

# Visualizing Data



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# Overview



Introduction

Types of Visualizations

Guidance

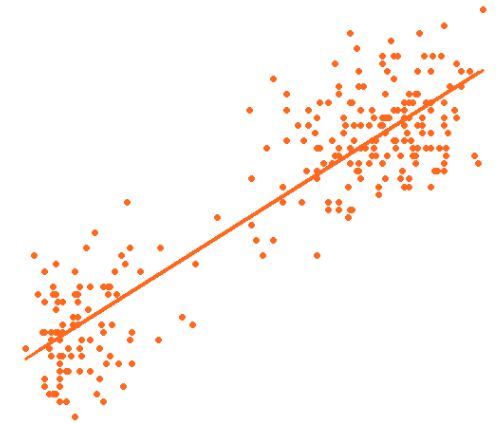
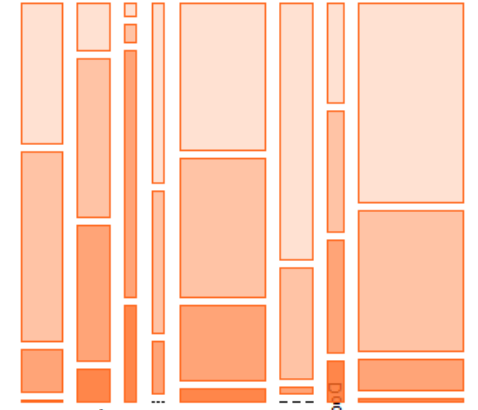
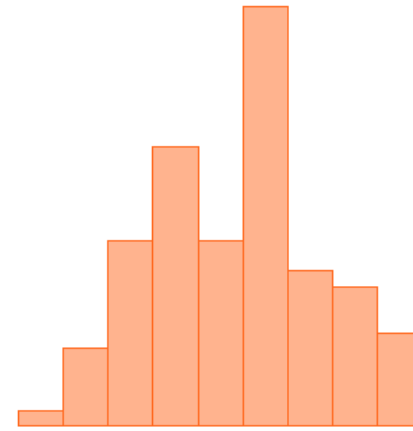
Demo

# Data Visualization

Visual representation

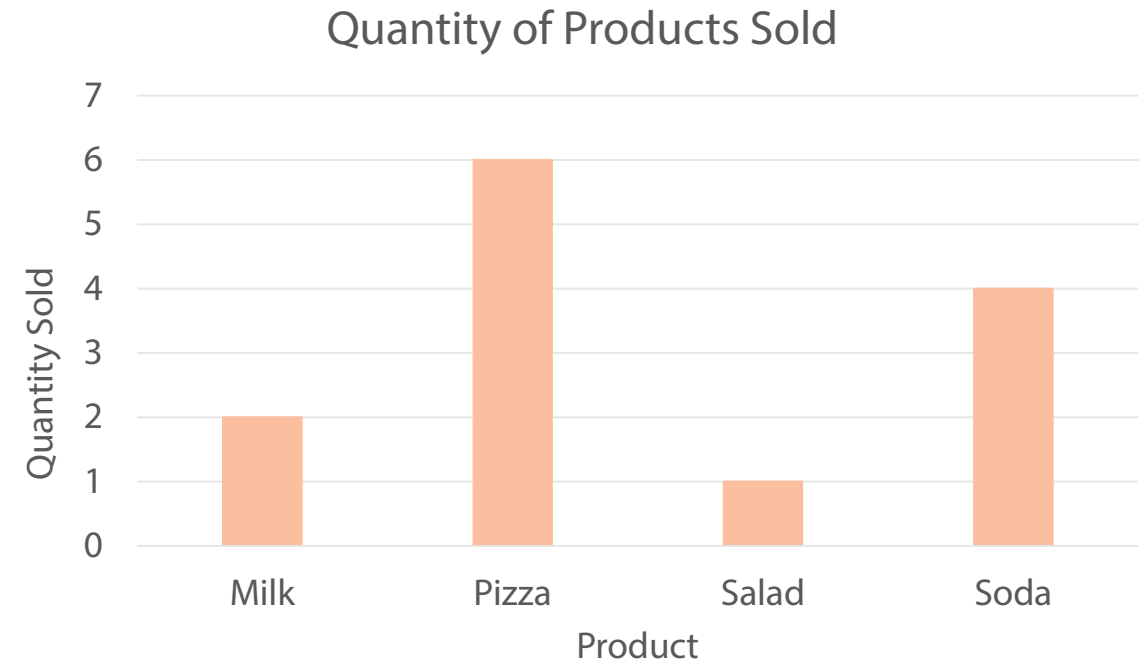
Human pattern recognition

Map dimensions of data  
to visual characteristics



# Data Visualization

ID	Date	Customer	Product	Quantity
1	2015-08-27	John	Pizza	2
2	2015-08-27	John	Soda	2
3	2015-08-27	Jill	Salad	1
4	2015-08-27	Jill	Milk	1
5	2015-08-28	Miko	Pizza	3
6	2015-08-28	Miko	Soda	2
7	2015-08-28	Sam	Pizza	1
8	2015-08-28	Sam	Milk	1



