

Restaurant Wrangle: A Data Analysis Project

You have decided to buy a restaurant. There are 4 restaurants in town that are up for sale that you are considering:

- A steak house
- A fried chicken restaurant
- An Italian restaurant that also sells pizza
- A Bar-B-Que restaurant.

You are pretty sure you want to buy the _____, but you want to do a little data analysis before you decide for sure which one you want to buy.

You want to find the answers to these questions:

- Which kind of restaurant do people like the most?
- Which restaurant would people visit most often?
- How much money will people spend at each restaurant?
- How much profit will I make?
- Which restaurant is in the best location?
- What should I name my restaurant?

Complete the four research projects and record your findings on the business plan on the back of this sheet. When you have finished, turn in your business plan to the banker for final processing.

Business Plan

I would like to buy a restaurant.

My main goal for my restaurant is _____.

I considered 4 types of restaurant. I used data to help me decide which one to buy. Here are my rankings based on the data collected.

	Steak	Fried Chicken	Italian/Pizza	BBQ
Which kind of restaurant do customers like best?				
Which restaurant will probably get the most visits per year?				
Which restaurant will probably make the most in gross sales?				
Which restaurant will probably make the most in profits?				
Which restaurant has the best location?				
Total:				

Based on this information, I decided to buy the _____ restaurant. Because _____

_____.

I conducted a survey to decide on the best name. The name will be: _____.

Research Project 1: If you buy it, they will come!

For your restaurant to make money it is important to have lots of customers! So, it might help for you to know what kind of restaurant people like best and how often they think they would eat there.

You surveyed 30 potential customers to find out which kind of restaurant they liked best. Here is a frequency table that shows the results:

Which kind of restaurant do you like best?	
Steak	
Fried chicken	
Pizza Italian	
BBQ	

Next, you want to know how often the potential customers think they would eat at each type of restaurant.

You surveyed 30 potential customers to find out how often they think they would eat at the different restaurants. You are summarizing the data into a frequency table for each restaurant. You have finished summarizing the data for the steak restaurant, the fried chicken restaurant and the BBQ restaurant. You just need to summarize the data for the Italian/pizza restaurant, then you can compare the results.

Instructions:

1. Review the information on the back of this sheet about how often customers think they would visit the Italian/pizza restaurant. Use this information to complete the frequency table for the Italian/pizza restaurant.
2. Compare the frequency tables to figure out which restaurant would be likely to get the most customers in a year.
3. Use the table above to rank the restaurants from best (4) to worst (1) based on which restaurant the potential customers like best. Record your rankings on your business plan.
4. Use the information from the back of this sheet to rank the restaurants from best (4) to worst (1) based on the number of visits they would be likely to get per year. Record your rankings on your Business Plan.

Question on Survey: How often do you think you would eat at Each type of restaurant?

Person Surveyed	STEAK	FRIED CHICKEN	ITALIAN	BBQ
Noah	Once a Month	Once a Month	Once a year (or less)	Once every 2 weeks
Ce'riah	Once every 2 months	Once every 2 months	Once every 2 months	Once a year (or less)
Ulysses	Once a year (or less)	Once a year (or less)	Once every 2 months	Once a Month
Talia	Once a year (or less)	Once every 2 weeks	Once every 2 months	Once every 2 weeks
Quinn	At least once a week	Once a year (or less)	At least once a Week	Once every 2 weeks
Kevin	Once a Month	Once a Month	Once a year (or less)	At least once a Week
Debra	Once a year (or less)	At least once a Week	At least once a Week	Once every 2 weeks
Harold	Once a year (or less)	At least once a Week	Once a year (or less)	Once a Month
Veronica	Once a year (or less)	Once every 2 weeks	Once a Month	At least once a Week
Fiona	Once a year (or less)	Once a year (or less)	Once every 2 months	Once every 2 weeks
Eliza	Once a Month	At least once a Week	Once a year (or less)	Once every 2 weeks
Daughtry	Once a year (or less)	Once every 2 weeks	Once a Month	Once a year (or less)
Abigail	Once a year (or less)	Once a Month	Once every 2 weeks	Once a Month
William	Once a year (or less)	Once a Month	Once a year (or less)	Once a Month
Burt	Once a year (or less)	At least once a Week	Once a year (or less)	Once a Month
Olivia	Once a Month	Once a year (or less)	Once a Month	At least once a Week
Mack	Once a Month	At least once a Week	Once a Month	Once every 2 weeks
Zeke	Once a year (or less)	Once every 2 weeks	Once a Month	Once a Month
Benjamin	At least once a Week	Once a year (or less)	Once a Month	Once a Month
Elijah	Once a year (or less)	At least once a Week	Once every 2 weeks	Once a year (or less)
Xavier	Once every 2 months	Once a year (or less)	Once a year (or less)	Once every 2 weeks
Sara	Once a Month	Once a Month	Once a Month	Once every 2 weeks
Jamarcus	Once every 2 weeks	At least once a Week	Once a year (or less)	Once a Month
Laron	Once a year (or less)	Once a Month	Once every 2 months	Once every 2 weeks
Atticus	Once a year (or less)	Once every 2 months	Once a year (or less)	Once a Month
Charlene	Once a year (or less)	Once a Month	Once a year (or less)	Once every 2 weeks
Roderick	Once a Month	At least once a Week	Once every 2 weeks	Once a Month
Penelope	Once a year (or less)	At least once a Week	At least once a Week	Once every 2 weeks
Yolanda	Once every 2 weeks	Once every 2 weeks	Once every 2 months	Once every 2 weeks
Isabelle	Once a year (or less)	Once a year (or less)	At least once a Week	Once a Month

