Bar Charts

9.1 Example

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

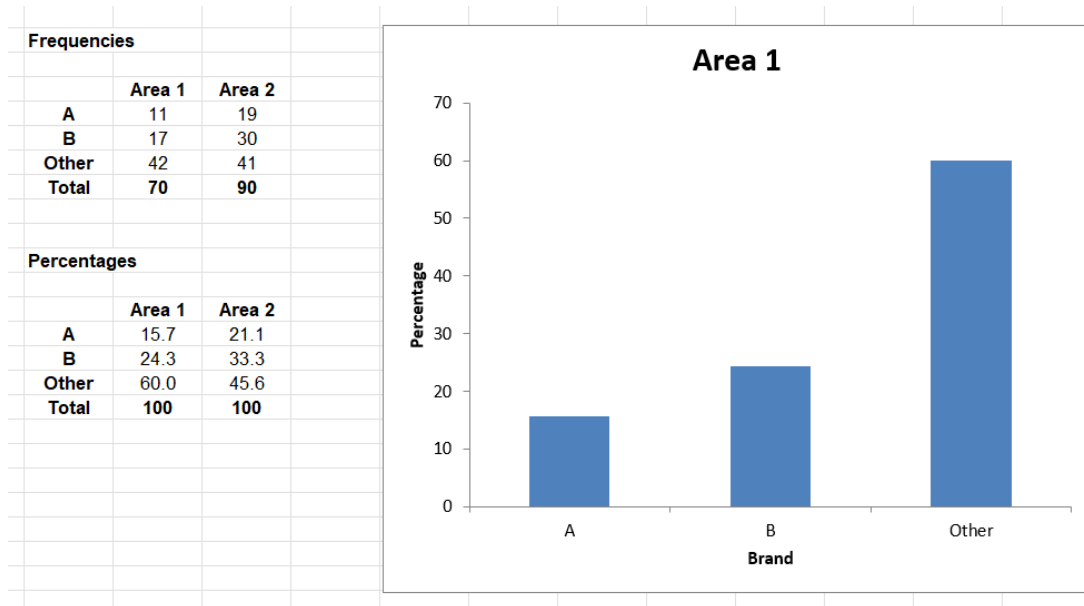## 9.1 Exercise

Open the Excel workbook in Exe 9.1D.xlsx from the Exercises folder. This contains the percentage frequencies together with the bar chart just created in the above example. Add a percentage frequency bar chart showing the brand preferences in Area 2, using the same format as that employed for the Area1 results in the above example. Drag your new chart so that it lies alongside that for Area 1.
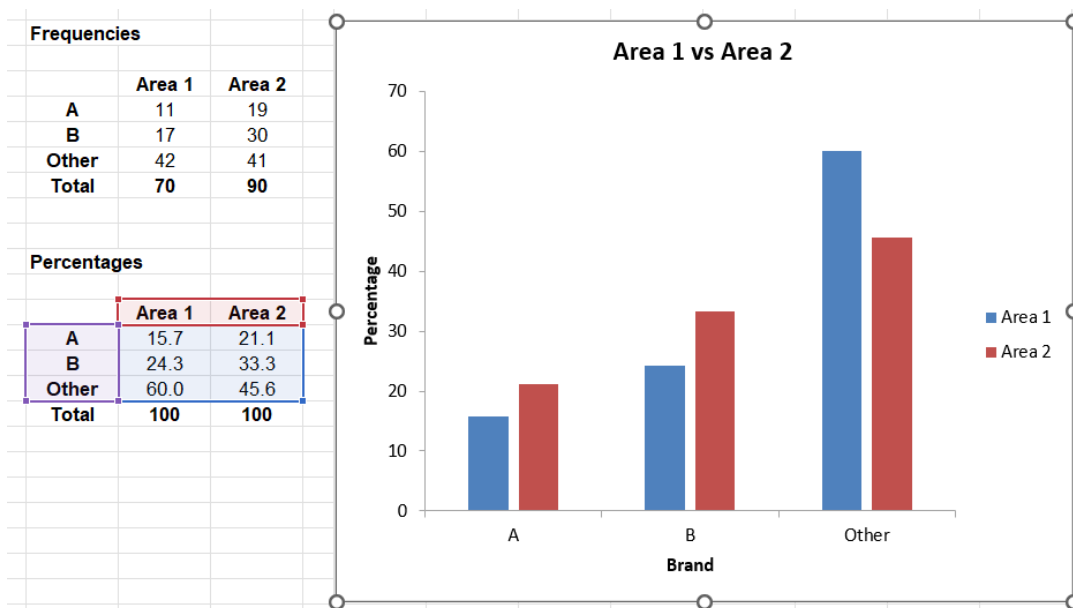
Briefly interpret your findings. What do these results tell you about the patterns of brand preferences for each of the two demographic areas?
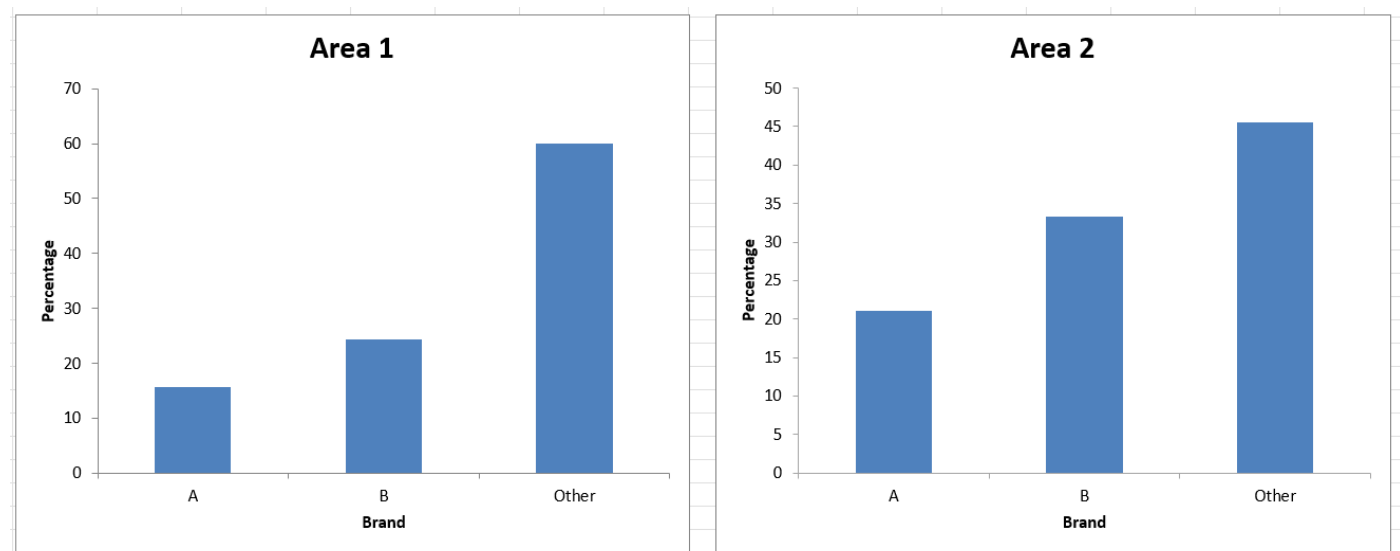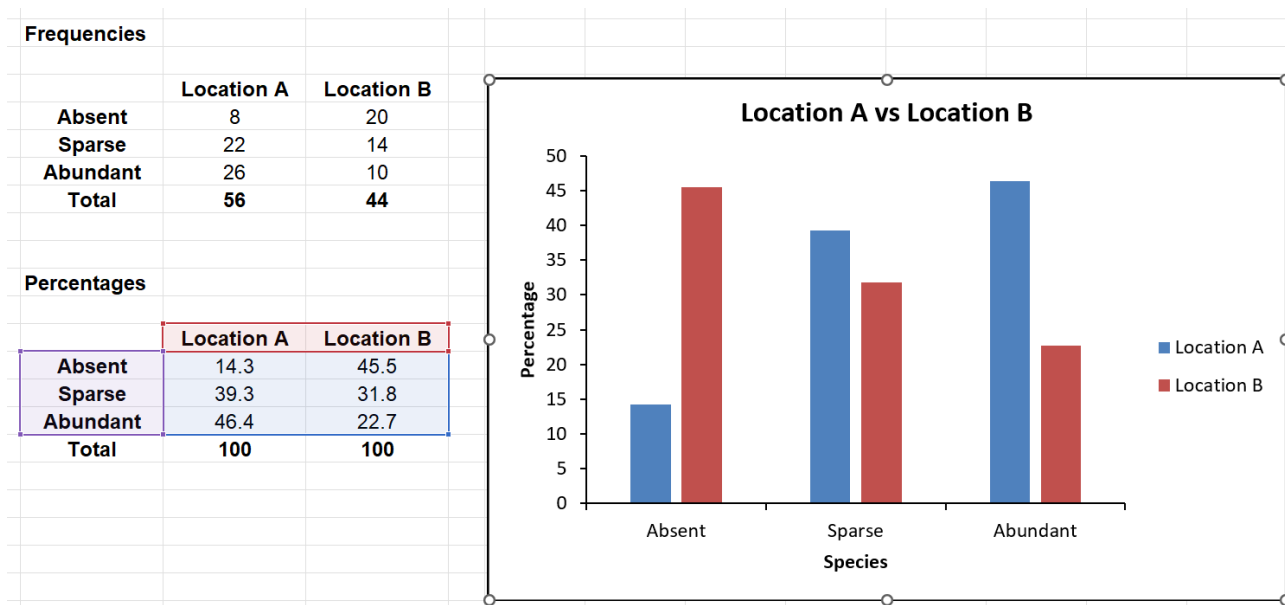

Summary

In both areas, Brand A is the least preferred and Other brands are the most popular. However, Area 2 shows higher preferences for both Brand A and Brand B compared with Area 1. The share of respondents choosing Other brands is lower in Area 2, suggesting that preferences in Area 2 are more evenly spread across the options.

9.2 example

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

Area 1 vs Area 2

9.2 exercise

Open the Excel workbook in Exa 9.2E.xlsx from the Example folder. This contains the frequency distributions for Data Set E (see the Data Annexe) to which has been added the corresponding percentage frequency distributions. Complete a percentage frequency clustered column bar chart showing the heather species prevalence in the two different locations. Briefly interpret your findings.

Frequencies

	Location A	Location B
Absent	8	20
Sparse	22	14
Abundant	26	10
Total	56	44

Percentages

|	Location A	Location B
Absent	14.3	45.5
Sparse	39.3	31.8
Abundant	46.4	22.7
Total	100	100

Location A vs Location B

Summary

Location A shows a higher percentage of species in the abundant and sparse categories compared with Location B. In contrast, Location B has a much higher percentage of absent species. This suggests that the heather species are more prevalent and widespread in Location A, while they are less common in Location B.
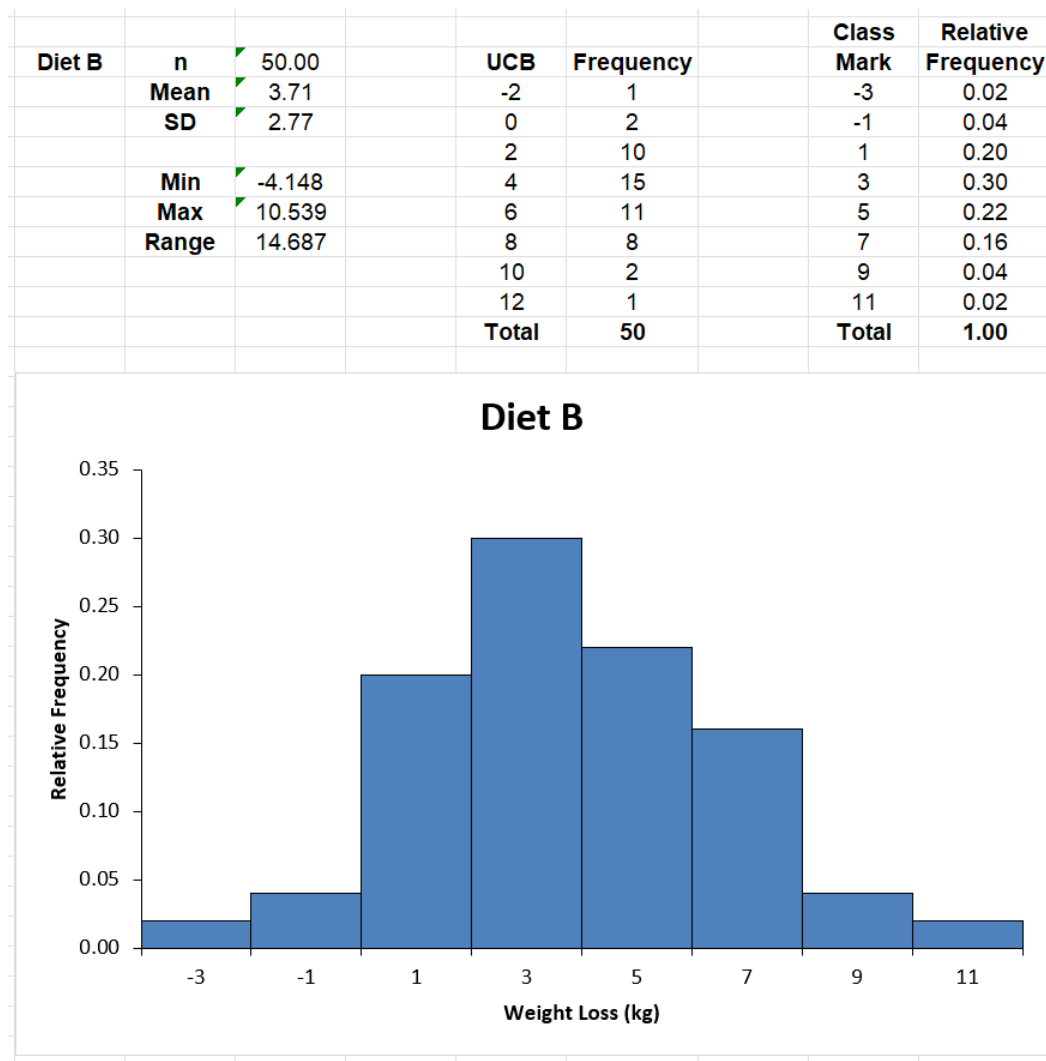
Histogram

9.3 Example

| Diet A	n	50		UCB	Frequency		Class Mark	Relative Frequency
	Mean	5.341		0	1		-1	0.02
	SD	2.536		2	3		1	0.06
				4	10		3	0.20
	Min	-1.715		6	15		5	0.30
	Max	10.062		8	15		7	0.30
	Range	11.777		10	5		9	0.10
				12	1		11	0.02
				Total	50		Total	1
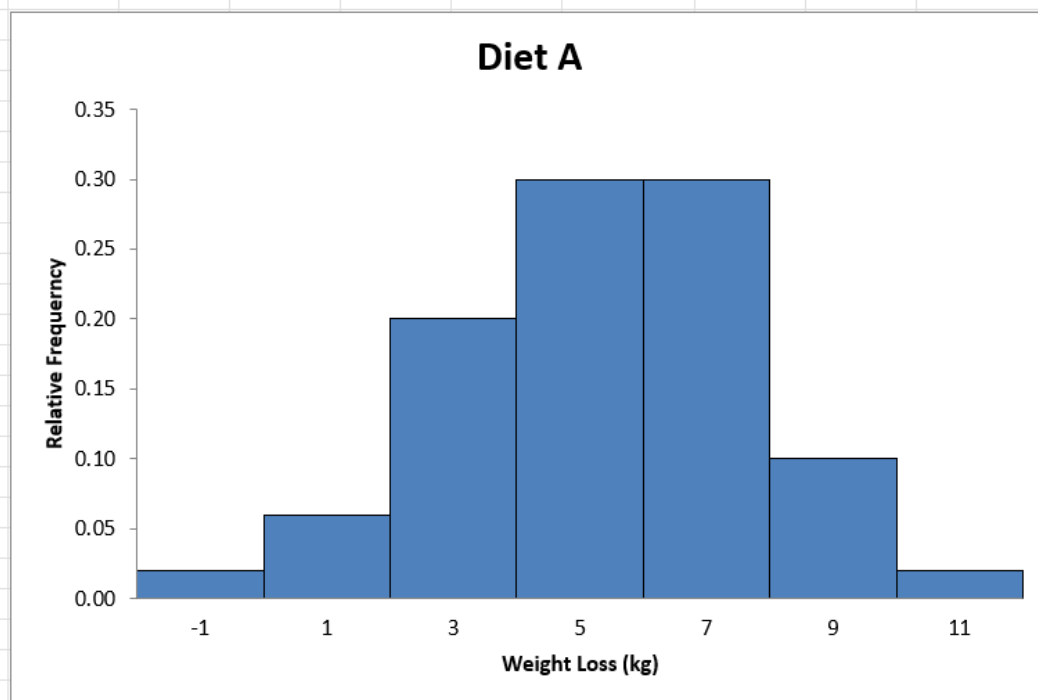
9.3 Exercise

Open the Excel workbook in Exe 9.3B.xlsx from the Exercises folder. This contains the relative frequency histogram for the Diet A weight loss produced in Example 9.3 together with some of the Diet B weight loss summary statistics. Add a relative frequency histogram of the weight loss for Diet B, where possible using the same classes as those employed for the Diet A results in the above example.