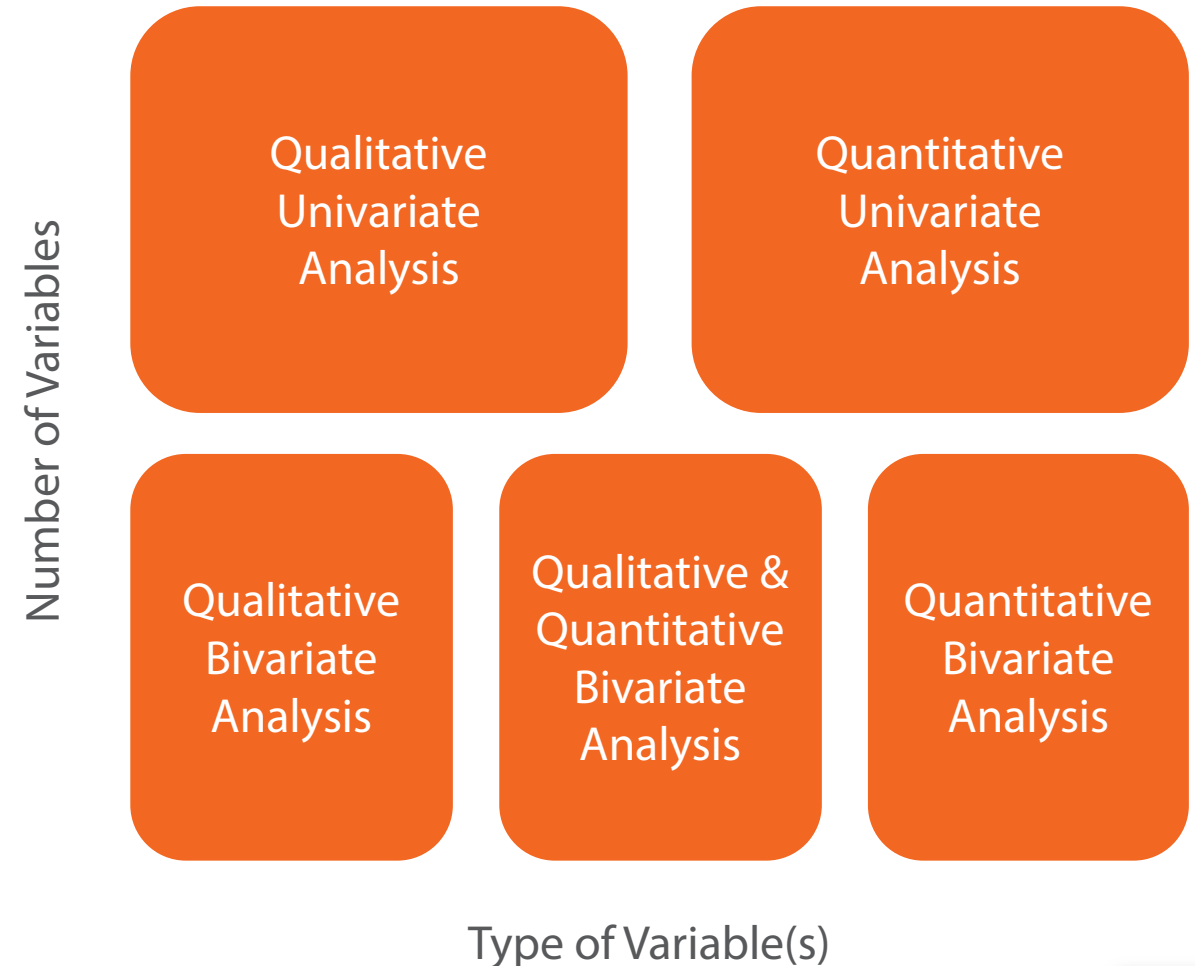
# Types of Visual Analysis

## Number of variables

- Univariate
- Bivariate

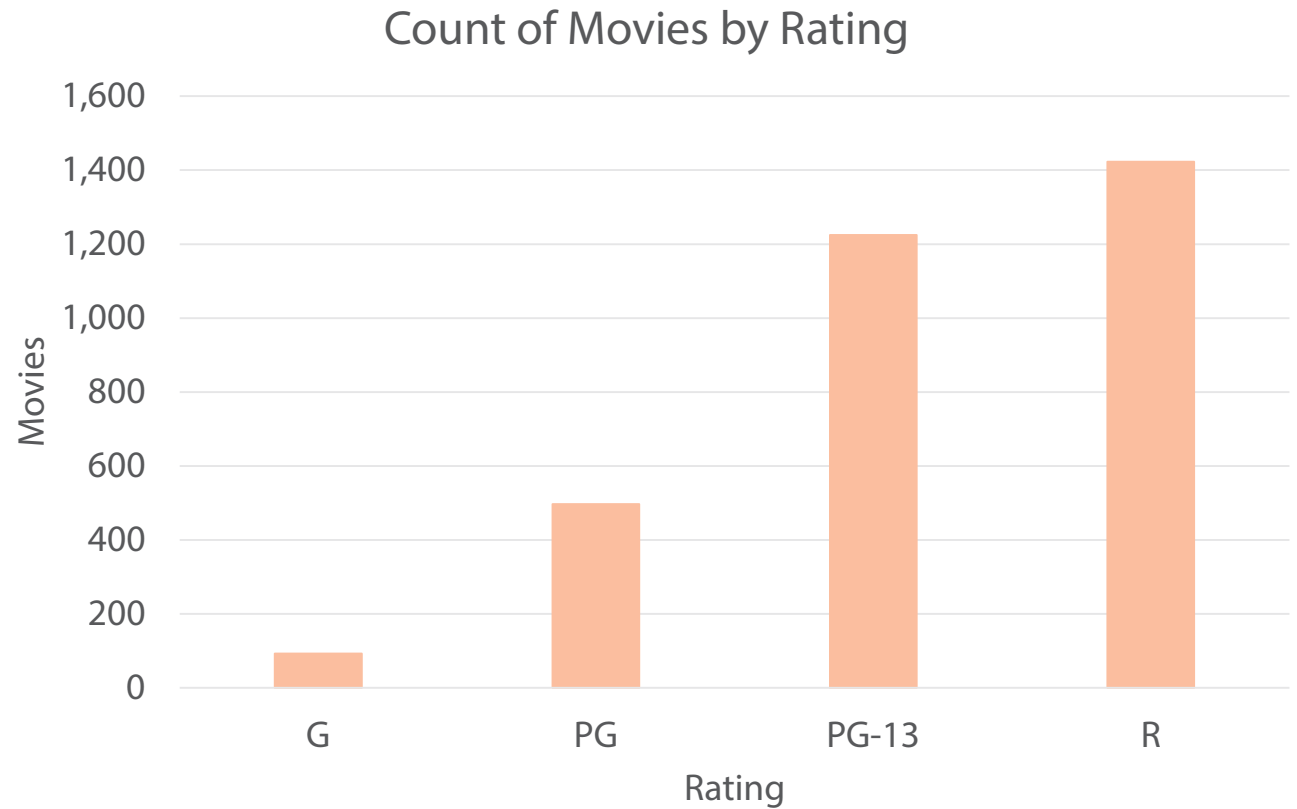
## Type of variables

- Qualitative
- Quantitative



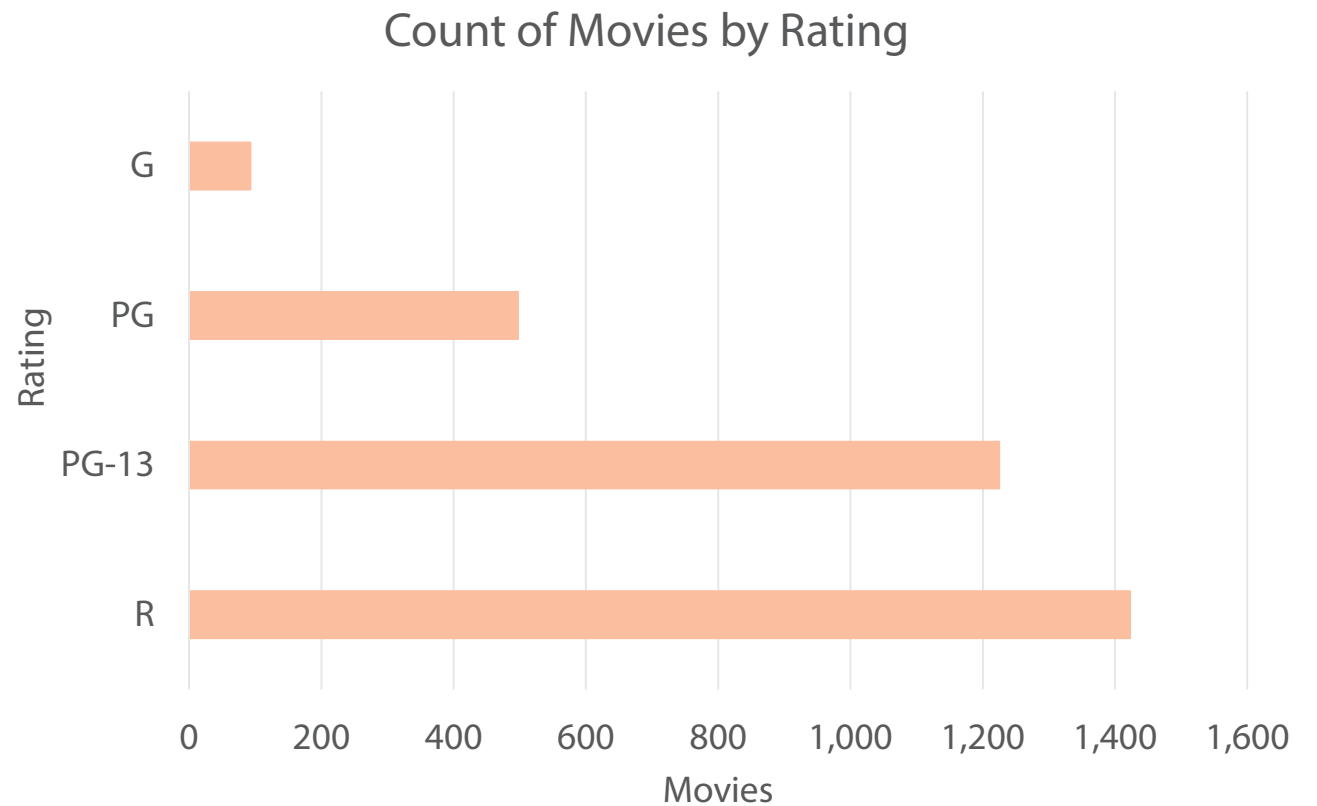
# Qualitative Univariate Analysis

Bar chart



# Qualitative Univariate Analysis

Bar chart

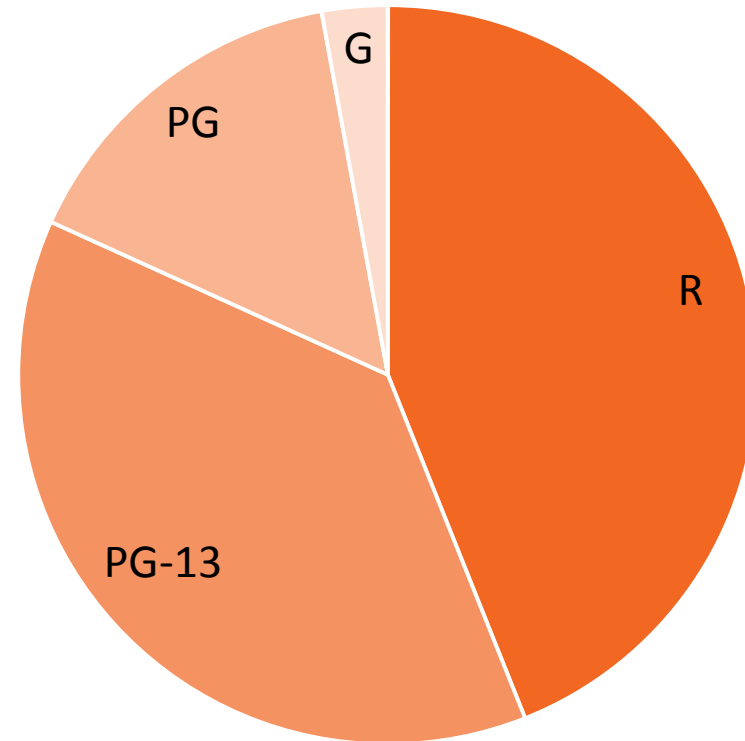


# Qualitative Univariate Analysis

Bar chart