Steak	Frequency	Visits per year
At least once a week	1	(X 52) 52
Once every 2 weeks	2	(X 26) 52
Once a month	7	(X 12) 84
Once every 2 months	2	(X 6) 12
Once a year or less	18	(X 1) 18
Total visits per year:		218

Fried Chicken	Frequency	Visits per year
At least once a week	9	(X 52) 468
Once every 2 weeks	5	(X 26) 130
Once a month	7	(X 12) 84
Once every 2 months	2	(X 6) 12
Once a year or less	7	(X 1) 7
Total visits per year:		701

Italian/Pizza	Frequency	Visits per year
At least once a week		(X 52)
Once every 2 weeks		(X 26)
Once a month		(X 12)
Once every 2 months		(X 6)
Once a year or less		(X 1)
Total visits per year:		

BBQ	Frequency	Visits per year
At least once a week	3	(X 52) 156
Once every 2 weeks	13	(X 26) 338
Once a month	11	(X 12) 132
Once every 2 months	0	(X 6) 0
Once a year or less	3	(X 1) 3
Total visits per year:		629

Research Project 2: Sales and Profit

Another important thing to consider when you are buying your restaurant is how much money you think people will spend at the restaurant and how much profit you will make from each purchase.

The amount of money your customers spend in your restaurant is called “Gross Sales.” But you also have to think about how much money you spent making the meal for the customer. The money you spent is called “expenses.” You subtract the expenses from the gross sales to find out your “profit.” Profit is the money you actually make on the food you sell. Your profit is the money you get to keep for yourself.

You collected information about a sample of 30 sales from each of the restaurants you are thinking of buying. You are summarizing the sales information in a Stem and Leaf chart to make it easier to figure out the total gross sales. Then you are subtracting the estimated expenses to find out the profit from those 30 sales. You have finished summarizing the data for the steak restaurant, the fried chicken restaurant and the Italian/pizza restaurant. You just need to finish summarizing the data from the BBQ restaurant, then you can compare the information from the restaurants.

Instructions:

1. Use the sales information on the back of this sheet to complete the Stem and Leaf chart for the BBQ restaurant. Then calculate the Gross Sales and the Profit.
2. Compare the gross sales and profit information from all four restaurants.
3. Rank the restaurants from Best Gross Sales (4) to Worst Gross Sales (1) and record your rankings on your Business Plan.
4. Rank the restaurants from Best Profits (4) to Worst Profits (1) and record your rankings on your Business Plan.

Finish the Stem and Leaf plot for the BBQ restaurant by adding the sales of \$17 and over. Then calculate the Gross Sales and Profit.

Individual sales (Gross)
\$10.29
\$10.43
\$10.44
\$10.60
\$10.99
\$11.03
\$11.21
\$11.31
\$11.40
\$11.94
\$12.17
\$12.70
\$12.79
\$13.10
\$13.65
\$13.70
\$13.80
\$13.80
\$14.76
\$14.96
\$14.99
\$15.00
\$16.05
\$16.61
\$16.65
\$17.51
\$17.80
\$17.94
\$18.10
\$19.42

BBQ		
Stem	Leaf	Total:
10	29, 43, 44, 60, 99	\$52.75
11	03, 21, 31, 40, 94	\$56.89
12	17, 70, 79	\$37.66
13	10, 65, 70, 80, 80	\$68.05
14	76, 96, 99	\$44.71
15	00	\$15.00
16	05, 61, 65	\$49.31

