Lab 10: Data Visualization in R

Collaborative Visualization Project - Team Data Dynamo-s

Team Data Dynamo-s
MSc Integrated Data Science
Semester V, Data Science Toolkit

Contents

1 Team Details

Name	Roll No	Visualization Type
Esha Kambli	2301	Pie Chart
Deversh Shetgaonkar	2302	Box Plot
Sahil Gaonkar	2305	Stacked Bar Chart
Prabhanjan Halvegar	2306	Line Chart
Atharv Gawas	2313	Dot Chart
Aarchi Teli	2318	Histogram
Sarvadhnya Patil	2321	Bar Chart
Harsh Palyekar	2329	Scatter Chart

2 Dataset Description

The **airquality** dataset contains daily air quality measurements in New York from May–September 1973. Variables include:

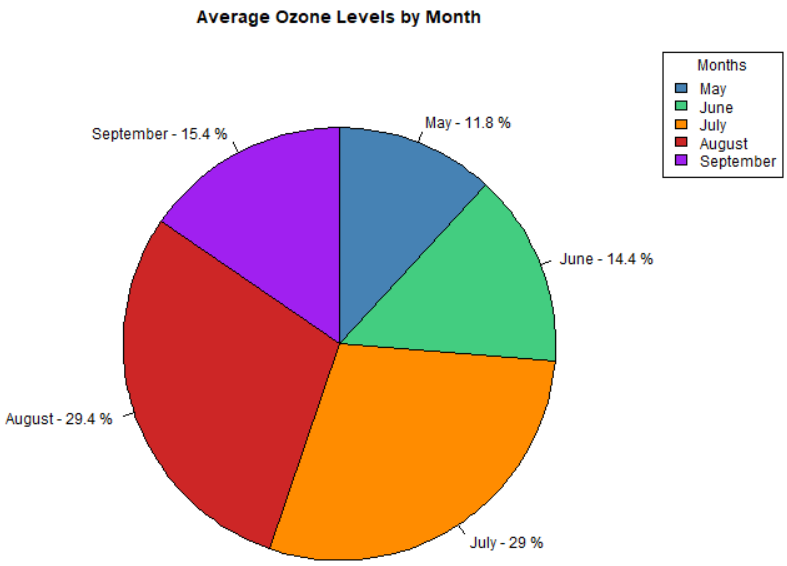
Variable	Description
Ozone	Ozone concentration (ppb)
Solar.R	Solar Radiation (lang)
Wind	Wind speed (mph)
Temp	Temperature (°F)
Month	Month of measurement
Day	Day of measurement

3 Project Overview

This collaborative lab demonstrates **multiple R visualization techniques**.
Each team member contributed one unique visualization.
All plots were saved in the `images/` folder and are displayed below with explanations.

