Assingment 2 Main

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#loading colorblind colors
palette <- colorblindr::palette_OkabeIto

#normalising dailyccases and confirmdccases
IRL_Covid19_2021_12_21<- IRL_counties_Covid19%>%
  filter(TimeStamp == ymd("2021-12-21"))%>%
  mutate(ConfirmedC_per_100k =  round(100000  * ConfirmedC/Population,1))%>%
  mutate(DailyCCase_per_100k =  round(100000  * DailyCCase/Population, 1))

#getting the mean of confirmed cases per 100k for plotting
mean_daily_cases <- IRL_Covid19_2021_12_21 %>%
  select(ConfirmedC_per_100k) %>%
  st_drop_geometry() %>%
  unlist() %>%
  mean()

#for plotting the graph
IRL_Covid19_2021_12_21 %>%
  # creating color column for plotting color different for galay, less than mean and
  #more than mean
  mutate(color = ifelse(CountyName == "Galway", "1",
                        ifelse(ConfirmedC_per_100k < mean_daily_cases, "2", "3"))) %>%
  #loading aesthetics for the graphy reordering for sorting
  ggplot(aes(x = ConfirmedC_per_100k, y = reorder(CountyName,ConfirmedC_per_100k)))+
  #geom_point for dot plot
  geom_point(size = 2, aes(color = color))+
  #mean line
  geom_vline(aes(xintercept = mean_daily_cases))+
  #support line
  geom_linerange(aes(xmin = mean_daily_cases, xmax = ConfirmedC_per_100k, color = color),
                 linetype = "dashed")+
  #setting colors and lables
  scale_color_manual(values = c(palette[6], palette[5], palette[1]),