18 | 42 means \$18.42

Gross Sales:	
Expenses:	377.78
Profit:	

Profit from 30 Sales

Steak

Stem	Leaf
18	32, 42, 46, 59
19	27, 73, 75
20	14, 16, 24, 30, 57, 76, 79, 88
21	10, 58, 68, 82, 84
22	57, 73, 99
23	25, 76
24	54, 75, 83
25	15, 45

18|42 means \$18.42

Gross Sales:	644.42
Expenses:	567.09
Profit:	77.33

Fried Chicken

Stem	Leaf
7	05, 12, 14, 14, 14, 74, 90,97
8	01, 01, 45, 74, 88
10	16, 39, 44
11	01, 36, 61, 62, 65, 74, 81, 93
12	19, 26, 38, 44, 50,98

18|42 means \$18.42

Gross Sales:	299.76
Expenses:	194.84
Profit:	104.92

Italian/Pizza

Stem	Leaf
12	09, 11, 12, 34, 44, 45, 46, 48, 52
13	10, 73, 79, 60
14	34, 61, 89, 95
15	49
17	26, 33, 39, 44, 55, 75, 84, 88, 90
18	10, 73, 85

18|42 means \$18.42

Gross Sales:	452.53
Expenses:	407.28
Profit:	45.25

Research Project 3: Location! Location! Location!

The location of your restaurant is important. Research shows that most people are not willing to drive more than 30 minutes to go out to eat. If a restaurant is more than 30 minutes away, customers will probably not go there no matter how good it is!

You looked up the addresses of 30 potential customers to see how long it would take them to get to each of the restaurants. You are summarizing the data onto dot plots so you can quickly see which restaurant has the best location.

You have finished summarizing the data for the Steak Restaurant, the Pizza Restaurant, and the BBQ restaurant. You just need to summarize the data for the Fried Chicken Restaurant, Then you can compare the information to see which restaurant has the best location.

Instructions:

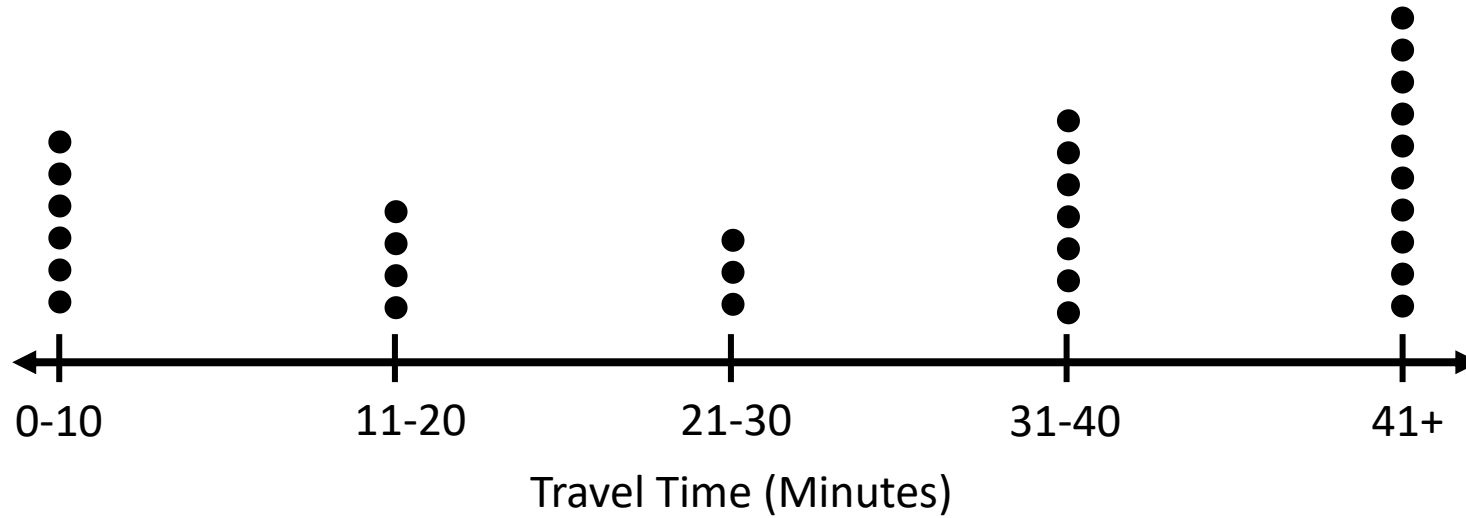
1. Review the information on the back of this sheet about the travel times to the fried chicken restaurant. Use this information to complete the dot plot for the fried chicken restaurant.
2. Compare the dot plots to figure out how many potential customers for each restaurant live within 30 minutes of the restaurant. The restaurant with the most customers within 30 minutes is the best location.
3. Rank the restaurants from Best Location (4) to Worst Location (1) and record your rankings on your Business Plan.