4 Visualizations

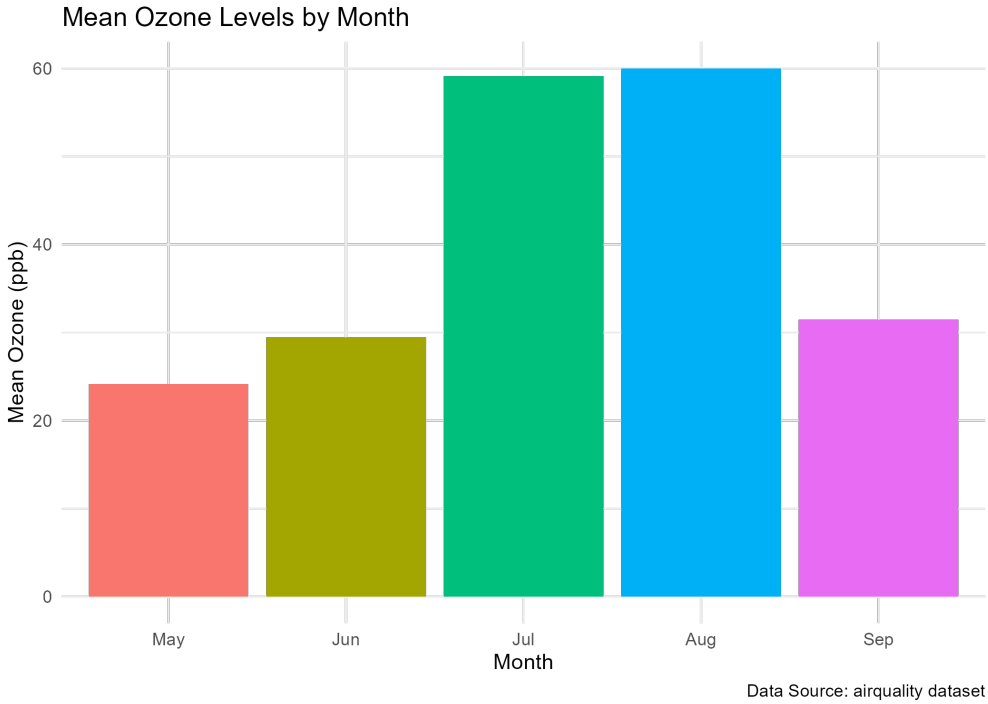
4.1 1. Pie Chart – *Esha Kambli (2301)*



Explanation:
- Shows the percentage contribution of **average Ozone levels by month**.

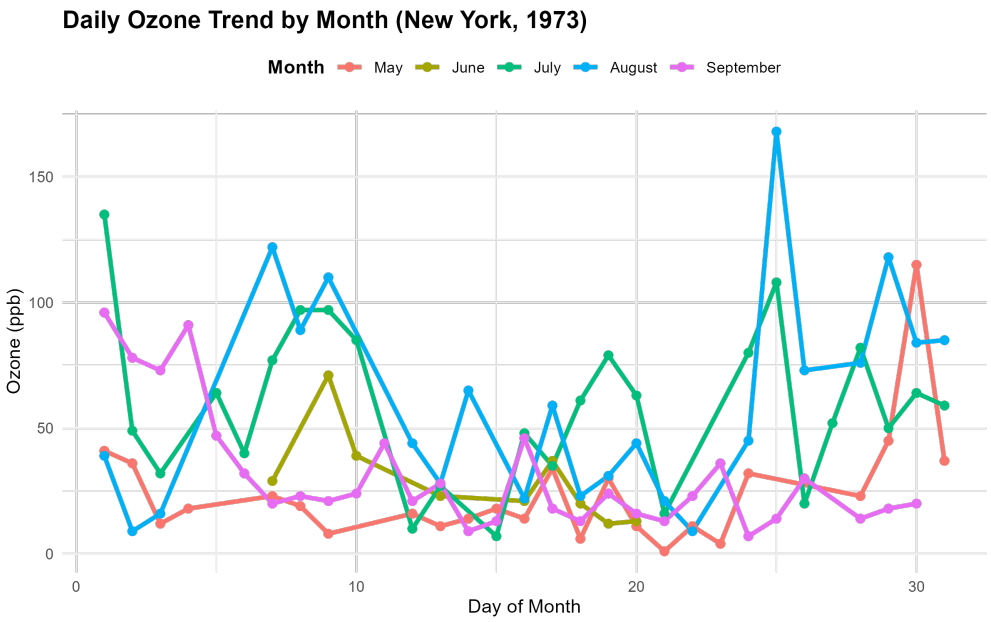
- Highlights which month had the highest ozone concentration.
- Uses a custom color palette for clarity.

