Homework - 1

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Introduction

The `airquality` dataset is a *built-in* R dataset that contains 'daily measurements of air quality in New York' from 'May to September 1973'. In this analysis, we examine how **temperature** influences **ozone levels**—a critical factor for public health and environmental monitoring.

Descriptive Statistics

We compute `summary statistics` for the two variables of interest: **Ozone** and **Temperature**.

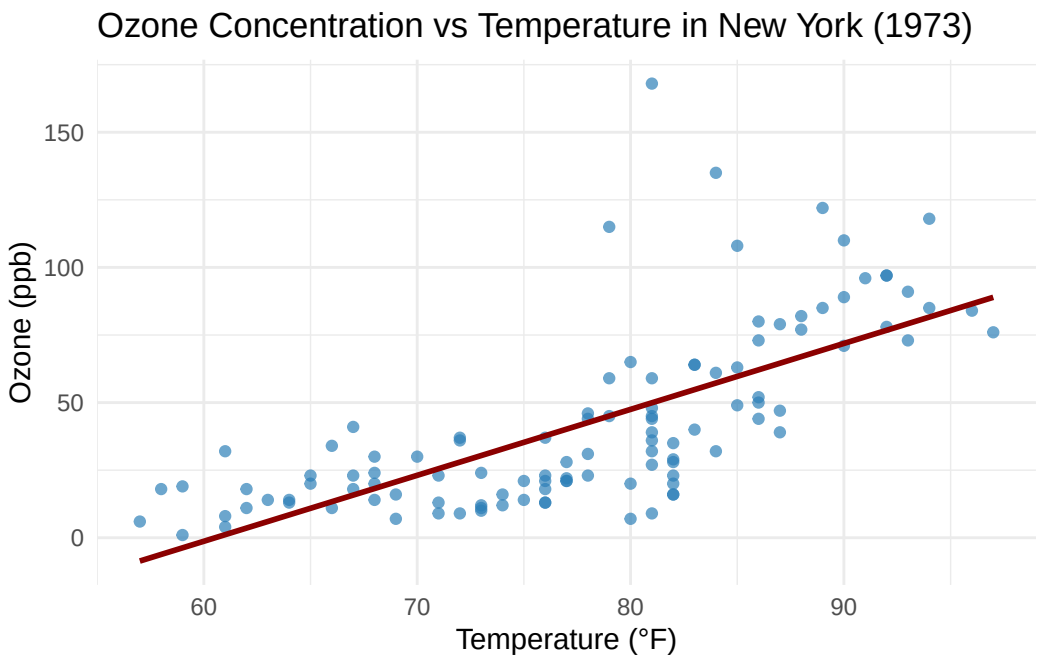
Clean dataset

Table 1: Table 1: Summary Statistics for Ozone and Temperature

Count	Mean_Ozone	SD_Ozone	Mean_Temp	SD_Temp
111	42.0991	33.27597	77.79279	9.529969

Plot: Ozone vs Temperature

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



Interpretation

The plot reveals a **positive correlation** between temperature and ozone levels. As temperature increases, ozone concentration also tends to rise. This trend suggests that hotter days are associated with poorer air quality, likely due to photochemical reactions that increase ozone formation. This has significant implications for public health, especially during summer months.

Conclusion

In this report, we:

- Analyzed the relationship between temperature and ozone levels in New York City
- Found a clear positive trend between the two variables
- Highlighted how environmental conditions can influence air pollution levels

The `airquality` dataset provides valuable historical insight into the impact of temperature on urban air quality.