                     labels = c("Galway", "Counties better than average",
                                "Counties worse than average"))+
  #changeing x ticks for graph
  scale_x_continuous(limits = c(10000, 19000),
                     breaks = seq(10000, 19000, by = 1000),
                     name = "Confirmed Cases (Per 100,000 people) -->")+
  scale_y_discrete(name = "Counties -->")+
  #adding the mean line mark
  annotate(x=mean_daily_cases+900, y=1, label="<- mean line", color="black",
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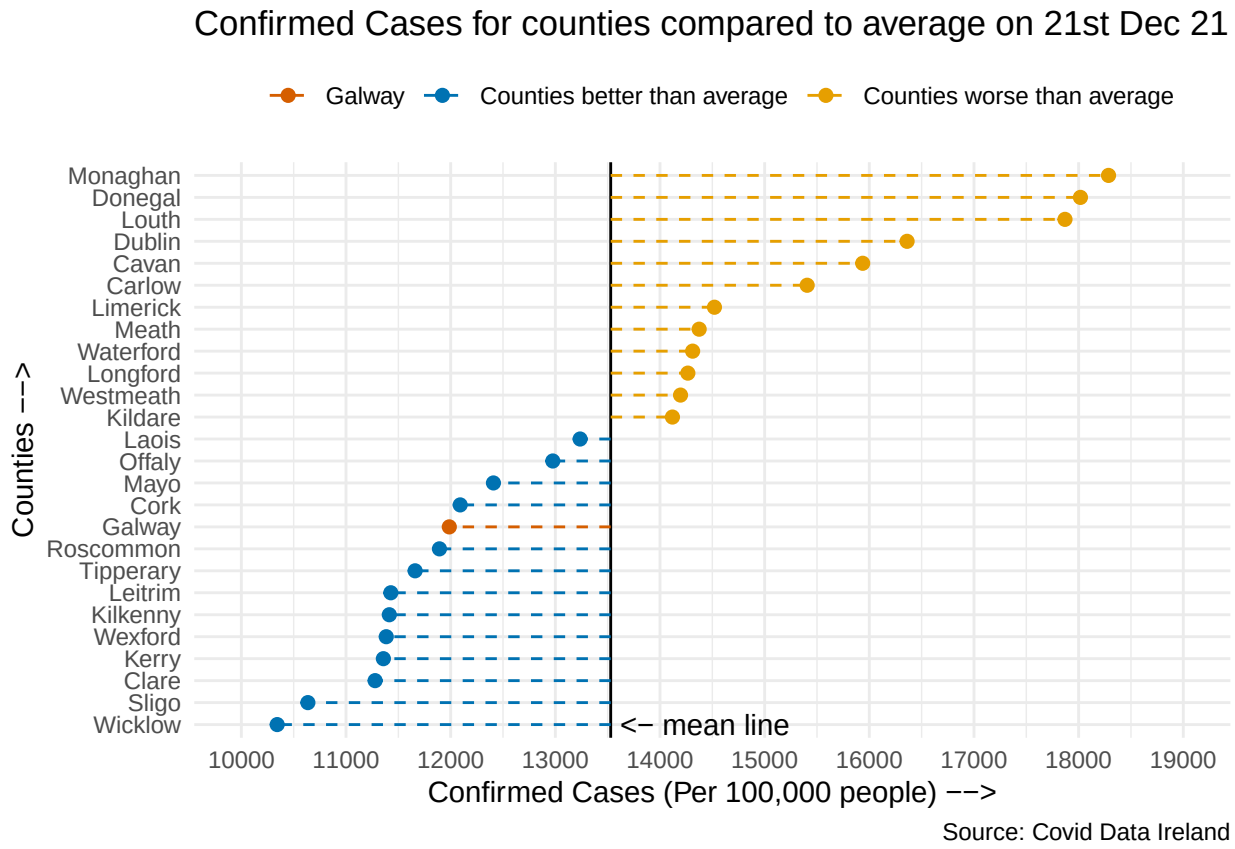
          geom = "text", lineheight = .6)+
  #theme set
  theme_minimal()+
  #title
  ggtitle("Confirmed Cases for counties compared to average on 21st Dec 21")+
  #caption
  labs(caption = "Source: Covid Data Ireland")+
  #for legend position
  theme(legend.position = "top",
        legend.title = element_blank())
```

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#normalising for plotting
IRL_Covid19_plot2 <- IRL_counties_Covid19%>%
  mutate(ConfirmedC_per_100k =  round(100000  * ConfirmedC/Population,1))%>%
  mutate(DailyCCase_per_100k =  round(100000  * DailyCCase/Population, 1))

# getting a list of means by counties and taking the first and last form highest
#and lowest values of cumulative data
mean <- IRL_counties_Covid19 %>%
  #dropping geometry for summarising
  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) %>%
```

