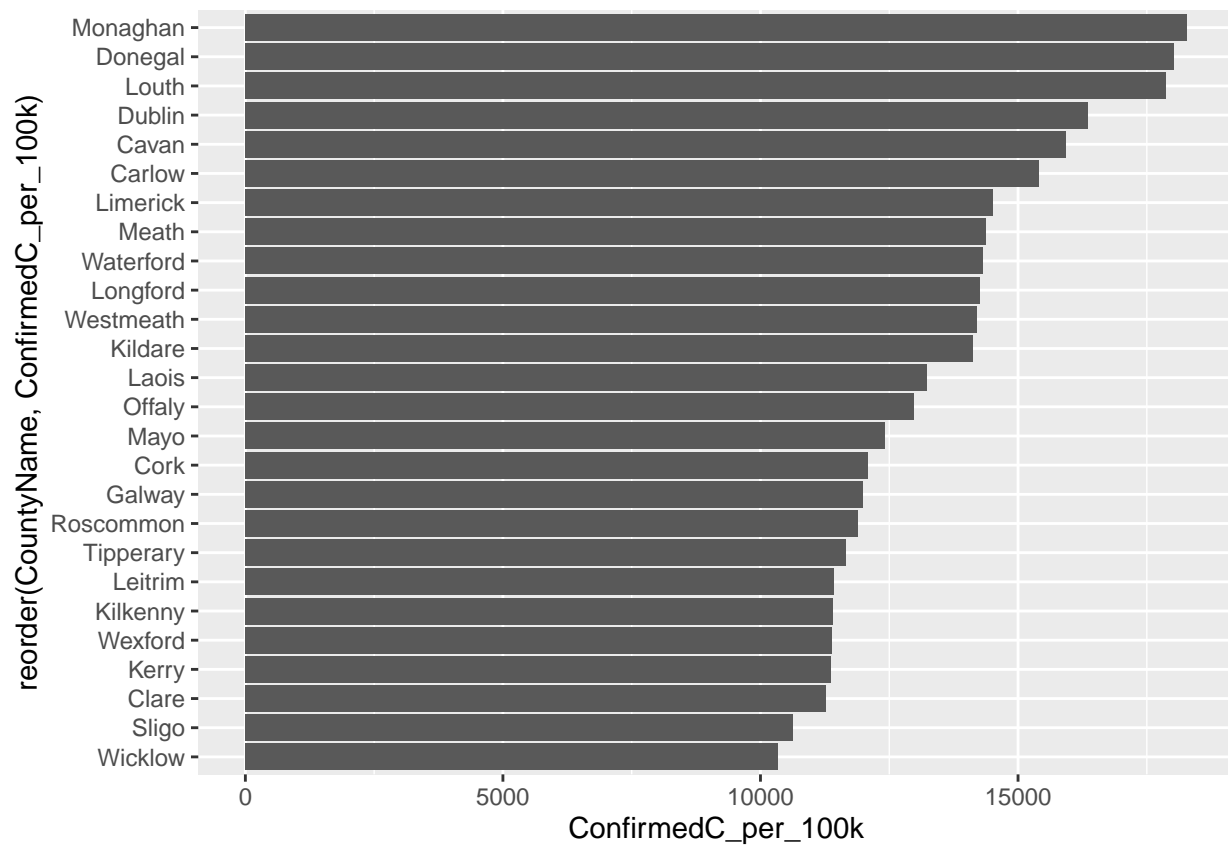```
library(ggplot2)
library(colorspace)
```

```
## Warning: package 'colorspace' was built under R version 4.1.3
```

```
library(colorblindr)
```

```
ggplot(IRL_Covid19_2021_09_01, aes(x = ConfirmedC_per_100k, y = reorder(CountyName, ConfirmedC_per_100k
  geom_bar(stat = "identity")
```



```
mean_daily_cases <- IRL_Covid19_2021_09_01 %>%
  select(ConfirmedC_per_100k) %>%
  st_drop_geometry() %>%
  unlist() %>%
  mean()

IRL_Covid19_2021_09_01<- IRL_Covid19_2021_09_01 %>%
  mutate(mean_divergence =    - mean_daily_cases)

plt_order <- order(IRL_Covid19_2021_09_01$ConfirmedC_per_100k, decreasing = TRUE)
IRL_Covid19_2021_09_01$mean_divergence = factor(IRL_Covid19_2021_09_01$ConfirmedC_per_100k,
                                       levels = IRL_Covid19_2021_09_01$ConfirmedC_per_100k[plt_
```

