nawarat_report

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Seatbelts

I used R to manipulate dataset called Seatbelts which is a time-series object.

The Seatbelts dataset is a built-in dataset in R that is part of the datasets package, available by default in RStudio. It contains monthly data on road casualties in Great Britain from January 1969 to December 1984.

The Seatbelts data was collected to measure the effect of the front seatbelt legislation introduced in Great Britain on January 31st, 1983.

Convert time-series object to data frame

```
install.packages("zoo")
library(zoo)


df_seatbelts <- as.data.frame(Seatbelts)

#add date column
df_seatbelts$Date <- as.Date(as.yearmon(time(Seatbelts)))

#change law to factor
df_seatbelts$law <- factor(df_seatbelts$law, labels = c("No Law", "Law in Effect"))

head(df_seatbelts)
```

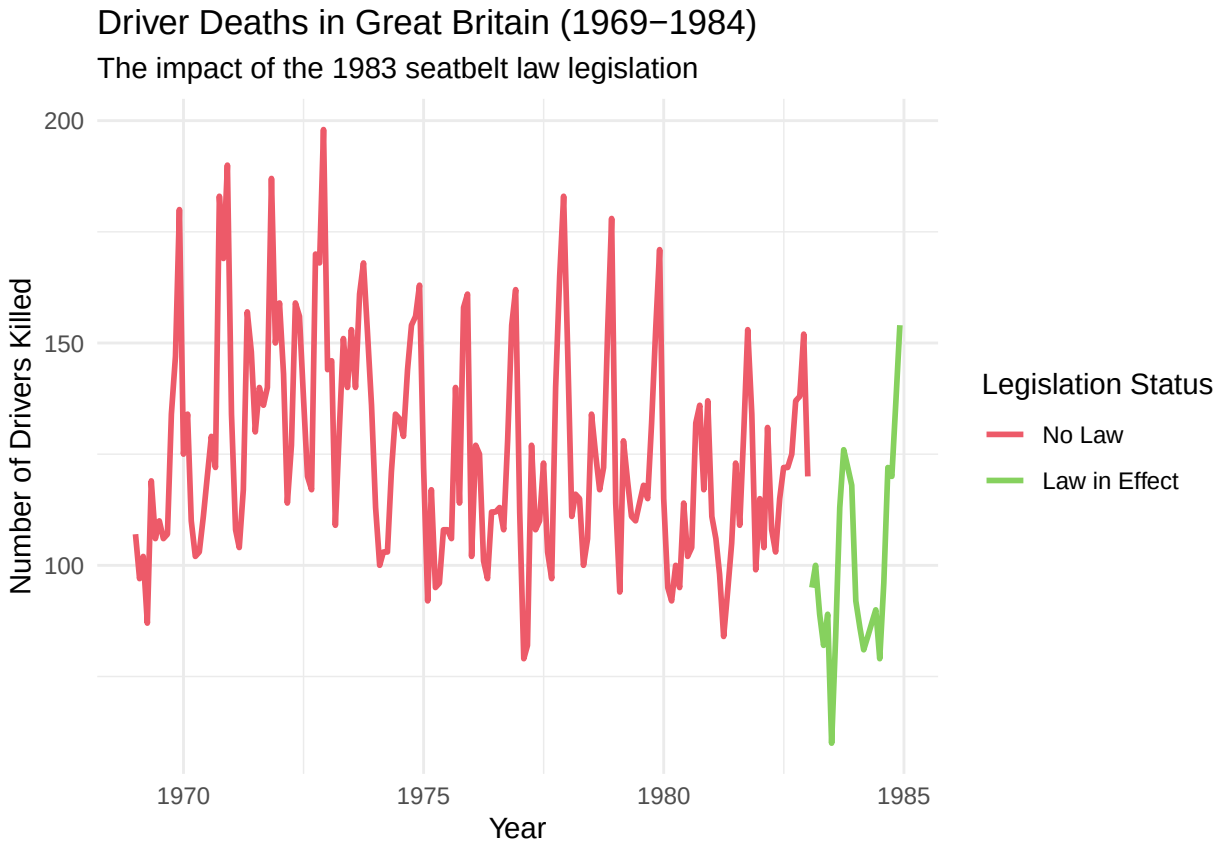
```
##   DriversKilled drivers front rear   kms PetrolPrice VanKilled    law
## 1           107    1687   867  269  9059   0.1029718        12 No Law
## 2            97    1508   825  265  7685   0.1023630         6 No Law
## 3           102    1507   806  319  9963   0.1020625        12 No Law
## 4            87    1385   814  407 10955   0.1008733         8 No Law
## 5           119    1632   991  454 11823   0.1010197        10 No Law
## 6           106    1511   945  427 12391   0.1005812        13 No Law
##         Date
## 1 1969-01-01
## 2 1969-02-01
## 3 1969-03-01
## 4 1969-04-01
## 5 1969-05-01
## 6 1969-06-01
```

Create a chart from number of drivers killed

Create a chart that shows the impact of the 1983 seatbelt law legislation

```
install.packages("tidyverse")
library(tidyverse)

ggplot(df_seatbelts, aes(x = Date, y = DriversKilled, color = law)) +
  geom_line(size = 1) +
  # add labels
  labs(title = "Driver Deaths in Great Britain (1969-1984)",
       subtitle = "The impact of the 1983 seatbelt law legislation",
       x = "Year",
       y = "Number of Drivers Killed",
       color = "Legislation Status") +
  theme_minimal() +
  scale_color_manual(values = c("No Law" = "#ed5a69", "Law in Effect" = "#86d15e"))
```



Create a chart from number of front-seat passengers killed in 1983

Create a chart that shows the number of front-seat passengers killed in each month of 1983

```
install.packages("dplyr")
library(dplyr)

install.packages("lubridate")
library(lubridate)

df_dpdeath <- df_seatbelts %>%
```

```
                select(Date, DriversKilled, front, rear) %>%

                mutate(Date = ymd(Date),
                       month = month(Date,label=TRUE, abbr = TRUE),
                       year = year(Date))


df_fdeath1983 <- df_dpdeath %>%
                select(front, month, year) %>%
                filter(year == 1983)

ggplot(df_fdeath1983, aes(x = month, y = front)) +
  geom_col(width = 0.6, fill = "#4f81d1") +
  labs(title = "Front-Seat Passengers Killed in 1983",
       x = "Month",
       y = "Number of Deaths") +
  theme_minimal()
```

Create a chart from number of front-seat and rear-seat passengers killed in 1983

Create a chart comparing the number of front-seat passengers killed and rear-seat passengers killed in each month of 1983

```
df_pdeath1983 <- df_dpdeath %>%
  select(front, rear, month, year) %>%
  filter(year == 1983)
```

```r
#change to long format
df_long <- df_pdeath1983 %>%
  pivot_longer(cols = c(front, rear),
               names_to = "Seat_Position",
               values_to = "Deaths")

ggplot(df_long, aes(x = month, y = Deaths, color = Seat_Position, group = Seat_Position)) +
  geom_line(size = 1) +
  geom_point() +
  labs(title = "Front vs Rear Seat Deaths (1983)",
       x = "Month Index",
       y = "Number of Passengers Killed") +
  theme_minimal()
```