Pie chart

Proportion of Movies by Rating



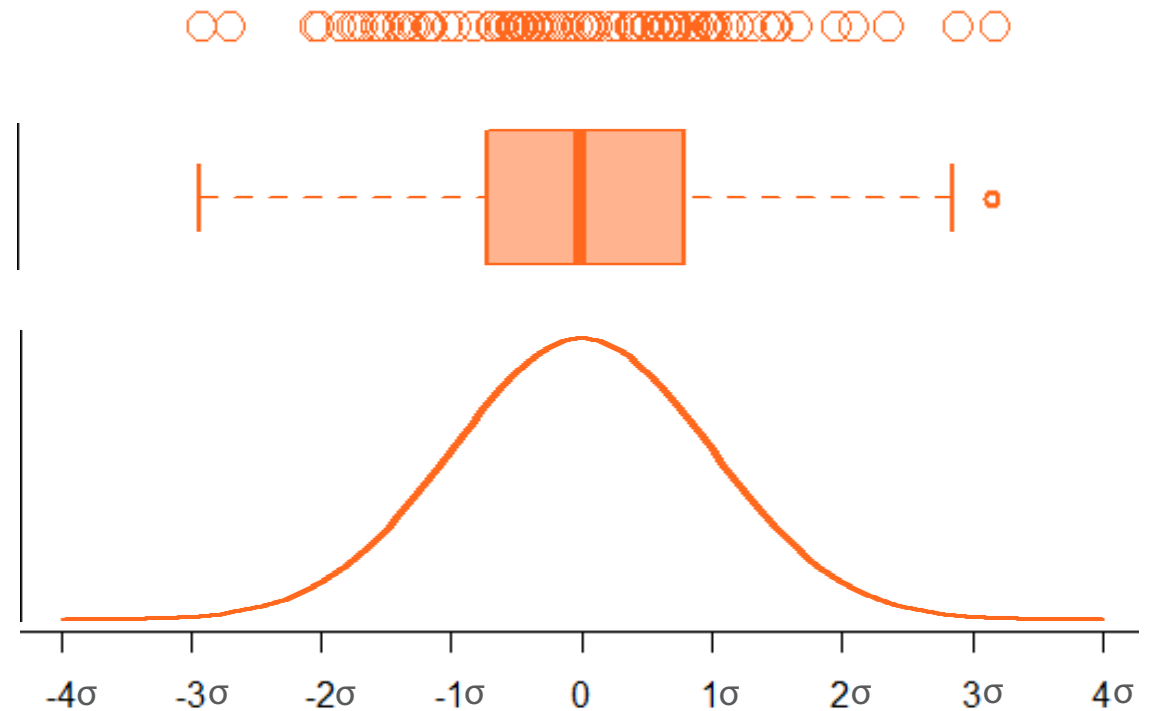


# Quantitative Univariate Analysis

Location

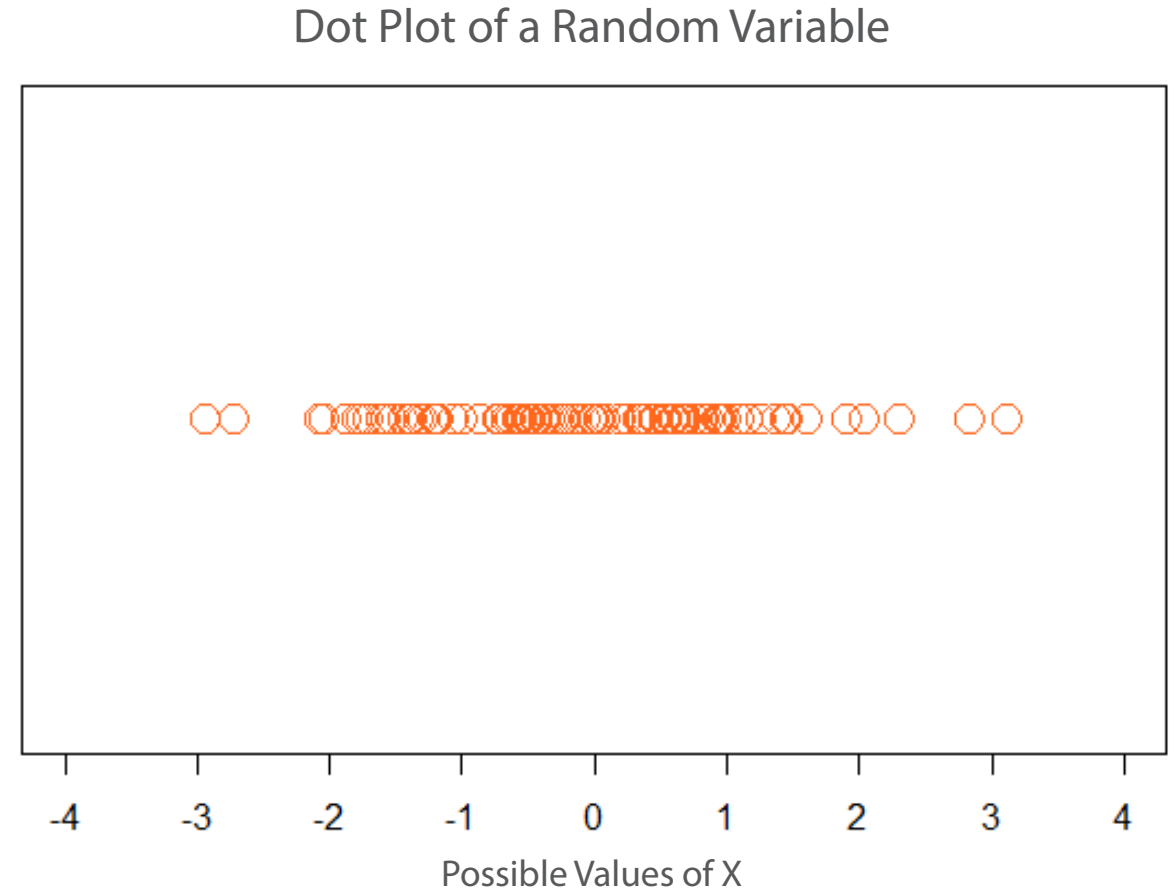
Spread

Shape



# Quantitative Univariate Analysis

Dot plot

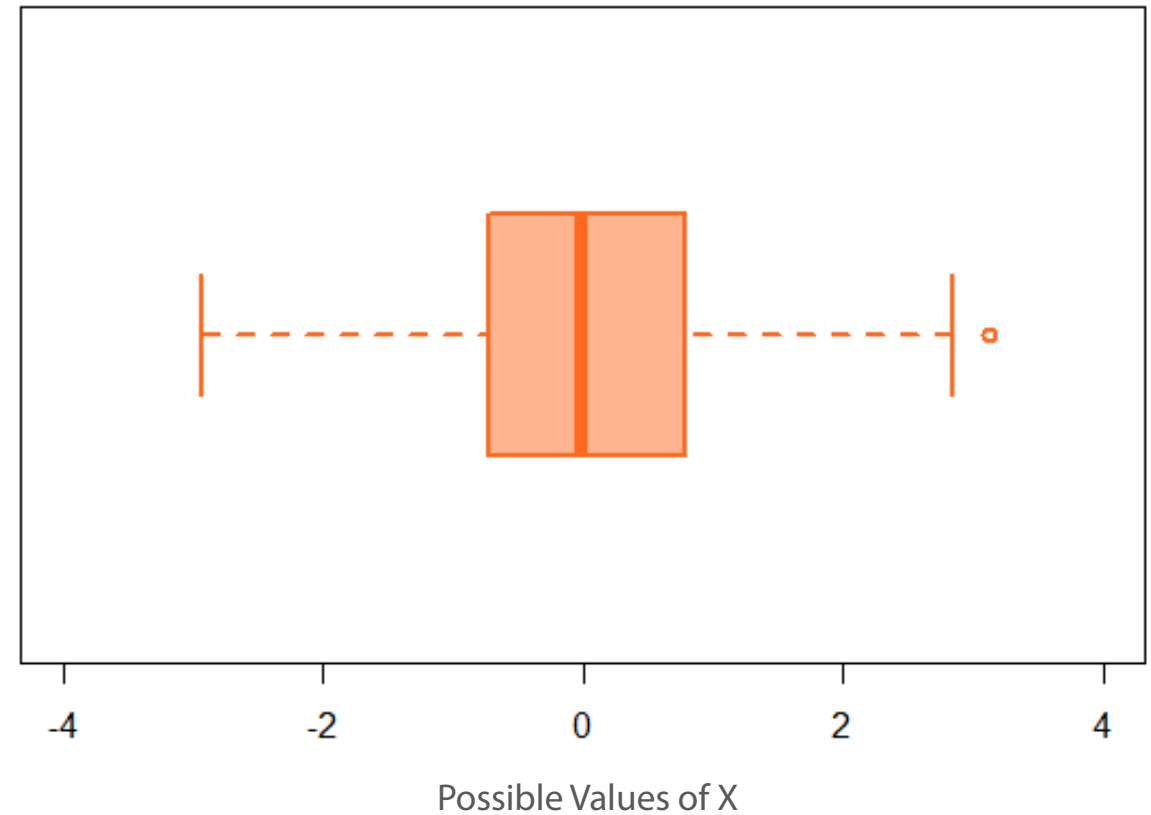


# Quantitative Univariate Analysis

Dot plot

Box plot

Box Plot of a Random Variable

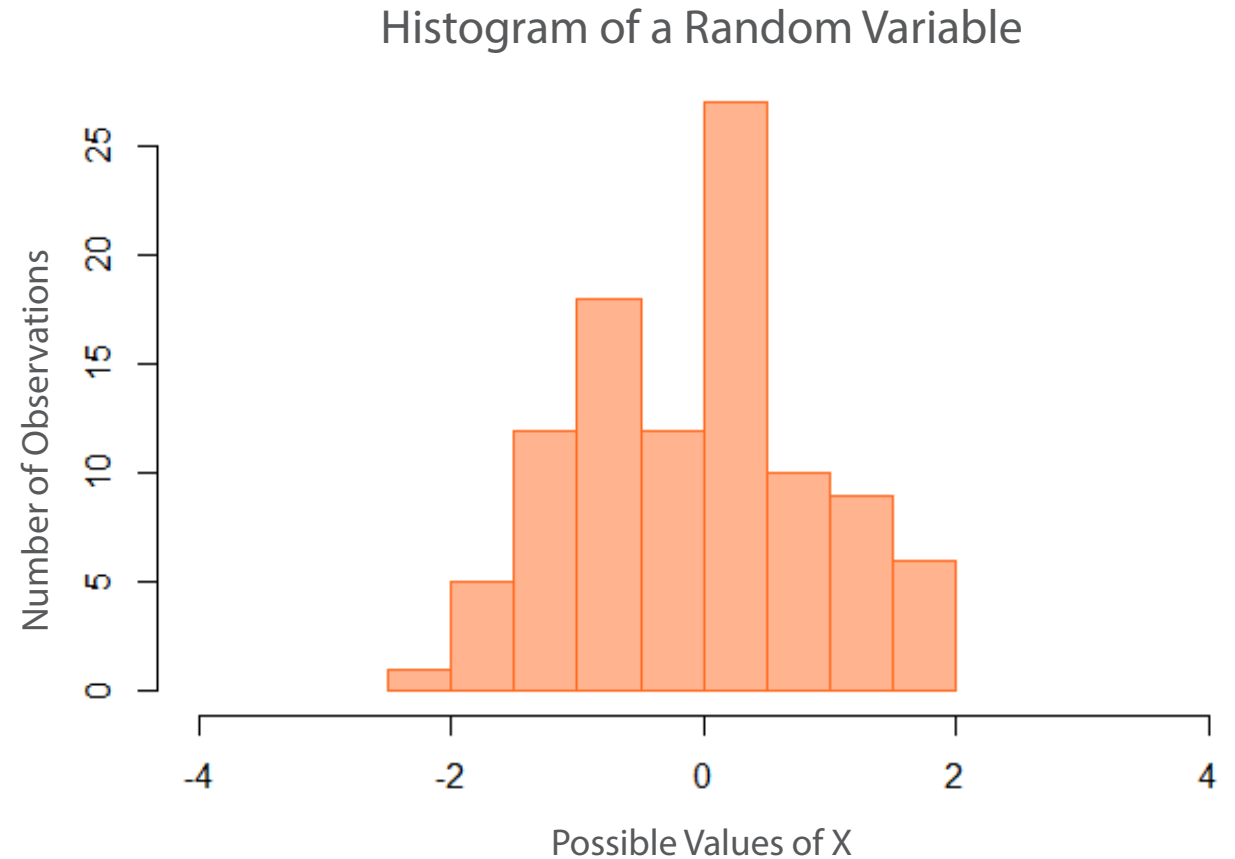


# Quantitative Univariate Analysis

Dot plot