```
library(colorspace)
library(ggridges)
```
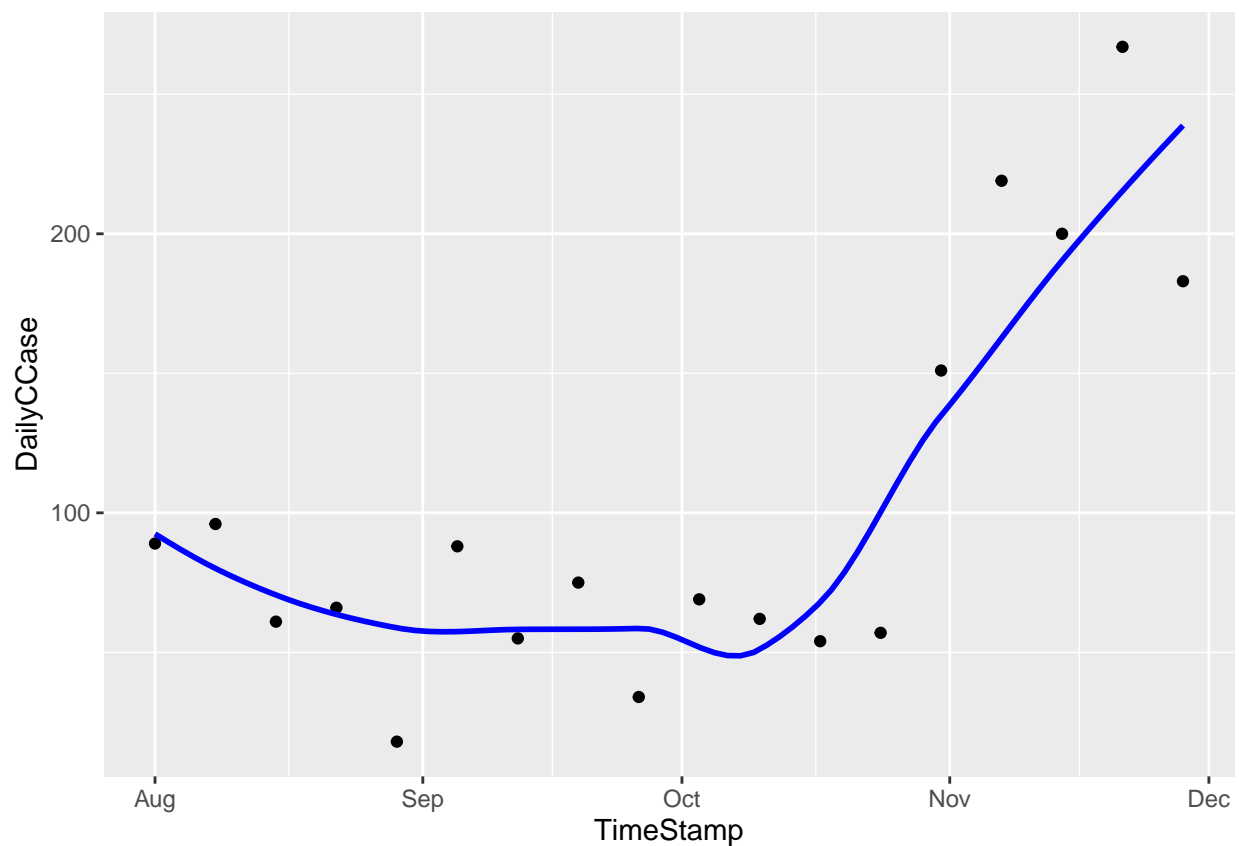
```
## Warning: package 'ggridges' was built under R version 4.1.3
```

```
IRL_Covid19_plot3<- IRL_counties_Covid19%>%
  filter(CountyName == "Galway") %>%
  filter(TimeStamp %in% seq(ymd("2021-08-01") , ymd("2021-12-01"), by="weeks"))


ggplot(IRL_Covid19_plot3, aes(x= TimeStamp, y= DailyCCase)) +
  geom_point()+
  geom_smooth(se= FALSE, color = "blue")
```

```
##
```

```
## 'geom_smooth()' using method = 'loess' and formula = 'y ~ x'
```



```
mean <- IRL_counties_Covid19 %>%
  st_drop_geometry() %>%
  mutate(ConfirmedC_per_100k =  round(100000  * ConfirmedC/Population,1))%>%
  mutate(DailyCCase_per_100k =  round(100000  * DailyCCase/Population, 1))%>%
  select(CountyName, DailyCCase_per_100k) %>%
```

```
    group_by(CountyName) %>%
    summarise(mean = mean(DailyCCase_per_100k, na.rm = TRUE)) %>%
    arrange(desc(mean))

plt_data<- IRL_counties_Covid19%>%
    mutate(ConfirmedC_per_100k =  round(100000  * ConfirmedC/Population,1))%>%
    mutate(DailyCCase_per_100k =  round(100000  * DailyCCase/Population, 1))%>%
    filter(CountyName %in% c("Galway", head(mean$CountyName, 1), tail(mean$CountyName, 1)))

plt_data2<- IRL_counties_Covid19%>%
    mutate(ConfirmedC_per_100k =  round(100000  * ConfirmedC/Population,1))%>%
    mutate(DailyCCase_per_100k =  round(100000  * DailyCCase/Population, 1))%>%
    filter(!CountyName %in% c("Galway", head(mean$CountyName, 1), tail(mean$CountyName, 1)))



