## Pamela Youde Nethersole Eastern Hospital:112
## United Christian Hospital      :107
## Queen Mary Hospital            :103
## Queen Elizabeth Hospital       : 98
## Tuen Mun Hospital              : 92
## (Other)                        :308
## Hospitalised.Discharged.Deceased    HK.Non.HK.resident
## Deceased      : 4                HK resident      :916
## Discharged    :236                Non-HK resident: 20
## Hospitalised  :694
## Pending admission: 2
##
##
##              Case.classification. Confirmed.probable
## Close contact of imported case      : 21    Confirmed:935
## Close contact of local case         :166    Probable : 1
## Close contact of possibly local case: 48
## Imported                          :538
## Local case                        : 64
## Possibly local                     : 99
##
```

```
print("The number of patients in different hospitals")
```

```
## [1] "The number of patients in different hospitals"
```

```
sort(table(hk_data$Name.of.hospital.admitted), decreasing = TRUE)
```

```
##
##      Princess Margaret Hospital
##              116
## Pamela Youde Nethersole Eastern Hospital
##              112
##      United Christian Hospital
##              107
##      Queen Mary Hospital
##              103
```

```
##           Queen Elizabeth Hospital
##                               98
##           Tuen Mun Hospital
##                               92
##           Prince of Wales Hospital
##                               87
##           Ruttonjee Hospital
##                               56
## Alice Ho Miu Ling Nethersole Hospital
##                               43
##           North District Hospital
##                               35
##           Tseung Kwan O Hospital
##                               26
##           Caritas Medical Centre
##                               21
##           Kwong Wah Hospital
##                               19
##           Yan Chai Hospital
##                               15
##           North Lantau Hospital
##                               2
##                               Pending
##                               2
##           Pok Oi Hospital
##                               2
```

```
group_data <- table(hk_data$Report.date)
plot_data <- data.frame(group_data)
ggplot(plot_data, aes(x = Var1, y = Freq)) +
  geom_point() +
  theme(axis.text.x = element_text(size = 9, angle = 90)) +
  labs(x = "Date", y = "Number of cases")
```