Box plot

Histogram

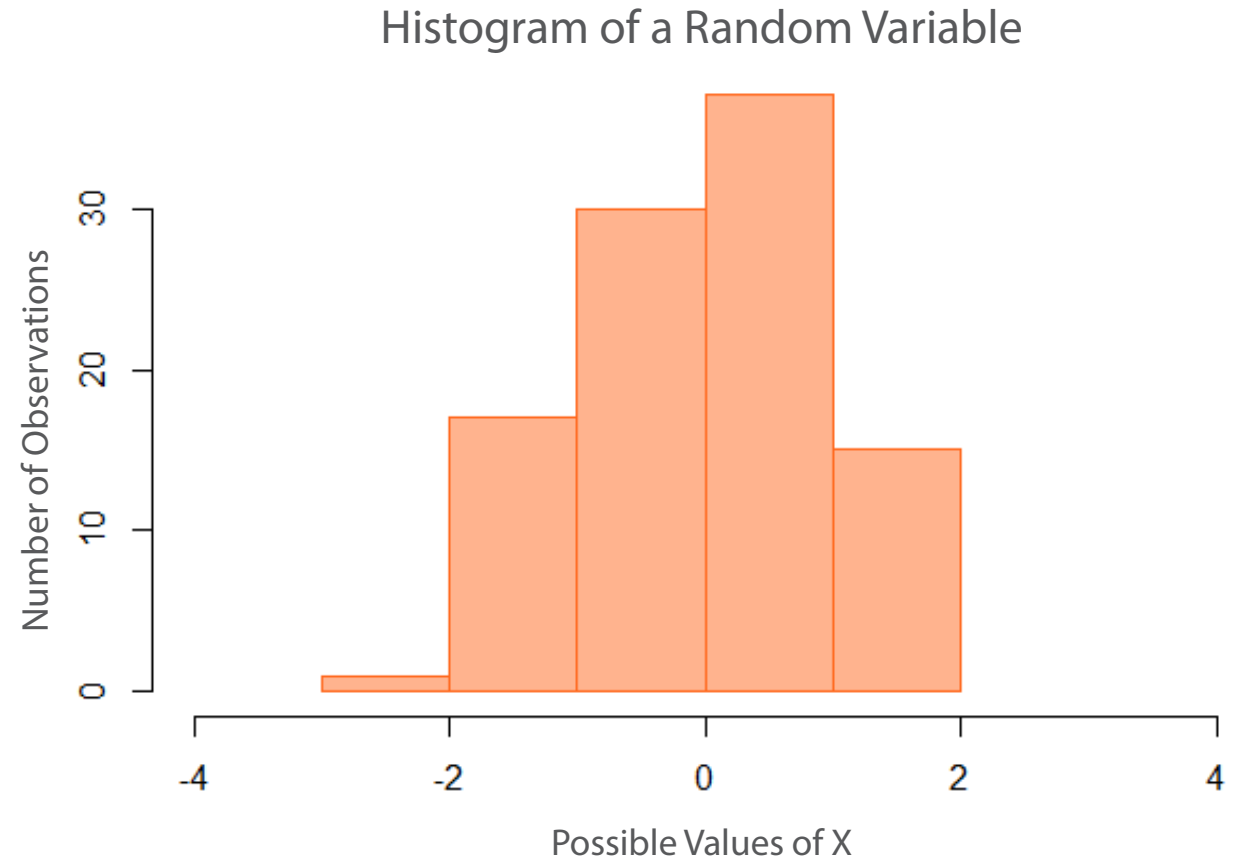


# Quantitative Univariate Analysis

Dot plot

Box plot

Histogram

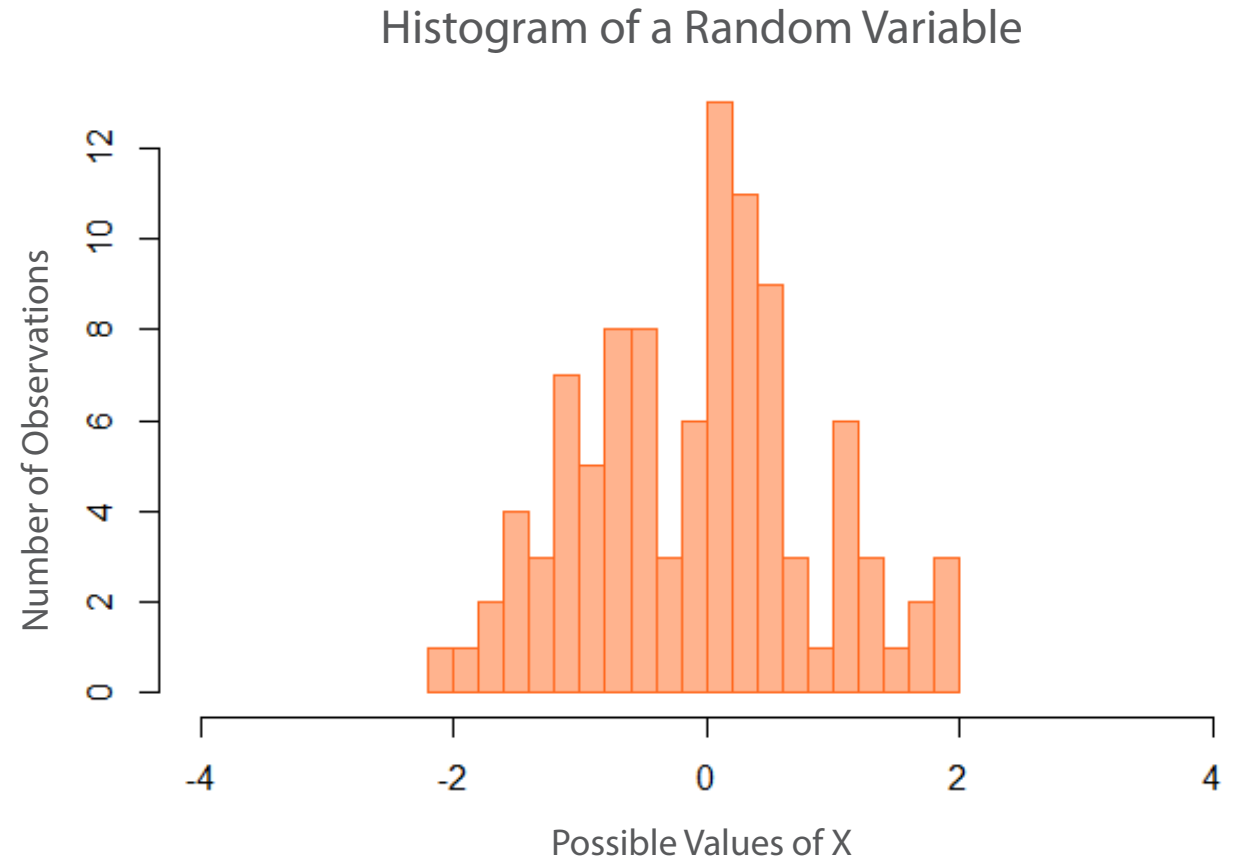


# Quantitative Univariate Analysis

Dot plot

Box plot

Histogram



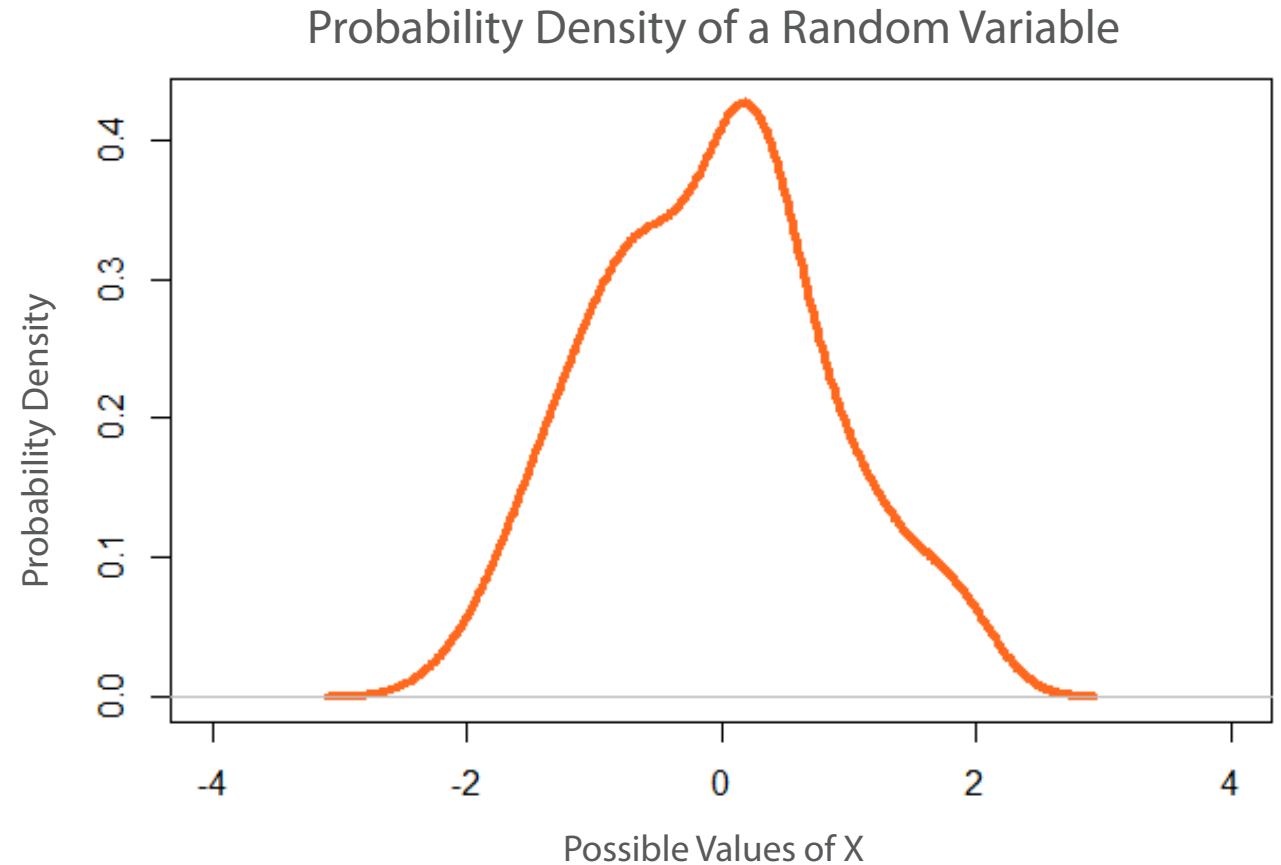
# Quantitative Univariate Analysis

Dot plot

Box plot

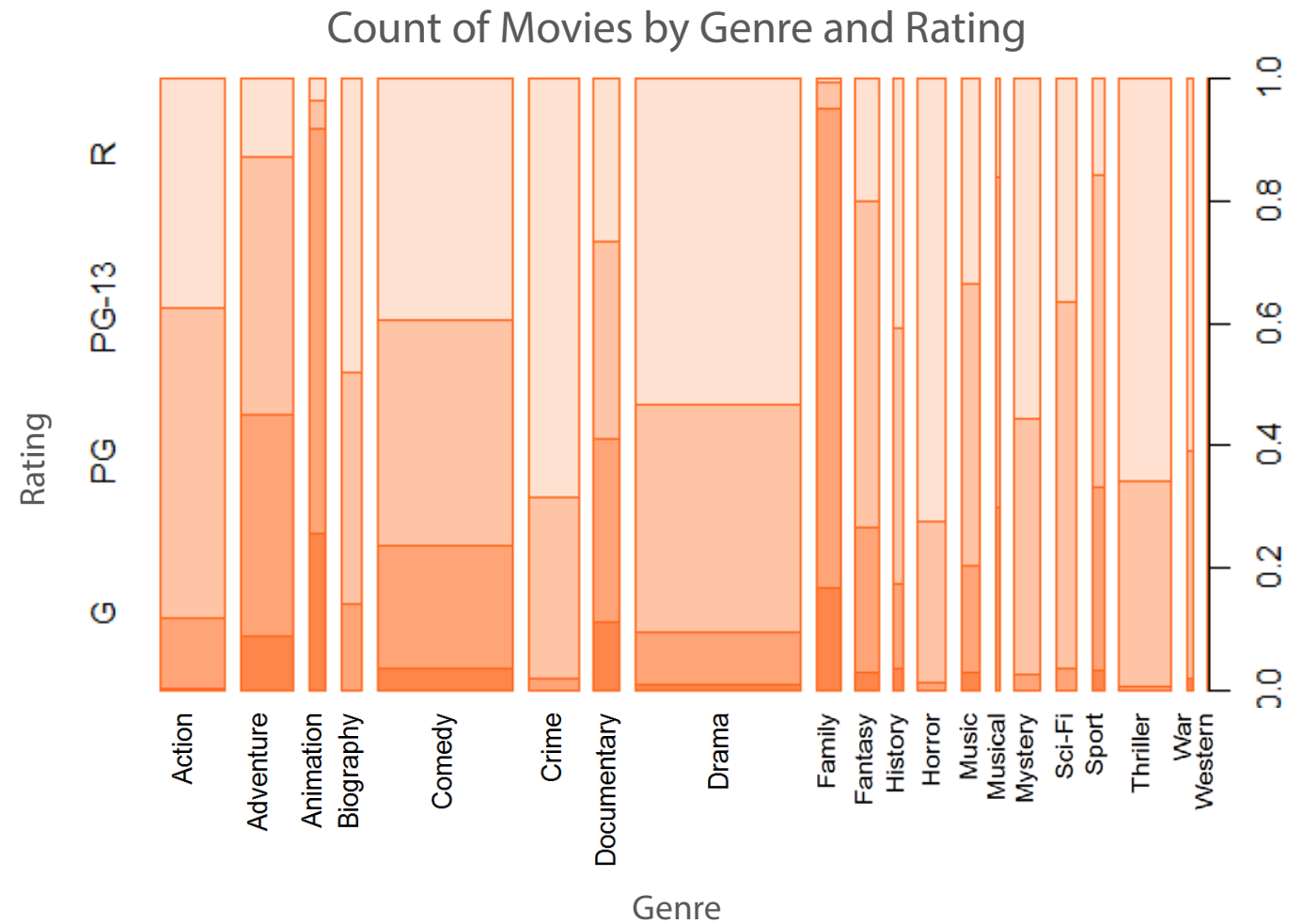
Histogram

Density plot