4.2 2. Bar Chart – *Sarvadhnya Patil (2321)*



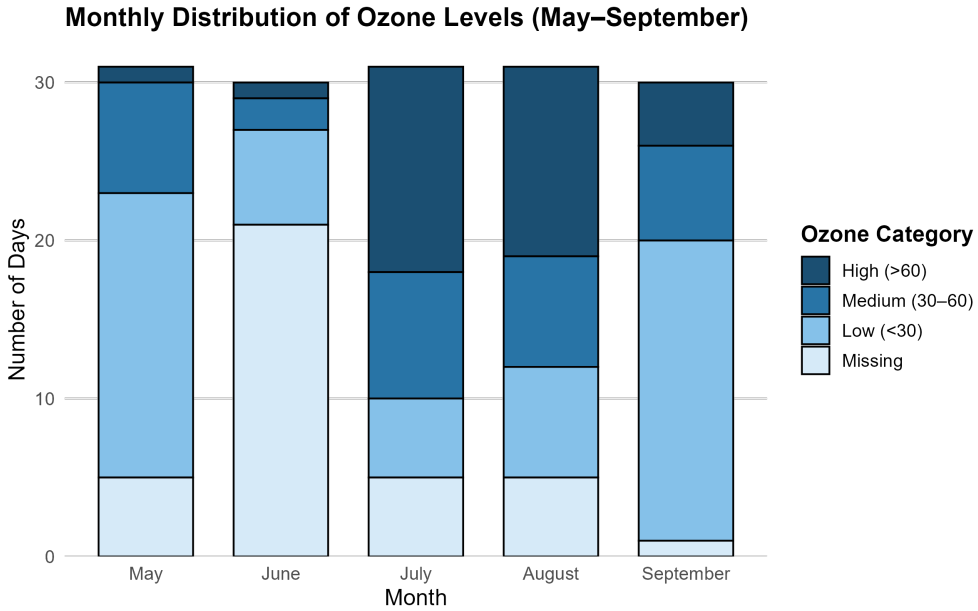
Explanation:
- Bar chart of **mean Ozone levels across months**.
- Includes legends, axis labels, and title.
- Highlights monthly comparisons of ozone concentrations.

4.3 3. Line Chart – *Prabhanjan Halvegar (2306)*



Explanation:
- Shows **daily Ozone trend by month**.
- Allows observing fluctuations over days and identifying patterns.
- Lines are color-coded by month for better visual distinction.

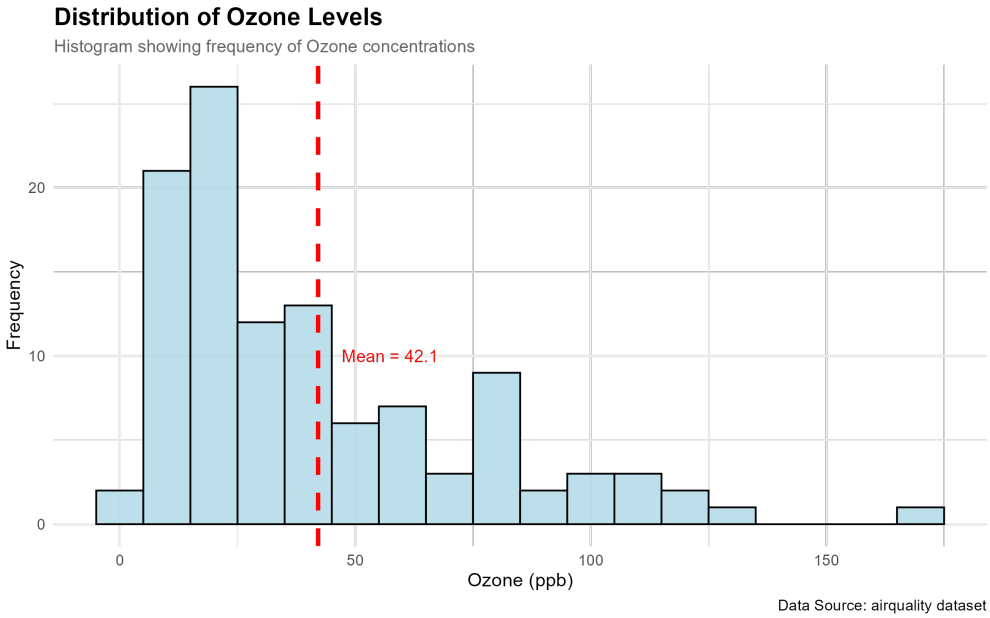
4.4 4. Stacked Bar Chart – *Sahil Gaonkar (2305)*



Explanation:
- Displays **number of days per month in different Ozone categories**: Low, Medium, High, Missing.

