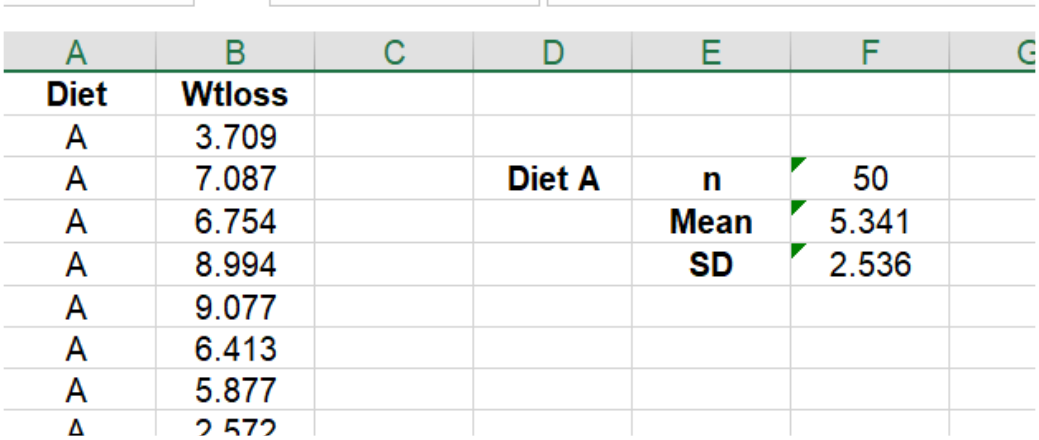
Summary Measures Mandatory Worksheet Activities

Exercise 8.1 - Weight Loss Data for Diet B

Diet A is already entered when I opened the excel sheet



A	B	C	D	E	F	G
Diet	**Wtloss**					
A	3.709					
A	7.087		**Diet A**	**n**	50	
A	6.754			**Mean**	5.341	
A	8.994			**SD**	2.536	
A	9.077					
A	6.413					
A	5.877					
A	2.572					

**The formula suggested in the worksheet has the incorrect cell names. Diet B data starts at cell 52 and ends at cell 101

Diet A

The number of non-blank data entries for weight loss = 50

The mean weight loss = 5.341

The standard deviation of the weight loss = 2.536

Diet B

The number of non-blank data entries for weight loss = 50

The mean weight loss = 3.710

The standard deviation of the weight loss = 2.769

A	4.840						
A	6.449						
A	9.019						
A	-1.715						
A	4.718		**Diet B**	**n**	50.000		
A	4.007			**Mean**	3.710		
A	7.241			**SD**	2.769		
A	2.128						
A	6.968						

I Compared the results relative to Diet A to assess the effectiveness of both diets.

- **Sample Size**: Both diets were followed by an equal number of participants (50 for each), which provides a solid basis for comparison without sample size bias.
- **Mean Weight Loss**: Diet A resulted in a higher average weight loss (5.341 kg) compared to Diet B (3.710 kg). This suggests that Diet A may be more effective at helping individuals lose weight.
- **Standard Deviation**: The standard deviation, which measures the variation in weight loss among participants, is slightly lower for Diet A (2.536 kg) than for Diet B (2.769 kg). A lower standard deviation indicates that the results for Diet A were more consistent among the participants, further suggesting its higher effectiveness.

In conclusion, based on the average weight loss and the consistency of the results, Diet A appears to be more effective than Diet B for weight loss.

Exercise 8.2 - Weight Loss Data for Diet B

I had the same cell issue as mentioned in exercise 8.1

Diet A	**n**	50
	Mean	5.341
	SD	2.536
	Median	5.642
	Q1	3.748
	Q3	7.033
	IQR	3.285
Diet B	**n**	50
	Mean	3.710
	SD	2.769
	Median	3.745
	Q1	1.953
	Q3	5.404
	IQR	3.451

Diet A

The median weight loss is 5.642

The first quartile weight loss is 3.748

The third quartile weight loss is 7.033

The interquartile range is 3.285

Diet B

The median weight loss is 3.745

The first quartile weight loss is 1.953

The third quartile weight loss is 5.404

The interquartile range is 3.451

Analyse and discuss the findings in comparison to Diet A.