# Qualitative Bivariate Analysis

Spine plot

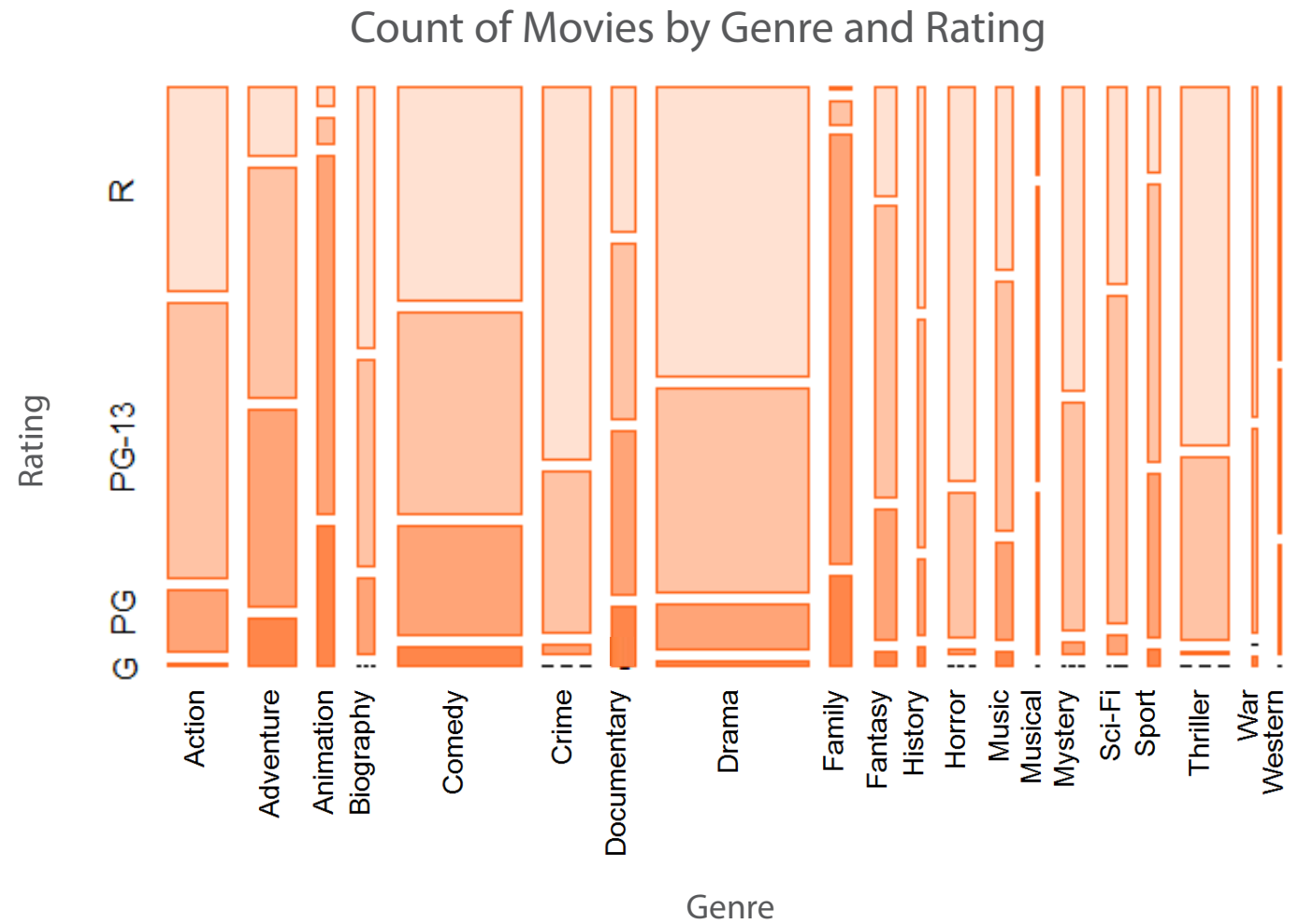




# Qualitative Bivariate Analysis

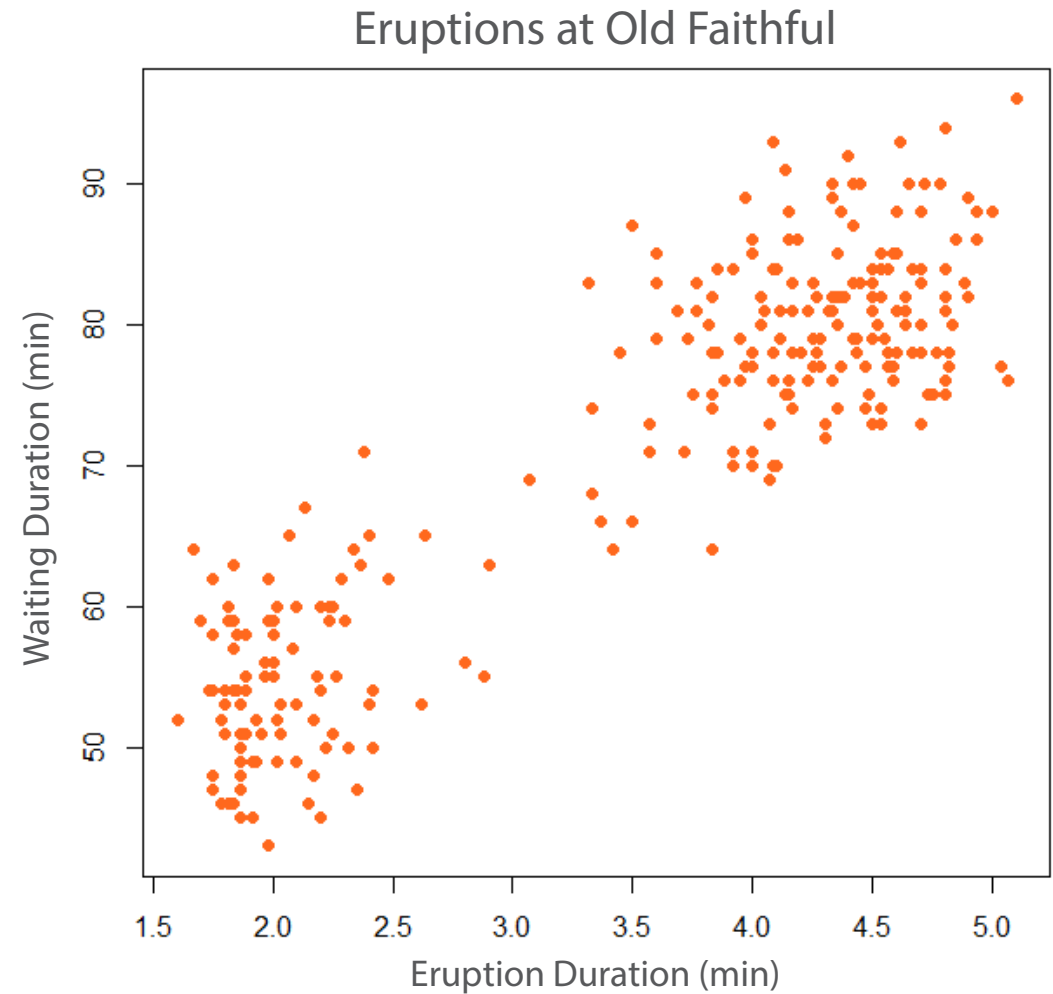
Spine plot

Mosaic plot



# Quantitative Bivariate Analysis

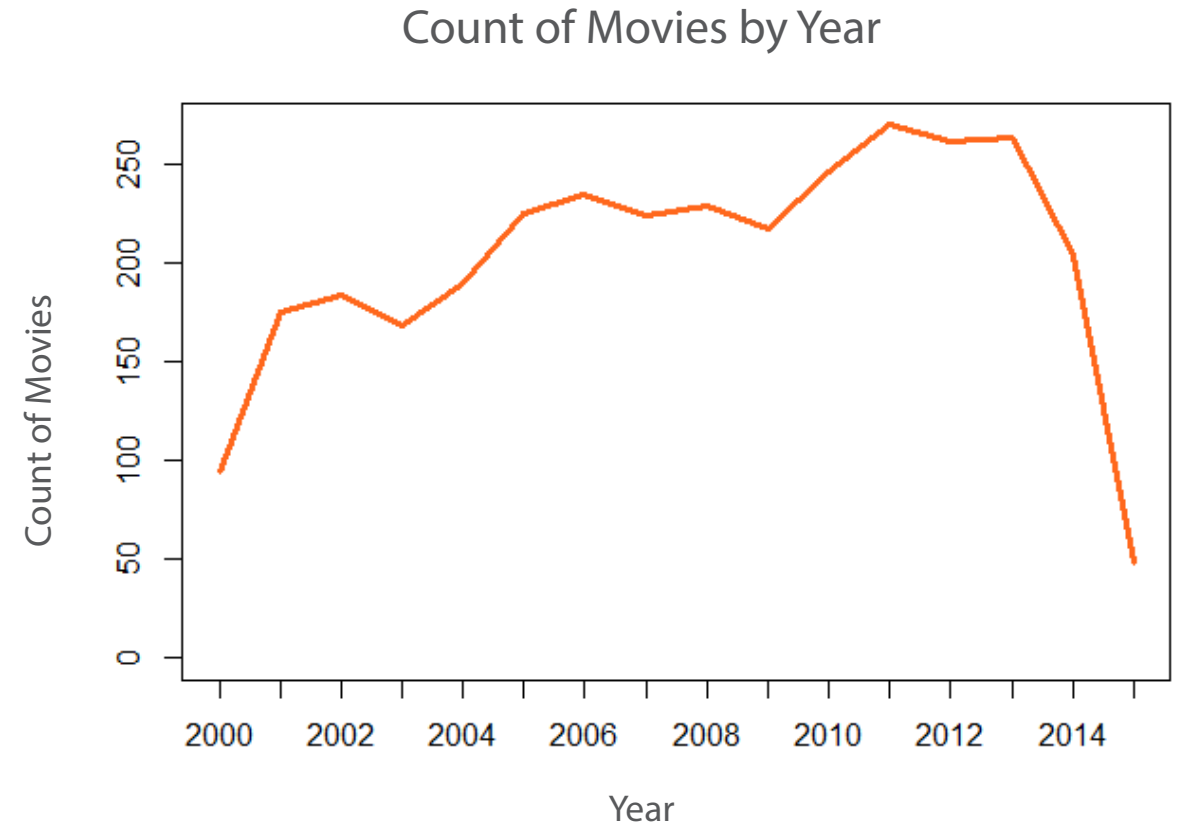
Scatterplot



# Quantitative Bivariate Analysis

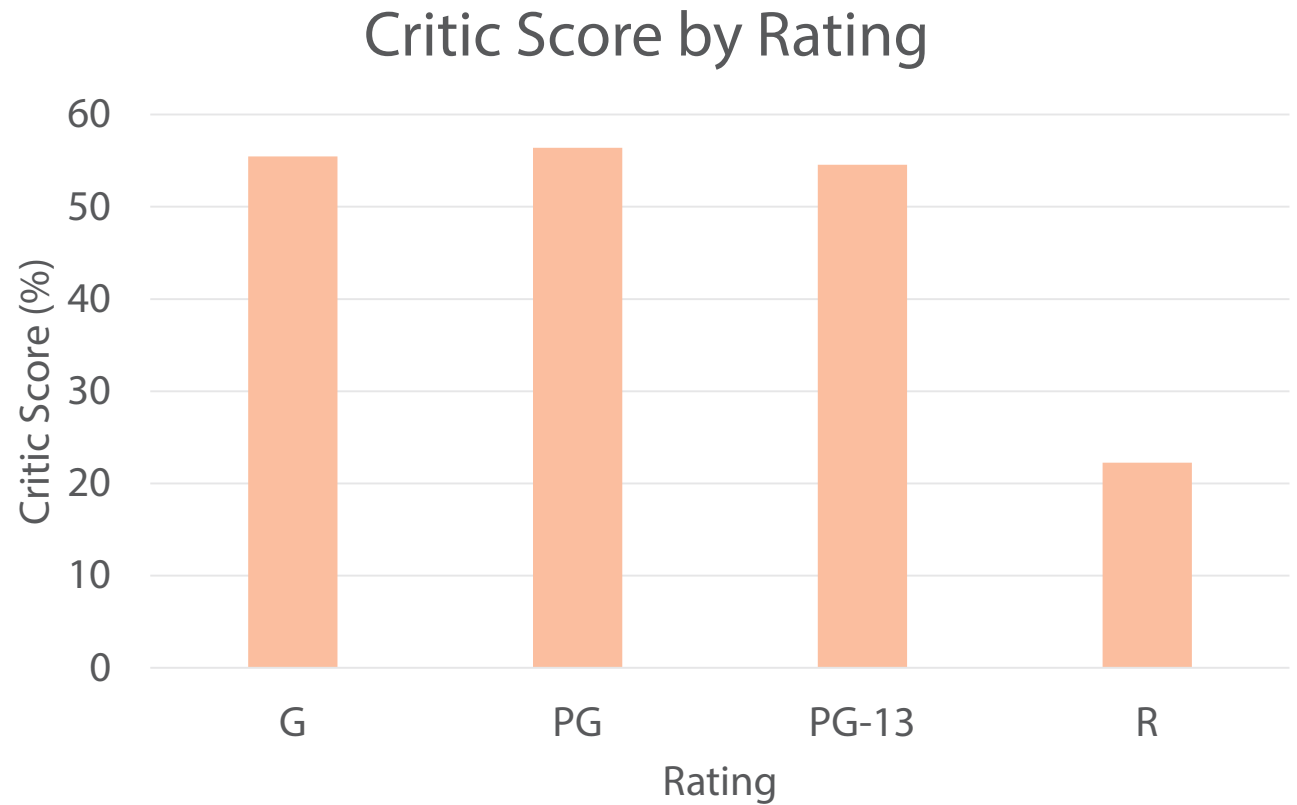
Scatterplot

Line graph



# Qualitative and Quantitative Bivariate Analysis

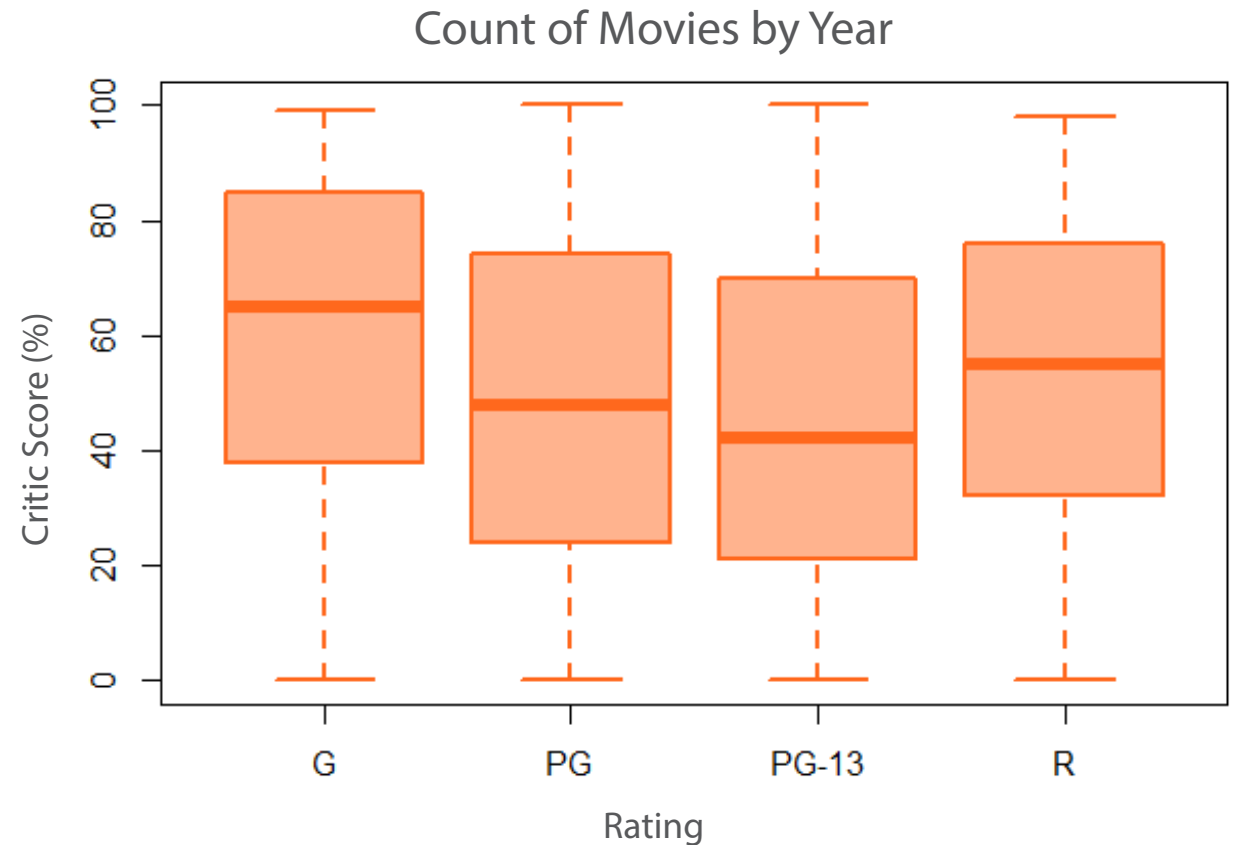
Bar chart



# Qualitative and Quantitative Bivariate Analysis

Bar chart

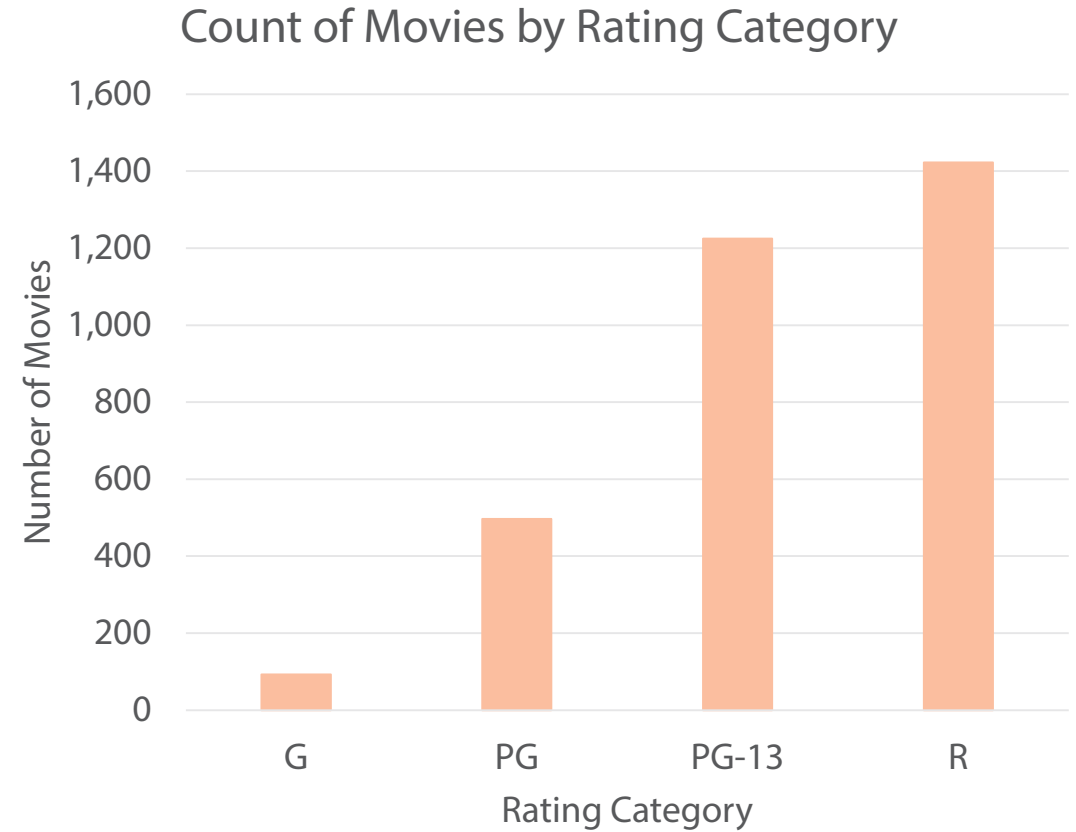
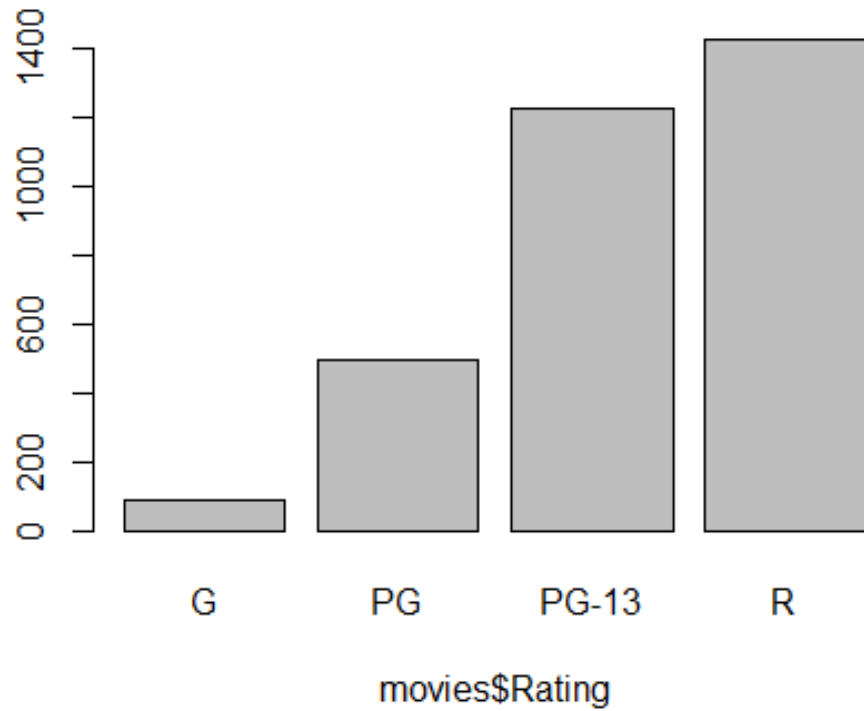
Multiple box plots



# Guidance

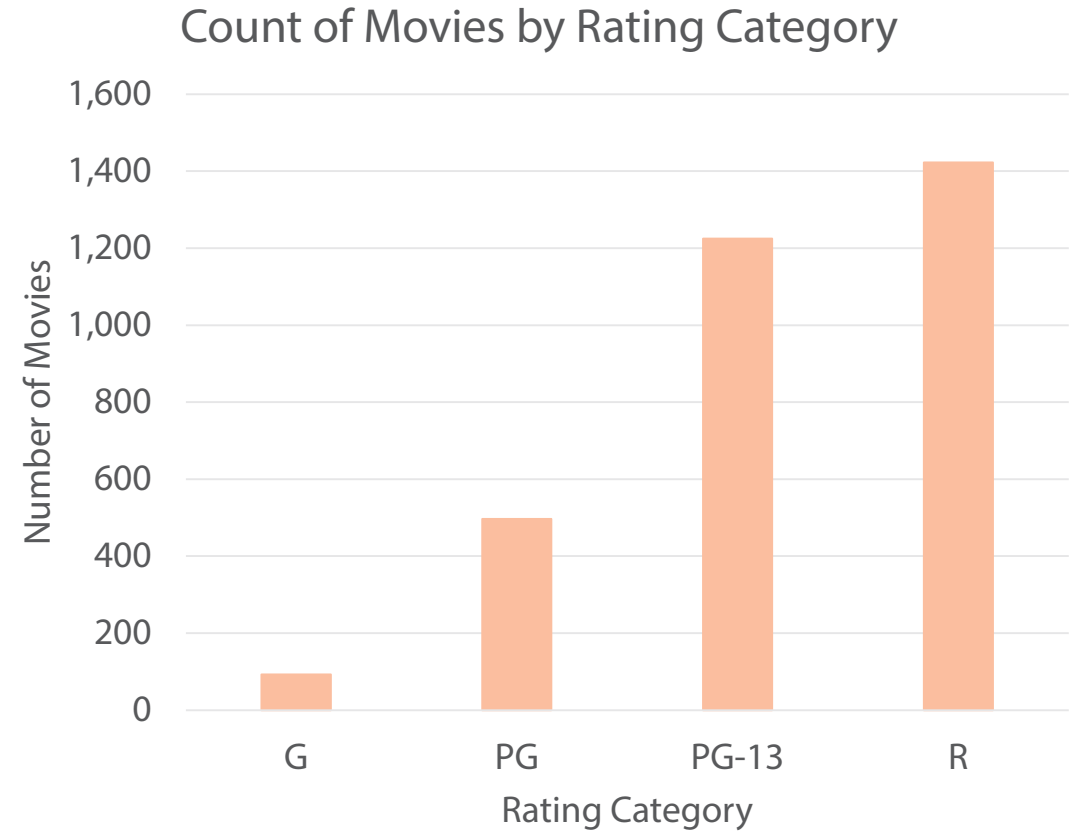


# Know Your Audience



# Start with a Question

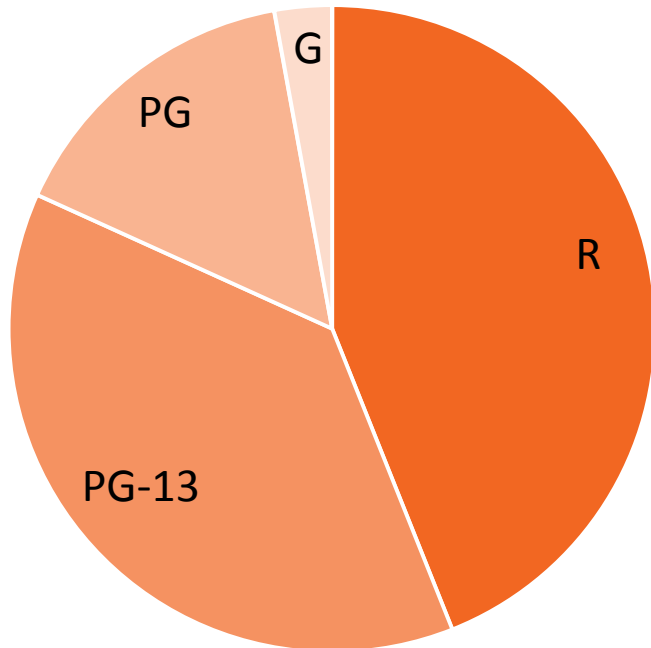
Which movie rating category had the most movies released from 2000 to 2015?



