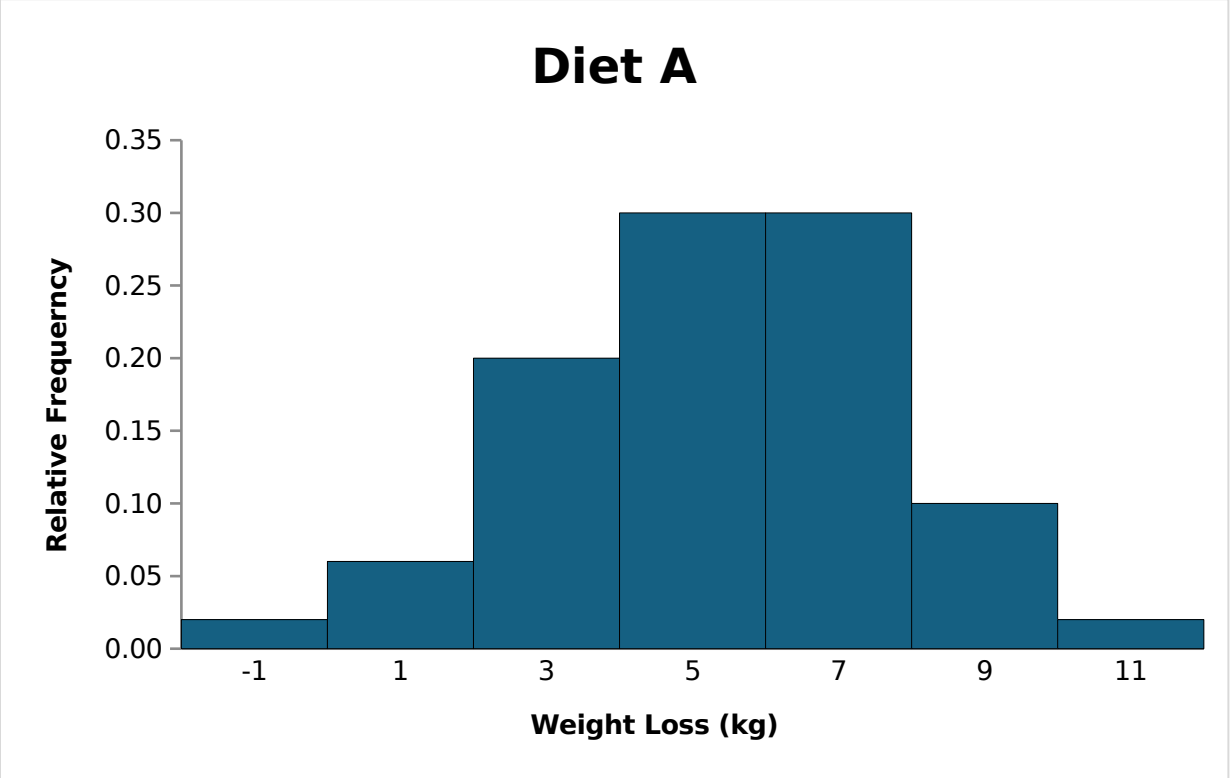
Diet Weight Loss Analysis

Diet A

Diet A shows a pattern of weight loss that is somewhat **right-skewed** (positively skewed), meaning the longer tail of the distribution is on the right, towards higher weight loss values.

