

Exercise 01 – September 16-18, 2025

1. Create a Stem-and-Leaf Display

Data set:

62, 65, 68, 70, 73, 75, 75, 78, 81, 83, 84, 85, 85, 87, 89, 92, 95, 96, 98, 100

Solution:

Stem		Leaf
6		2 5 8
7		0 3 5 5 8
8		1 3 4 5 7 9
9		2 5 6 8
10		0

2. Construct a Box Plot

Given the following dataset of students' test scores:

Dataset:

55, 60, 62, 63, 65, 66, 68, 70, 72, 75, 77, 78, 80, 85, 88

Tasks:

- Determine the five-number summary (minimum, 25th Quartile, 50th Quartile, 75th Quartile, maximum).
- Draw the box plot based on the five-number summary with whiskers (use 1.5 * H-spread to identify outliers for step).
- Identify any potential outliers (outside value or/and far out value).

Solution:

- Five-number summary:

Minimum: 55

The 25th percentile is the value between the 4th and 5th values, which is 63

The 50th percentile: 70 (Middle value of the data set.)

The 75th percentile is the value between the 11th and 12th values, which is 78

Maximum: 88

- Box plot:

Whiskers are drawn from the **upper** (75th percentile) and **lower hinges** (25th percentile) (**78** and **63**) to the upper and lower adjacent values (24 and 14)

$$\text{H-spread} = \text{Upper Hinge} - \text{Lower Hinge} = 78 - 63 = 15$$

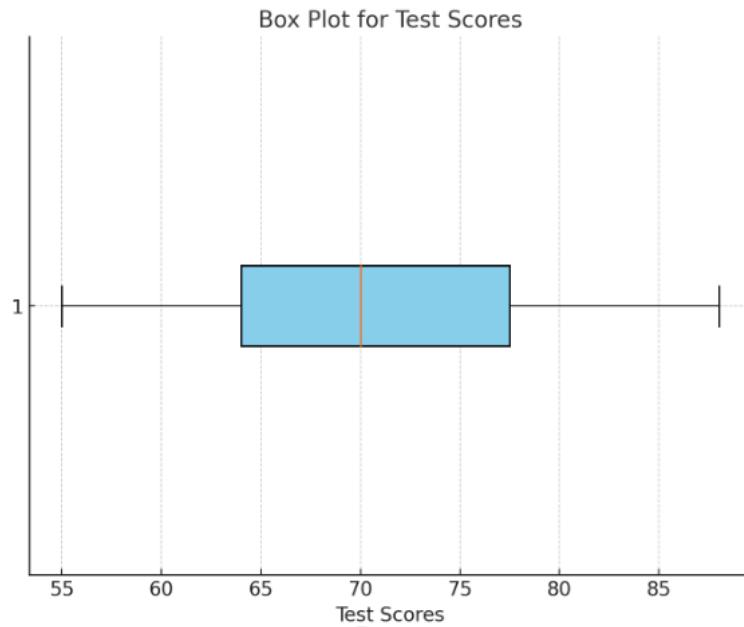
$$\text{Step} = 1.5 * \text{H-spread} = 1.5 * 15 = 22.5$$

$$\text{Upper Inner Fence} = \text{Upper Hinge} + 1 \text{ step} = 78 + 22.5 = 100$$

$$\text{Lower Inner Fence} = \text{Lower Hinge} - 1 \text{ step} = 63 - 22.5 = 41.5$$

$$\text{Upper Adjacent} = 88$$

$$\text{Lower Adjacent} = 55$$



- c. Since all data points fall within the bounds (41.5 to 100), there are **no outliers** in this dataset.