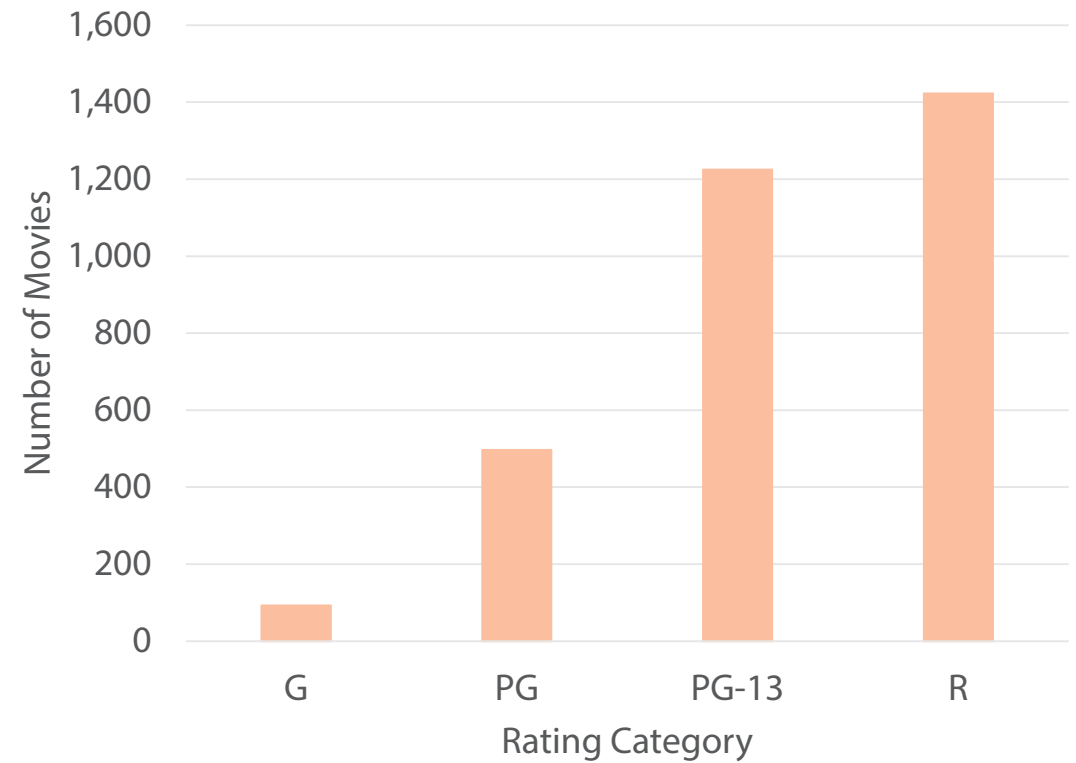


# Use the Right Tool for the Job

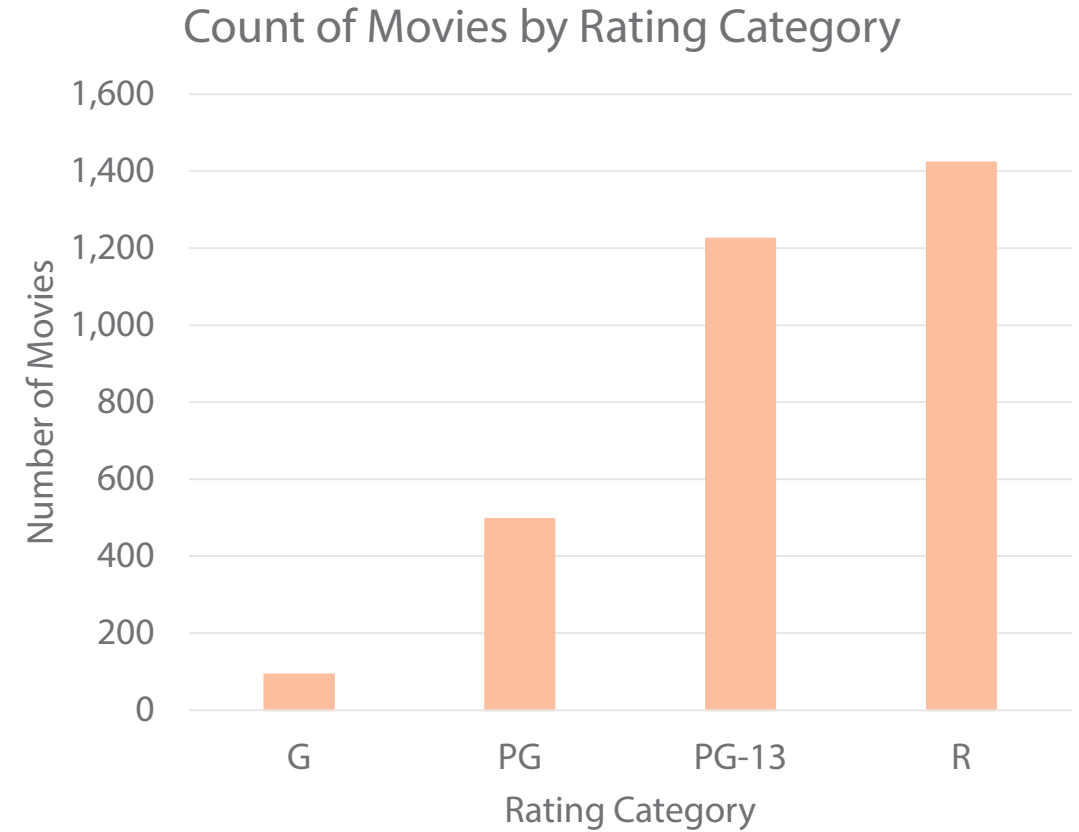
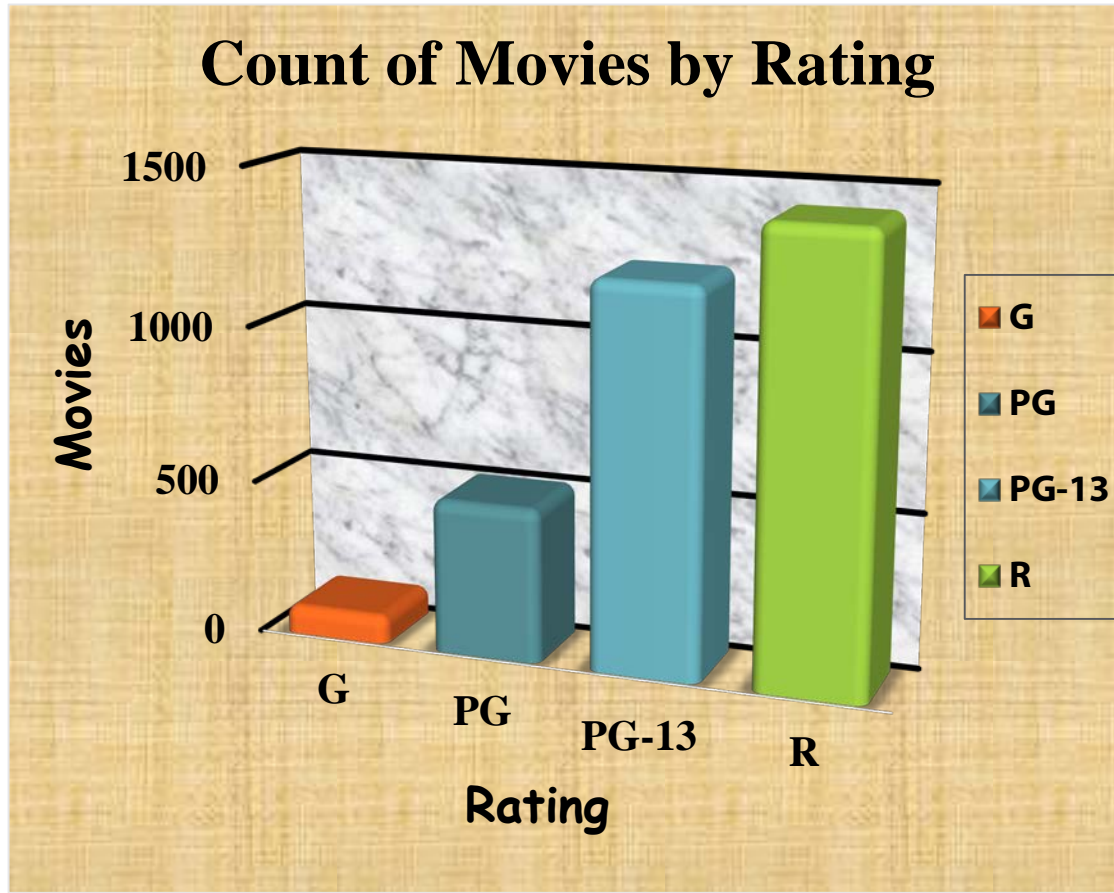
Proportion of Movies by Rating