ggplot(plt_data, aes(y=ConfirmedC_per_100k, x = TimeStamp, ))+
    geom_smooth(data = plt_data2,aes(group = CountyName, colour = "#d3d3d3" ), size = 0.1, alpha = 0.9, na
    geom_smooth(data = plt_data, aes(group = CountyName, color = CountyName), size = 1.5, alpha = 0.8, na
    scale_color_manual(values = c("#d3d3d3", "#663399", "#339999", "#000066"), labels = c("Others", "Galwa
```
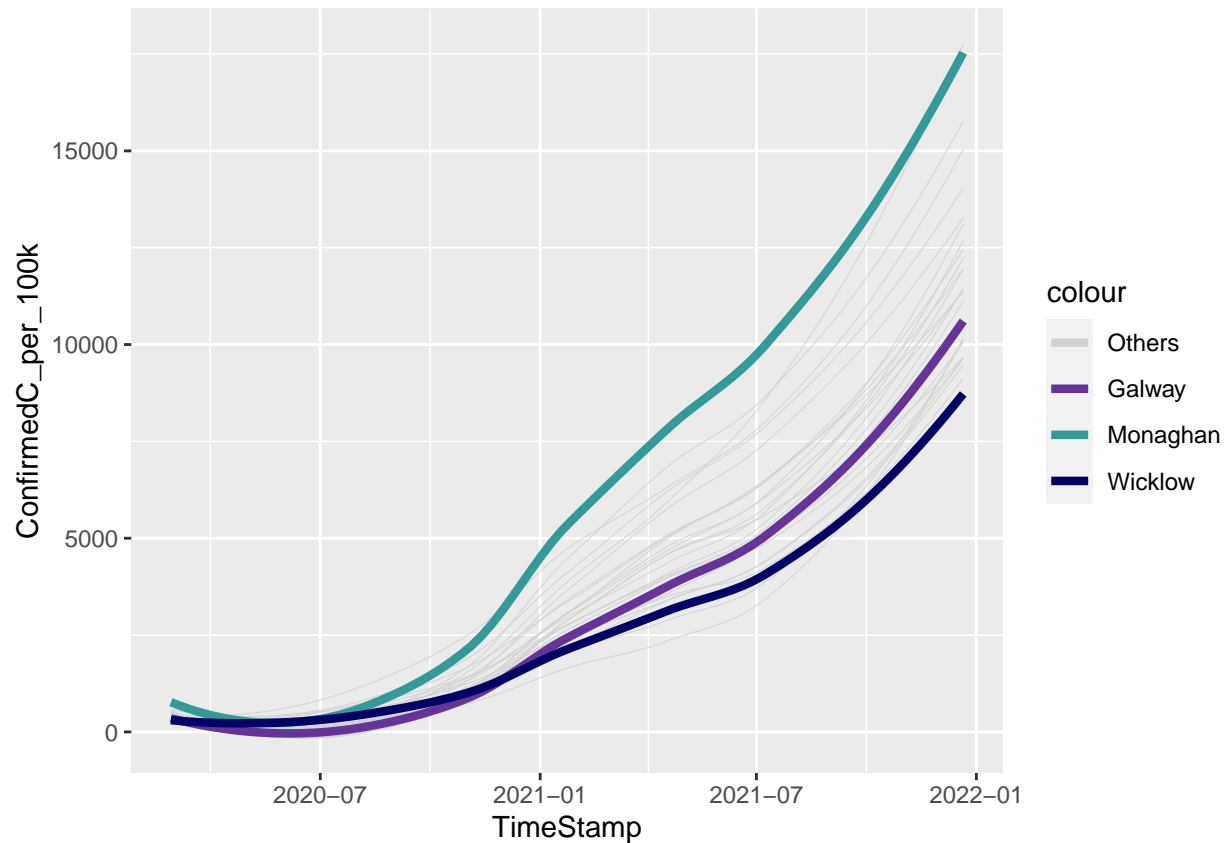
```
## Warning: Using 'size' aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use 'linewidth' instead.


##


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

Part 5

```
part_5 <- IRL_counties_Covid19%>%
  mutate(ConfirmedC_per_100k =  round(100000  * ConfirmedC/Population,1))%>%
  mutate(DailyCCase_per_100k =  round(100000  * DailyCCase/Population, 1))

part_5 <- part_5[part_5$TimeStamp >= ymd("2021-01-01") & part_5$TimeStamp <= ymd("2021-02-01"), ]

part_5 <- part_5 %>% group_by(CountyName) %>%
  summarise(Cumulative_DailyCCases_per_100k_4Weeks = sum(DailyCCase_per_100k))

part_5 <- part_5 %>%
  select(CountyName , Cumulative_DailyCCases_per_100k_4Weeks) %>%
  mutate(mean_4weeks = mean(Cumulative_DailyCCases_per_100k_4Weeks))

part_5<- part_5 %>%
  mutate(mean_divergence =  Cumulative_DailyCCases_per_100k_4Weeks - mean_4weeks)

ggplot(part_5) +
  geom_sf(aes(fill = -mean_divergence))
```