Lesser and Greater Outlier calculations

a. The interquartile range. Compare the two interquartile ranges.

b. Any outliers in either set.

The five number summary for the day and night classes is

	Minimum	Q_1	Median	Q_3	Maximum
Day	32	56	74.5	82.5	99
Night	25.5	78	81	89	98

Let's calculate the **IQR**, **lesser outlier range**, and **upper outlier range** for both **Day** and **Night** using the provided values:

1. **Day values:**

   - **Min** = 32

   - **Q1** = 56

   - **Median** = 74.5

   - **Q3** = 82.5

   - **Max** = 99

b. **Calculations:**

   - **IQR (Interquartile Range)** = Q3 - Q1 = 82.5 - 56 = **26.5**

   - **Lesser Outlier Range** = Q1 - 1.5 × IQR = 56 - 1.5×26.5 = 56 - 39.75 = **16.25**

   - **Upper Outlier Range** = Q3 + 1.5 × IQR = 82.5 + 39.75 = **122.25**

c. **Outlier thresholds for Day:**

   - Any value **< 16.25** is a lesser outlier → **None**, since min = 32

   - Any value **> 122.25** is a greater outlier → **None**, since max = 99

2. **Night values:**

   - **Min** = 25.5

   - **Q1** = 78

   - **Median** = 81

- **Q3** = 89

- **Max** = 98

b. Calculations:

- **IQR** = Q3 - Q1 = 89 - 78 = **11**

- **Lesser Outlier Range** = Q1 - 1.5 × IQR = 78 - 16.5 = **61.5**

- **Upper Outlier Range** = Q3 + 1.5 × IQR = 89 + 16.5 = **105.5**

c. Outlier thresholds for Night:

- Any value < 61.5 is a lesser outlier → 25.5 is an outlier

- Any value > 105.5 is a greater outlier → None, since max = 98

Conclusion table:

	IQR	Lesser Outlier Threshold	Greater Outlier Threshold	Outliers
Day	26.5	16.25	122.25	None
Night	11	61.5	105.5	25.5 (lesser outlier)