Tutorial # 1_1
Software: Minitab Statistical Software

- Version: Any version from Minitab 17 and later
- Skill Level: Beginner
- Topic: Descriptive Statistics (Graphical Summeries of Categorical Data)

Example Dataset: Customer Feedback Survey

This is a simple dataset from a customer satisfaction survey. The data includes responses from 20 customers.

Customer_ID	Gender	Region	Satisfaction_Level
1	Male	North	Satisfied
2	Female	South	Neutral
3	Male	East	Dissatisfied
4	Female	West	Satisfied
5	Male	North	Satisfied
6	Female	South	Neutral
7	Male	East	Dissatisfied
8	Female	West	Satisfied
9	Male	North	Satisfied
10	Female	South	Dissatisfied
11	Male	East	Neutral
12	Female	West	Satisfied
13	Male	North	Satisfied
14	Female	South	Neutral
15	Male	East	Dissatisfied
16	Female	West	Neutral
17	Male	North	Dissatisfied
18	Female	South	Satisfied
19	Male	East	Neutral
20	Female	West	Satisfied

Step 1: Entering the Data in Minitab

1. Open **Minitab**.
2. In the worksheet, create four columns:
    - Customer_ID (Numeric)
    - Gender (Text)
    - Region (Text)
    - Satisfaction_Level (Text)
3. Enter the data manually, or copy and paste it from Excel.

Step 2: Descriptive Statistics for Categorical Data

1. Go to **Stat > Tables > Tally Individual Variables**.
2. Select the categorical variables you want to analyze:
   o Gender
   o Region
   o Satisfaction_Level
3. Click **Display Counts** and **Percents**.
4. Click **OK**.

Minitab Output: Tally for Discrete Variables: Gender, Region, Satisfaction_Level

Gender	Count	Percent	Region	Count	Percent	Satisfaction_Level	Count	Percent
Female	10	50.00	East	5	25.00	Dissatisfied	5	25.00
Male	10	50.00	North	5	25.00	Neutral	6	30.00
N=	20		South	5	25.00	Satisfied	9	45.00
			West	5	25.00	N=	20	
			N=	20				

Output Interpretation:

- **Counts**: Total number of responses per category.
- **Percents**: Percentage of each category.

Example:
Satisfaction_Level

- Satisfied: 9 (45.00%)
- Neutral: 6 (30.00%)
- Dissatisfied: 5 (25.00%)

This means 45% of customers are satisfied.

Step 3: Graphical Summaries

Bar Chart

1. Go to **Graph > Bar Chart**.
2. Choose **Counts of Unique Values**.
3. Choose a variable (e.g., Satisfaction_Level).
4. Click **OK**.

- **Satisfied**: 9 respondents
- **Neutral**: 6 respondents
- **Dissatisfied**: 5 respondents

These counts are shown as vertical bars on the graph, with the height of each bar proportional to the number of responses.

Repeat for Gender and Region.

Pie Chart

1. Go to **Graph > Pie Chart**.
2. Select **Counts of Unique Values**.
3. Choose Satisfaction_Level.
4. Click **OK**.
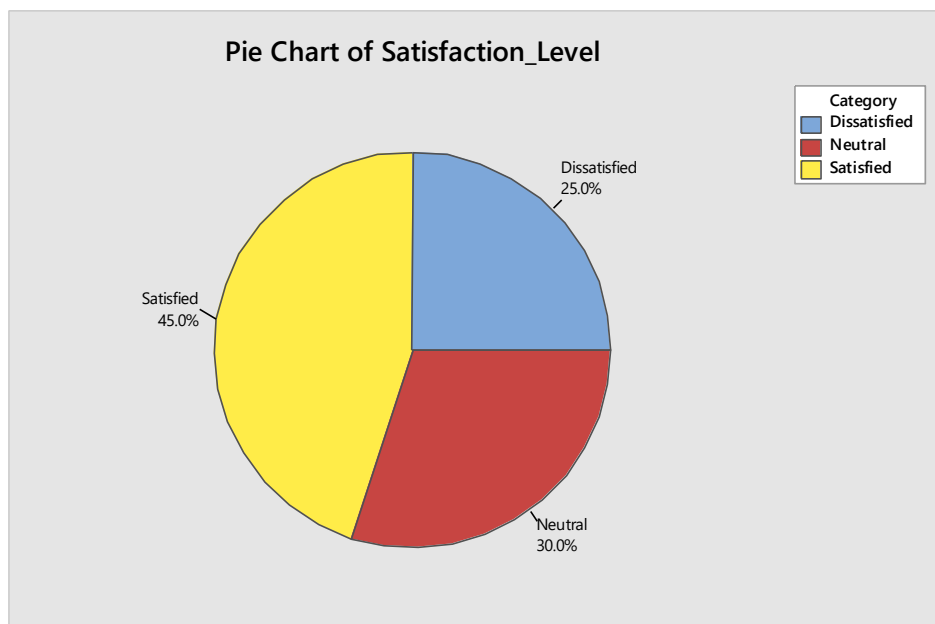
Pie Chart Breakdown:

- **Satisfied (45%)**
  Takes up nearly **half the pie**, the largest segment.
- **Neutral (30%)**
  Represents almost **one-third** of the pie.
- **Dissatisfied (25%)**
  One-quarter of the pie, the smallest but still notable segment.

Interpretation of Pie Chart

1. **Satisfied Customers are the Largest Group (45%)**
   - Nearly half of the respondents expressed satisfaction.
   - This is a **positive sign** that many customers are happy with the service/product.
   - The business has a **solid base of satisfied customers** to retain and build upon.
2. **Significant Neutral Segment (30%)**
   - 30% of customers feel **neutral**.
   - This group is **at risk** of becoming dissatisfied or leaving if service doesn't improve.
   - They represent an **opportunity** to convert into satisfied customers through targeted improvement.
3. **Dissatisfied Customers (25%)**
   - One in four customers is unhappy.
   - This is a **concerning metric** that needs investigation.
   - Indicates potential issues in service quality, delivery, or customer support.
4. **Strategic Focus:**
   - The pie chart shows that while satisfaction is the majority, **55% of customers are not fully satisfied**.
   - The company should explore:
     - Feedback from dissatisfied customers
     - Service improvements that influence neutral perceptions

**Summary

The pie chart shows that **45% of customers are satisfied**, but a combined **55% are either neutral or dissatisfied**. This highlights a need for **strategic efforts to improve customer satisfaction**, especially among the neutral and dissatisfied groups.