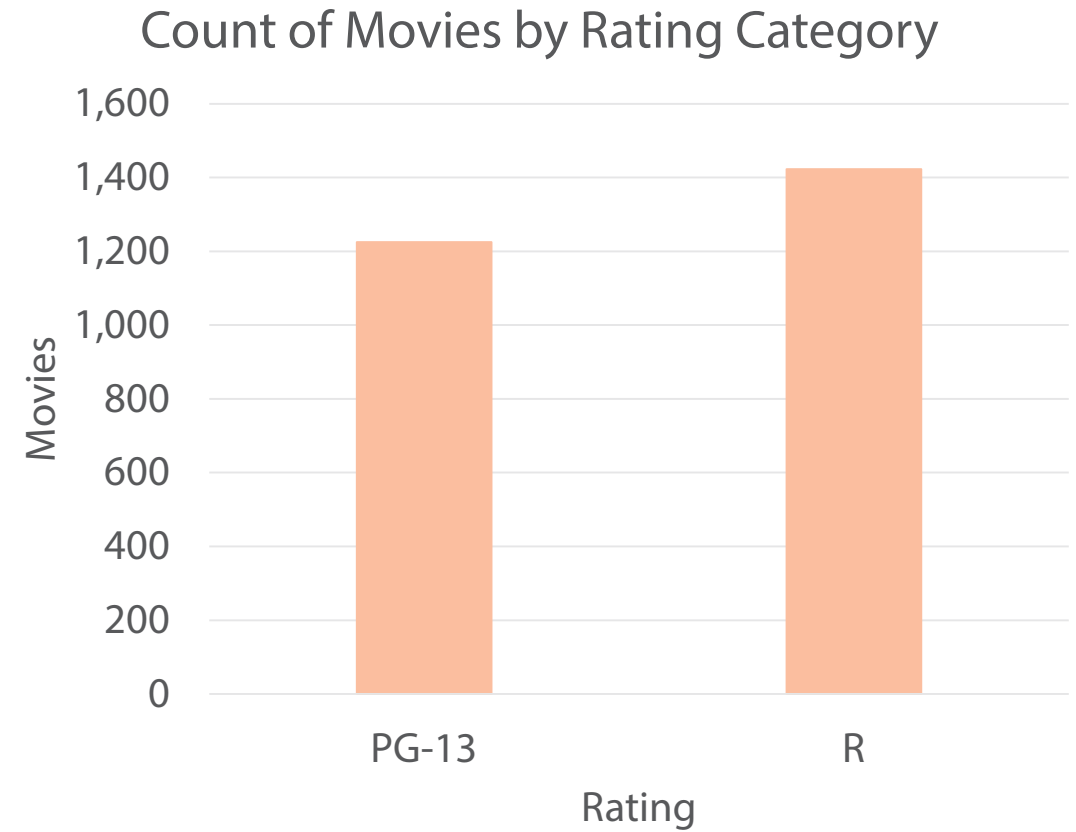
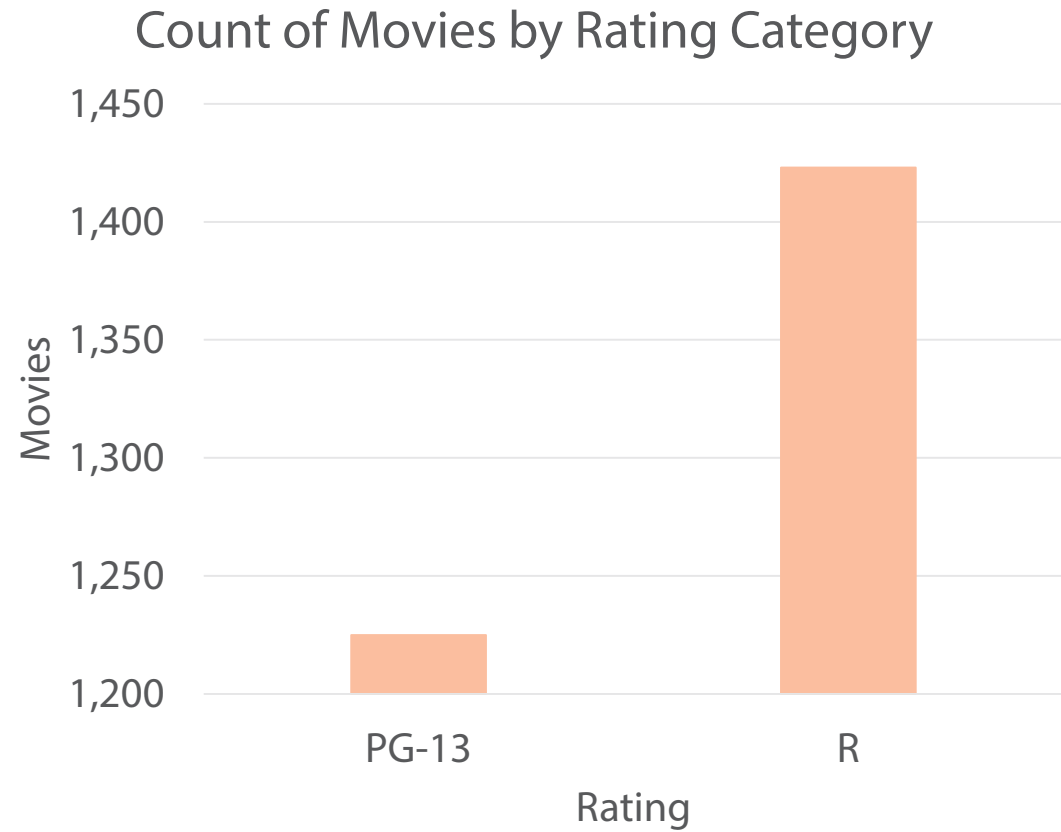
Count of Movies by Rating Category

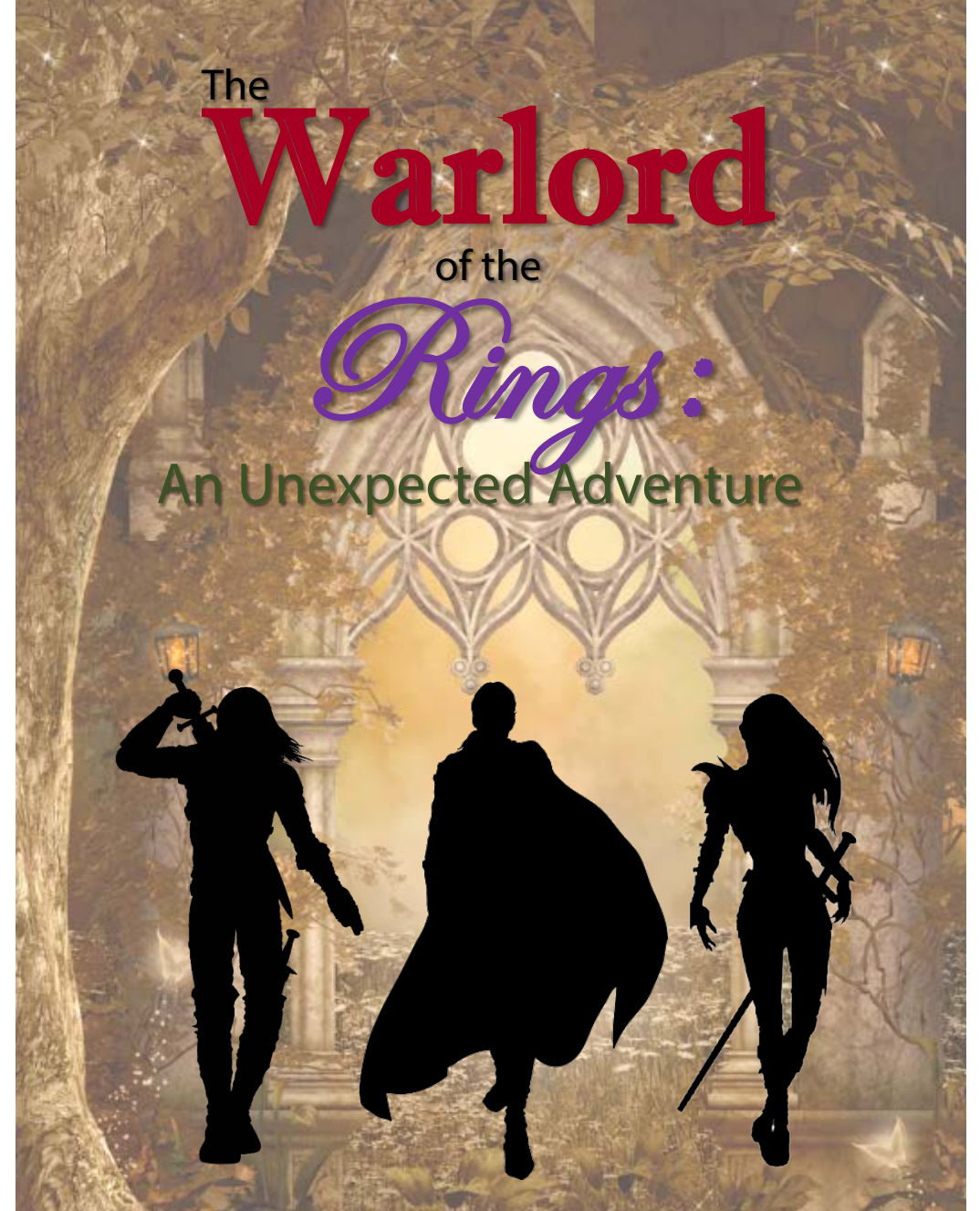


# Create Clean Data Visualizations



# Avoid Information Distortions





Feature Length

PG

ight

# Loading Data

# Inspect Data

# Univariate Quantitative Analysis (Box Plot)

# Univariate Quantitative Analysis (Pie Chart)



# Univariate Quantitative Analysis (Dot Plot)

# Univariate Quantitative Analysis (Box Plot)

# Univariate Quantitative Analysis (Histogram)

# Univariate Quantitative Analysis (Density Plot)

# Bivariate Qualitative Analysis (Spine Plot)

# Bivariate Qualitative Analysis (Mosaic Plot)

# Bivariate Qualitative Analysis (Scatterplot)

# Bivariate Qualitative Analysis (Line Graph)



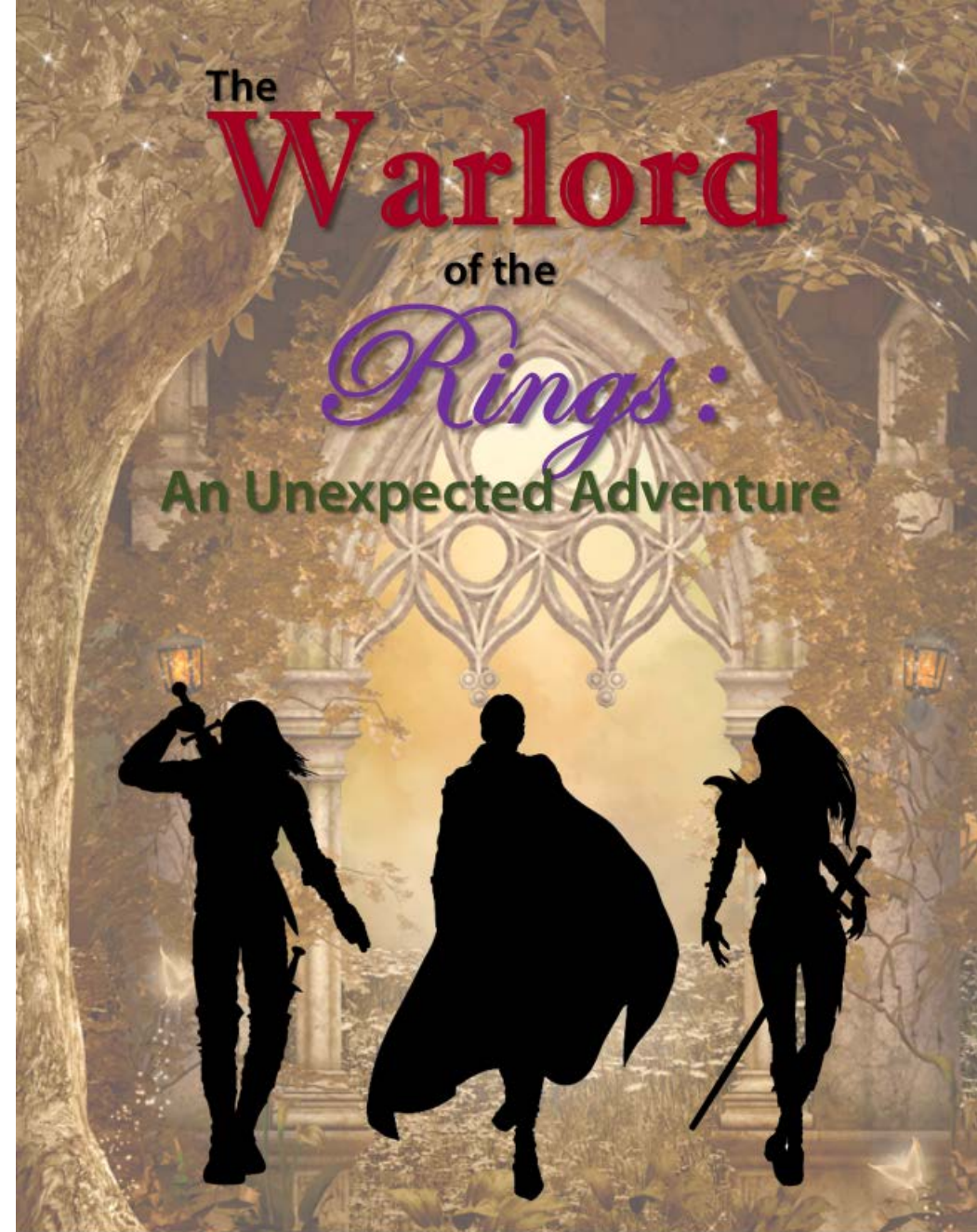
# Bivariate Qualitative and Quantitative Analysis (Bar Graph)

# Bivariate Qualitative and Quantitative Analysis (Bar Graph)

# Summarize a Table (Scatter Plot Matrix)

# Cleaning up Data Visualizations

NOTE: Create Linear Models of Scatterplots for  
slope of line in callouts



Feature Length

PG ght

# Summary

Introduction

Types of Visualizations

Guidance

Demo