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  #getting mean by grouping on county name
  summarise(mean = mean(DailyCCase_per_100k, na.rm = TRUE)) %>%
  #arrange desc of mean
  arrange(desc(mean))

# get the data of galway and county with lowest and highest cumulative scores
select_county_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)))

# for rest of the counties
other_counties<- 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)))

#for plotting plot2
IRL_Covid19_plot2 %>%
  #loading aesthetics for graphy
  ggplot(aes(x = TimeStamp, y=ConfirmedC_per_100k, color = color))+
  # for other counties a faded grey shade
  geom_smooth(data = other_counties,aes(group = CountyName, colour = "#d3d3d3" ),
              size = 0.1, alpha = 0.9, na.rm = TRUE, method = "loess", se = FALSE)+
  # individual colors for galway and highest, lowest counties
  geom_smooth(data = select_county_data, aes(group = CountyName, color = CountyName),
              size = 1, alpha = 0.8, na.rm = TRUE, method = "loess", se = FALSE)+
  # settings colors
  scale_color_manual(values = c("#d3d3d3", palette[3],palette[6] , palette[4]),
                     labels = c("Others", "Galway", "Monaghan", "Wicklow"))+
  # setting labels on a sequence of values for y axis
  scale_y_continuous(limits = c(0, 19000),
                     breaks = seq(0, 19000, by = 2000),
                     name = "Confirmed Cases (Per 100,000 people) -->")+
  # setting dates on the x axis
  scale_x_date(date_breaks = "months", date_labels = "%b-%y",
               name = "Time -->")+
  #title
  ggtitle("Cumulative Covid cases in Galway compared to Other counties")+
  #labels
  labs(caption = "Source: Covid Data Ireland")+
  theme(axis.text.x = element_text(angle = 50, vjust = 0.5, hjust=1),
        axis.title.x = element_text(vjust = -2.5),
        legend.position = "top",
        legend.title = element_blank())
```

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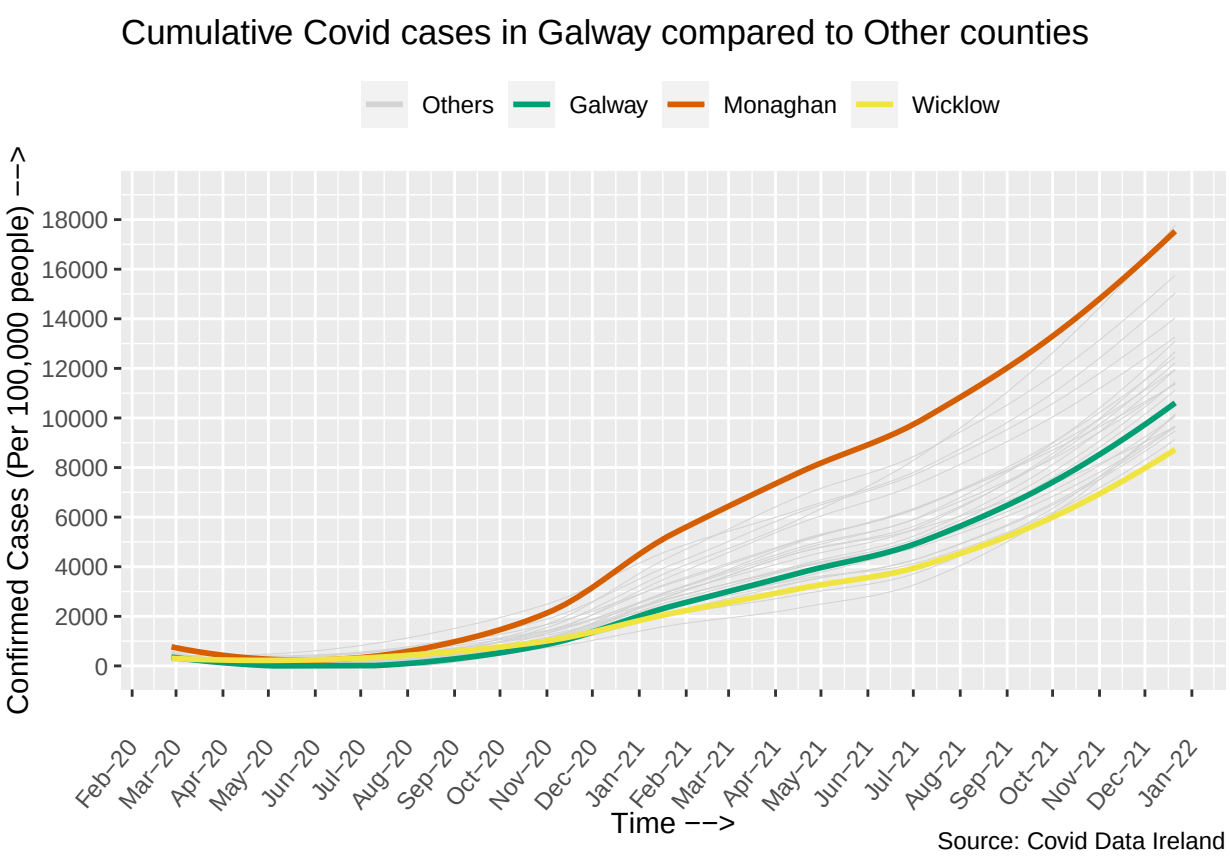
```
## `geom_smooth()` using formula = 'y ~ x'
##
##
## `geom_smooth()` using formula = 'y ~ x'
```


Cumulative Covid cases in Galway compared to Other counties
Others
Galway
Monaghan
Wicklow
Confirmed Cases (Per 100,000 people) −−>
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Feb−20
Mar−20
Apr−20
May−20
Jun−20
Jul−20
Aug−20
Sep−20
Oct−20
Nov−20
Dec−20
Jan−21
Feb−21
Mar−21
Apr−21
May−21
Jun−21
Jul−21
Aug−21
Sep−21
Oct−21
Nov−21
Dec−21
Jan−22
Time −−>
Source: Covid Data Ireland