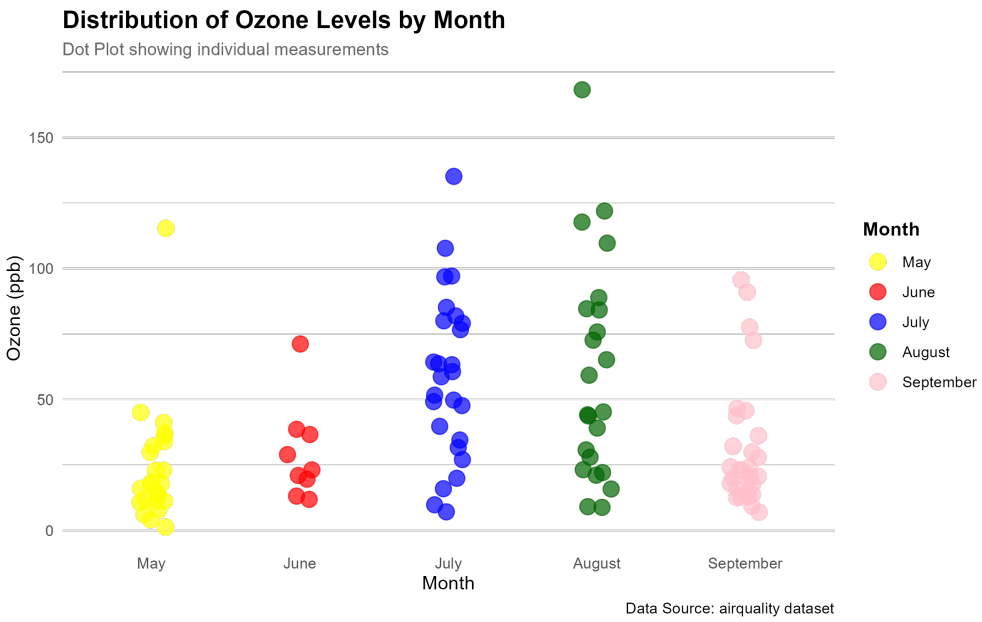
- Stacked bars make it easy to compare categories across months.
- Color gradient helps visually distinguish ozone levels.

4.5 5. Histogram – *Aarchi Teli (2318)*



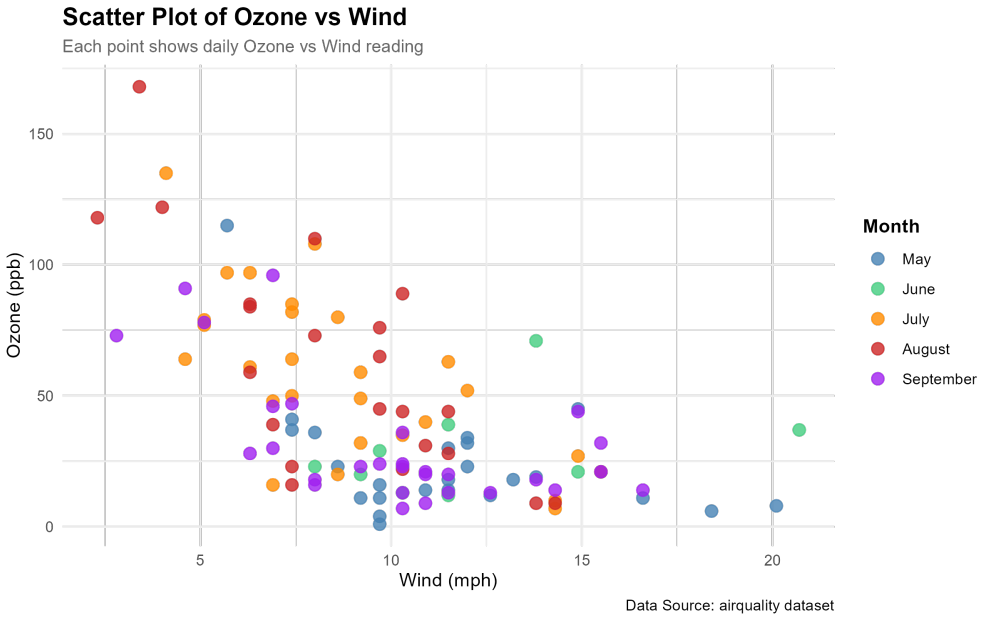
Explanation:
- Histogram shows **frequency distribution of Ozone levels**.
- Red dashed line marks the **mean Ozone level**.
- Helps to identify the distribution pattern and outliers.