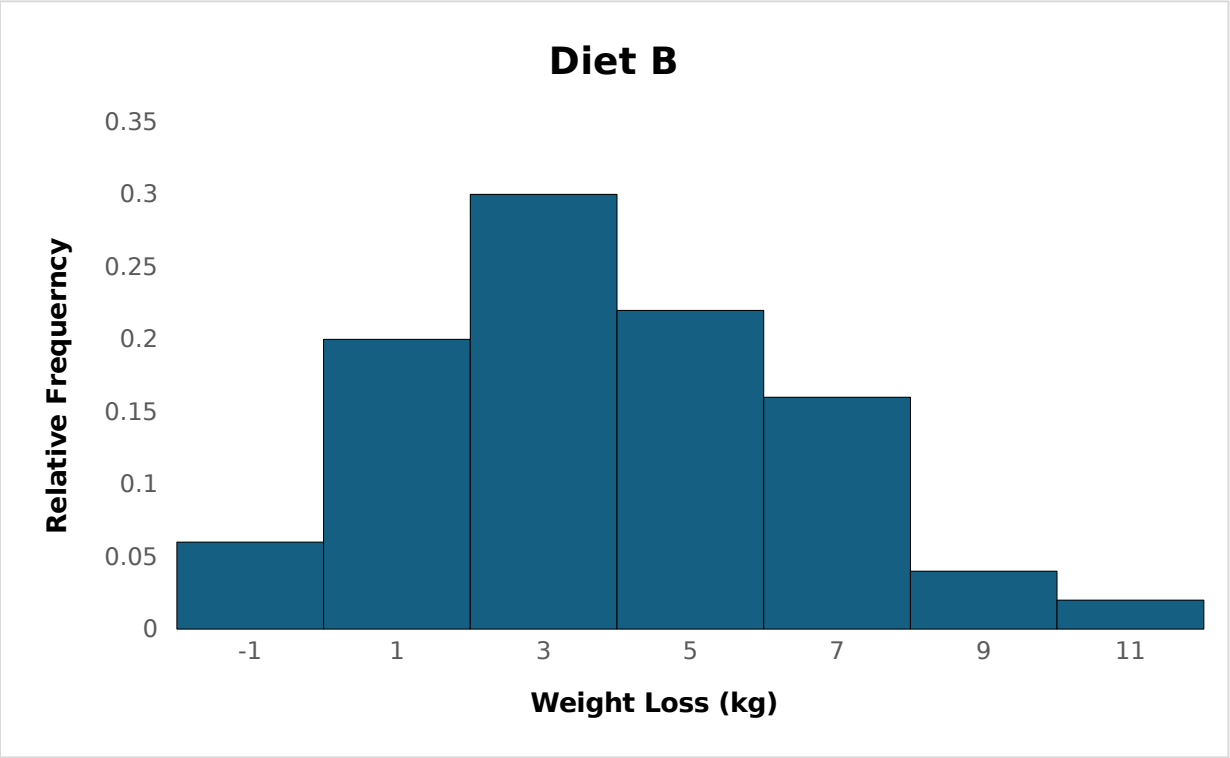


- **Modal weight loss** occurs in the **5–7 kg** and **7–9 kg** intervals, each with a relative frequency of **0.30**, meaning approximately **60%** of participants fall within this **4 kg window**.
- A small proportion (**0.02**) of participants achieved weight loss in the **11–13 kg** range, indicating the presence of a few high-loss outliers.
- The **mean weight loss** is likely higher than that of Diet B due to the right shift of the bulk of data.
- The **sample size (n = 50)** ensures the distribution is stable enough to interpret, and the **standard deviation (SD = 2.9 kg)** suggests moderate variability in individual weight loss outcomes.

The combination of a higher modal class and right-skewed tail implies that Diet A tends to produce **greater weight loss for a larger proportion of participants**, with some achieving very high weight loss.

Diet B

Diet B shows a pattern of weight loss that is closer to a **normal or symmetric distribution**, although it might be slightly skewed left (negatively skewed), as the mean might be slightly pulled towards the lower end due to the relatively high frequencies in the 1-3 kg and -1 to 1 kg ranges.



- The **most common weight loss** occurs in the **3–5 kg** range (relative frequency = **0.30**).
- Frequencies for **5–7 kg** and **7–9 kg** are **0.22** and **0.15**, respectively, indicating that fewer participants achieved higher weight losses compared to Diet A.
- The **sample size (n = 50)** is equal to that of Diet A, allowing for direct comparison. However, the **standard deviation (SD = 2.1 kg)** is lower, indicating that weight loss outcomes are more tightly clustered around the mean.
- There is also a lower maximum weight loss observed, with only a very small proportion achieving **11–13 kg**.

This distribution suggests that Diet B produces more **consistent but generally lower** weight loss outcomes compared to Diet A.

Summary Comparison

When comparing the two diets:

- **Diet A**: Right-skewed, higher modal and mean weight loss, larger SD indicating a wider spread and more extreme weight losses.
- **Diet B**: Near-normal distribution, lower modal weight loss, smaller SD indicating more consistent outcomes but fewer extreme values.
- With equal **sample sizes (n = 50)**, the comparison is reliable. Diet A appears more effective for producing higher weight losses in a subset of participants, while Diet B yields more uniform but moderate results.

Appendix A

Data: