Section 2.2 IRA Guide

Introduction

Screen 1: This problem focuses on the difference between qualitative and quantitative variables and data. Refer back to section 1.1 for help.

Screen 2: This problem focuses on the difference between discrete and continuous variables. Refer back to section 1.1 for help.

Screen 3: List of Objectives
The first step in this section is determining whether the data are discrete, and the text mentions the general strategy for each type of data.

Objective 1: Organize Discrete Data in Tables

Screen 1: An explanation that working with discrete data (when the number of distinct values is small) is similar to working with categorical data.

Screen 2: Example 1 goes over how to construct a frequency distribution and a relative frequency distribution for discrete data. You should watch the StatCrunch (SC) video solution to learn how to do this in StatCrunch.
If you want to try the problem using the same data, simply click on the icon to the right of Table 1 and the data will open in StatCrunch.

Screen 3: This problem is based on Example 1 on the previous screen. If you click the icon just to the right of the data, the data will open in StatCrunch. Then use the approach from Example 1's StatCrunch video.
You will make a frequency distribution and a relative frequency distribution (round to the nearest thousandth – 3 decimal places). In parts C & D, remember to move the decimal point 3 places to the right when you convert a relative frequency to a percent.

Objective 2: Construct Histograms of Discrete Data

Screen 1: Definition of a histogram – a tool we will use all semester.

Screen 2: Example 2 goes over how to create a histogram of discrete data. (Graph > Histogram) You can click through the solution if you'd like, but I would recommend that you watch the StatCrunch video solution to learn about how to set up the "bins" and "width".

Screen 3: This problem is based on Example 2 on the previous screen. Create the histograms in StatCrunch, and choose the one that looks like yours.

Objective 3: Organize Continuous Data in Tables

Screen 1: Goes over key terms when organizing continuous data in tables.
Note that the class 25-34 really represents the values from 25 up through 34.99999…

Screen 2: Definition of open-ended tables, which should be avoided if you can.

Screen 3: Example 3 goes over how to create frequency distributions and relative frequency distributions of continuous data. Watch the StatCrunch video solution.
Notice how the procedure differs from working with discrete data when it comes to width and the use of bins.
Also notice that StatCrunch lists the limits in the form "3 to 4", which for us would be "3-3.99".

Screen 4: This problem asks you to interpret a histogram. Be sure that you understand the definitions of all the terms.

Screen 5: This problem calls on you to create your own frequency distribution. The lower class limit and width are provided. You should use StatCrunch to make the histogram with the values displayed above the bars and then you can fill in the frequency distribution and select the correct graph.
If StatCrunch gives you a first class of 30000-36000, be sure to type that as 30000-35999.

Objective 4: Construct Histograms of Continuous Data

Screen 1: Introduction screen which you can skip.

Screen 2: Example 4 shows you how to make histograms of continuous data. Watch the StatCrunch video solution, and pay attention to how to set up your "bins" and "width".

Screen 3: This problem is based on Example 4 on the previous screen. Use the icon next to the data to open the data in StatCrunch.

Screen 4: Read through this text, keeping in mind that there is no one correct way to choose limits and widths for a histogram. It really depends on which you think shows the data best.

Screen 5: Click the blue link to start the activity that involves choosing the class width.
Step through Parts A – E. Make note of how different starting points and different widths affect the look of the histogram.

Screen 6: Guidelines for selecting the class limits and widths. Take a look at the In Other Words video.

Objective 5: Draw Stem-and-Leaf Plots

Screen 1: Definition of a stem-and-leaf plot. When working with a large data set, the stem-and-leaf plot is a suggested starting point – it puts the data in ascending order and gives you an idea about the center and shape of the distribution.

Screen 2: Example 5 shows how to construct a stem-and-leaf plot. Watch the StatCrunch video solution.

Screen 3: Summary of the steps for doing this by hand. **You should use StatCrunch when making a stem-and-leaf plot.**

Screen 4: This screen compares histograms to stem-and-leaf plots. This is worth reading through.

Screen 5: This problem gives you a stem-and-leaf plot and asks you to work backwards to the original data. Be sure to put commas between each data value.

Screen 6: This problem asks you to make a stem-and-leaf plot. Although you could do it by hand, I'd suggest trying it in StatCrunch. (Open the data in StatCrunch by clicking on the icon next to the data – do

not type the values in one at a time.)
Beware – you do not type commas when creating a stem-and-leaf plot.

Screen 7: Example 6 shows how to create a stem-and-leaf plot where the data must be modified or rounded before starting. Watch the StatCrunch solution video to see how it can efficiently be done in StatCrunch.

Screen 8: An explanation of why it is not preferable to modify the data before creating a stem-and-leaf plot.

Screen 9: This problem is based on Example 6 – round the data first before using it.

Screen 10: Explanation of how (and WHEN) to split stems. If you decide that one of the stems needs to be split, you must split all of the stems. You will notice that the rule for splitting stems is a lot like the rules for rounding numbers.

Objective 6: Draw Dot Plots

Screen 1: Definition of a dot plot. You can give this a quick read but you will not be responsible for it.

Screen 2: Example 7 shows how to make a dot plot. You can watch the StatCrunch video if you want to, but you will not be responsible for it.

Screen 3: This screen will be empty, as I have deleted this problem.

Objective 7: Identify the Shape of a Distribution

Screen 1: Explanation of the different shapes of a distribution. You should take notes about the 4 basic shapes that are shown. Also, watch the In Other Words video.

Screen 2: Example 8 explains how to identify the shape of the distribution. Watch the By Hand video solution.

Screen 3: To identify the shape of the distribution, try creating a histogram in StatCrunch. Leave the starting point and bin width choices to StatCrunch (default).

Screen 4: End of Section