4.6 6. Dot Chart – *Atharv Gawas (2313)*



Explanation:
- Displays **individual Ozone measurements for each month**.
- Uses jitter to avoid overlap of points.
- Helps observe variability within months.

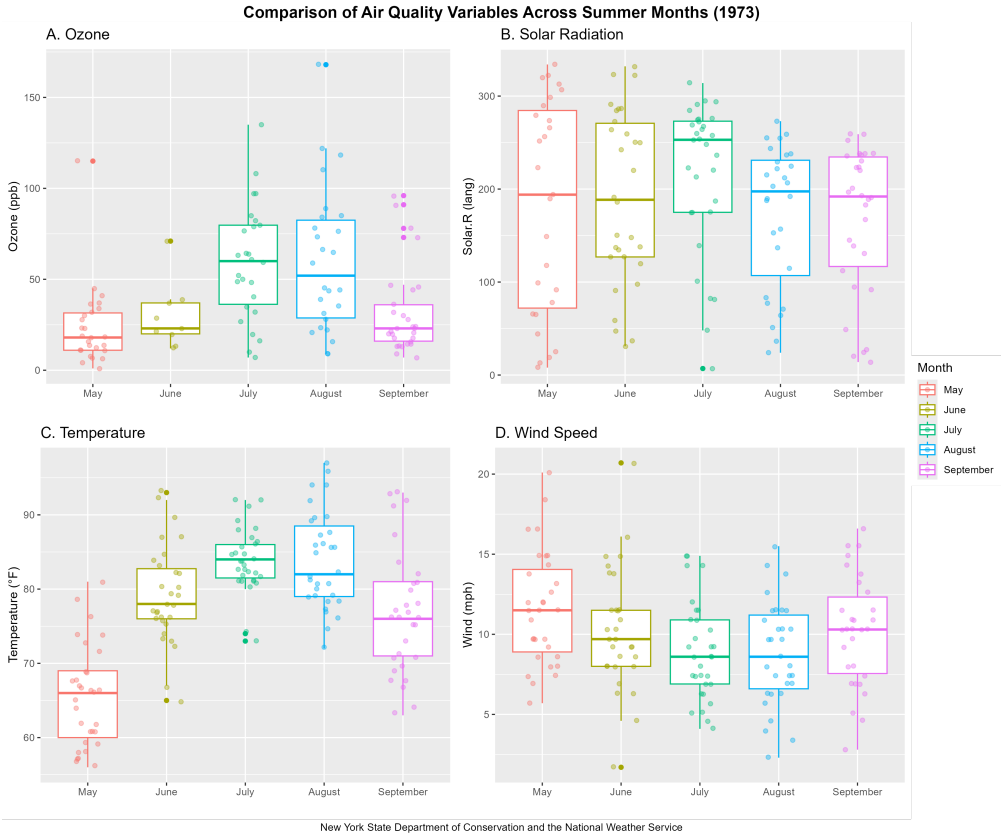
4.7 7. Scatter Chart – *Harsh Palyekar (2329)*



Explanation:
- Scatter plot of **Ozone vs Wind**.

- Points are color-coded by month.
- Allows seeing correlations between wind speed and ozone levels.

4.8 8. Box Plot – *Deversh Shetgaonkar (2302)*



Explanation:
- 4-panel boxplots of Ozone, Solar.R, Temp, Wind across months.
- Includes **jittered points** for transparency.
- Useful for comparing distributions and identifying outliers.

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5 Conclusion

The **airquality dataset** provides insights into New York's atmospheric conditions during May–September 1973.
Each visualization offers a unique perspective:

- Monthly averages, distributions, and trends.
- Variability in measurements highlighted by dot and box plots.

- Comparative insights via bar, stacked, and line charts.

Submitted by:
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