- **Median Weight Loss**: Diet A has a significantly higher median weight loss (5.642 kg) compared to Diet B (3.745 kg). The median is a robust measure of central tendency, suggesting that the typical participant on Diet A lost more weight than the typical participant on Diet B.
- **Quartile Weight Loss**:
  - **First Quartile**: The first quartile for Diet A is 3.748 kg, indicating that 25% of participants lost at least this amount. For Diet B, the first quartile is lower at 1.953 kg. This shows that the lower end of weight loss was more substantial in Diet A compared to Diet B.
  - **Third Quartile**: The third quartile for Diet A is 7.033 kg, while for Diet B, it is 5.404 kg. This means that 75% of Diet A participants lost up to 7.033 kg, whereas 75% of Diet B participants only lost up to 5.404 kg. This suggests that the upper end of weight loss achievements was also higher for Diet A.
- **Interquartile Range (IQR)**: The IQR, which measures the spread of the middle 50% of the data, is slightly narrower for Diet A (3.285 kg) than for Diet B (3.451 kg). Although the difference is small, it indicates that the weight loss among Diet A participants was more concentrated around the median, suggesting less variability compared to Diet B.

Overall, these findings suggest that Diet A not only leads to higher weight loss on average but also provides more consistent results across its participants compared to Diet B. The data points to Diet A being more effective, with its participants generally experiencing greater and more consistent weight loss outcomes.

Exercise 8.3 - Brand Preferences Data for Area 2

Frequencies

	Area 1	Area 2
A	11	19
B	17	30
Other	42	41
Total	**70**	**90**

Percentages

	Area 1	Area 2
A	15.7	21.1
B	24.3	33.3
Other	60.0	45.6
Total	**100**	100

- **Brand A**:
  - In Area 1, Brand A is preferred by 11 out of 70 people, which constitutes 15.7% of the sample.
  - In Area 2, the preference for Brand A increases to 19 out of 90 people, accounting for 21.1% of the sample.
  - Interpretation: There is a higher preference for Brand A in Area 2 compared to Area 1.
- **Brand B**:
  - Brand B shows a significant difference; it is preferred by 17 people in Area 1 (24.3%) and by 30 people in Area 2 (33.3%).
  - Interpretation: Brand B is substantially more popular in Area 2 than in Area 1, indicating that it might align better with the tastes or demographics of Area 2.
- **Other Brands**:
  - In Area 1, the 'Other' category is quite dominant, with 42 out of 70 people preferring brands outside of A and B, making up 60% of preferences.
  - Conversely, in Area 2, 'Other' brands account for 41 out of 90 people or 45.6% of the sample.
  - Interpretation: While 'Other' brands are the most preferred category in both areas, their dominance is less pronounced in Area 2.
- **Overall Preference Patterns**:
  - The total number of respondents is higher in Area 2 (90) than in Area 1 (70).
  - Both branded and 'Other' cereals have a higher absolute number of preferences in Area 2, which could simply be a function of the larger sample size.
  - Proportionally, preferences in Area 2 shift away from 'Other' brands towards the specified Brands A and B.

In conclusion, the data suggests that both Brands A and B are more popular in Area 2 than in Area 1, where 'Other' brands hold the majority preference. This could indicate that Area 2's market is more receptive to branded cereals, or that Brands A and B have better market

penetration or branding efforts in that area. Conversely, the preference for a variety of 'Other' brands in Area 1 could suggest a more fragmented market with no single brand dominating consumer preferences. Understanding why these preferences exist would require further demographic, psychographic, and consumer behaviour analysis.