Briefly interpret your histogram. What do these results tell you about the patterns of weight loss for each of the two diets?

Diet B	n	50.00		UCB	Frequency		Class Mark	Relative Frequency
	Mean	3.71		-2	1		-3	0.02
	SD	2.77		0	2		-1	0.04
				2	10		1	0.20
	Min	-4.148		4	15		3	0.30
	Max	10.539		6	11		5	0.22
	Range	14.687		8	8		7	0.16
				10	2		9	0.04
				12	1		11	0.02
				Total	50		Total	1.00

Diet B

Diet B	n	=COUNT(B52:B101)		UCB	Frequency		Class Mark	Relative Frequency
	Mean	=AVERAGE(B52:B101)		-2	=FREQUENCY(B52:B101,H41:H47)		=(-4+H41)/2	=I41/I$49
	SD	=STDEV(B52:B101)		0			=(H42+H41)/2	=I42/I$49
				2			=(H43+H42)/2	=I43/I$49
	Min	=MIN(B52:B101)		4			=(H44+H43)/2	=I44/I$49
	Max	=MAX(B52:B101)		6			=(H45+H44)/2	=I45/I$49
	Range	=F45-F44		8			=(H46+H45)/2	=I46/I$49
				10			=(H47+H46)/2	=I47/I$49
				12			=(H48+H47)/2	=I48/I$49
				Total	=SUM(I41#)		Total	=SUM(L41:L48)
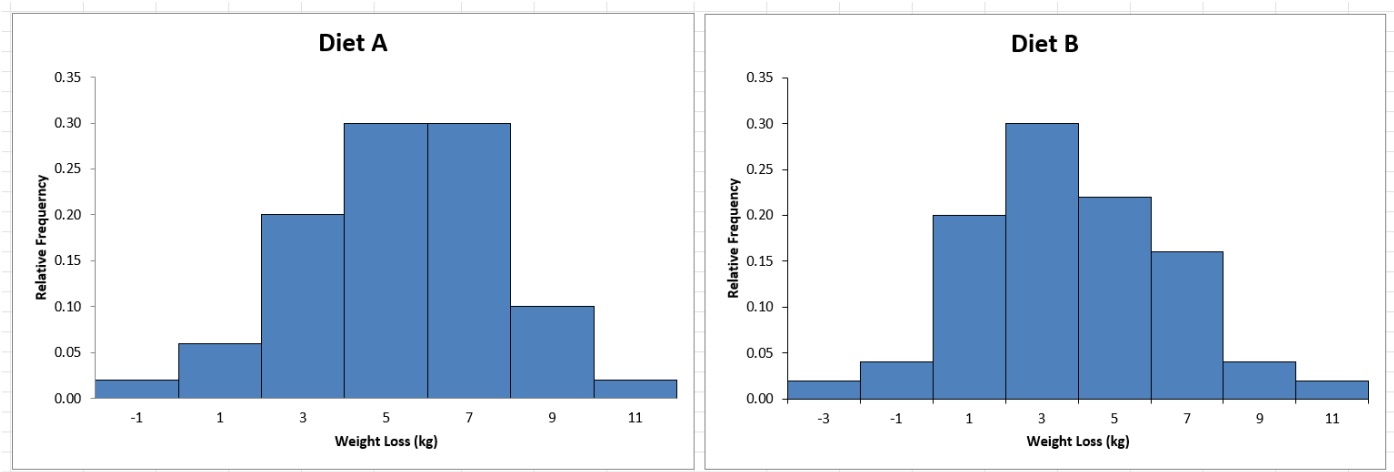
Interpretation

The weight loss distribution for Diet B is slightly skewed to the left, with most participants losing between 2 and 6 kg. A few individuals gained weight, shown by the negative values. Overall, Diet B produced smaller and more variable weight losses compared with Diet A.

Diet A vs Diet B

Both distributions are unimodal, but Diet A shows greater average weight loss than Diet B. For Diet A, most participants lost between 4 and 8 kg, with few gaining weight. Diet B's results are more spread out, with some individuals gaining weight (negative values) and fewer achieving large losses. This suggests that Diet A was more effective and produced more consistent results than Diet B.