Travel Time to Fried Chicken Restaurant in Minutes for 30 Potential Customers

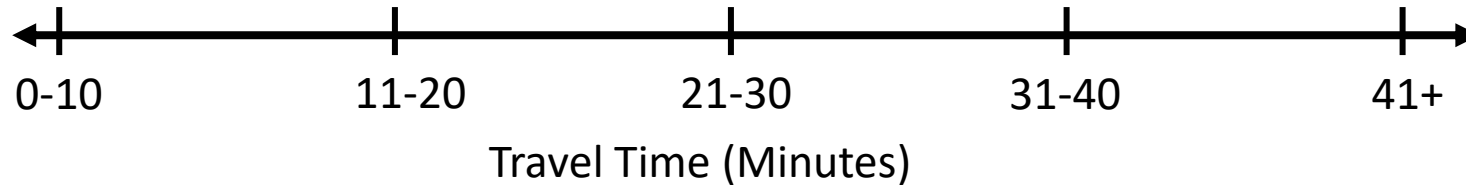
Potential Customer	Travel Time in Minutes
Isabelle	26
Atticus	50
Mack	30
Laron	7
Noah	26
Quinn	18
Sara	49
Fiona	33
Debra	26
xavier	9
Charlene	15
Kevin	40
Daughtry	51
Elijah	28
Veronica	6

Potential Customer	Travel Time in Minutes
Burt	24
Ceriah	27
Benjamin	13
Abigail	14
Zeke	29
Penelope	55
William	18
Talia	32
Yolanda	0
Harold	47
Ulysses	48
Olivia	51
Jamarcus	22
Roderick	13
Burt	24

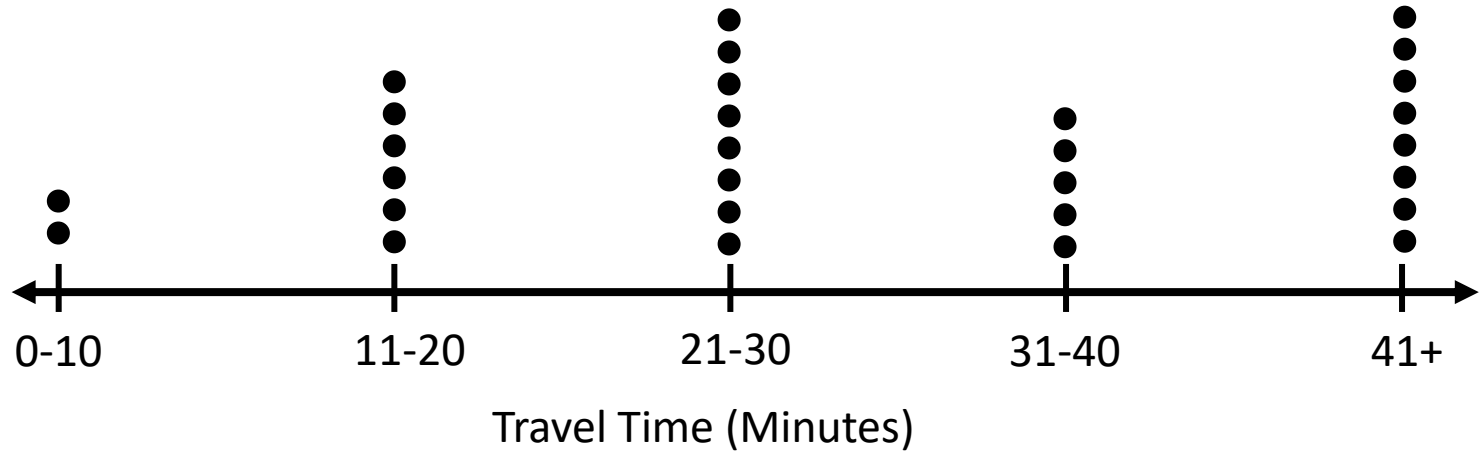
Potential Customers: Steak



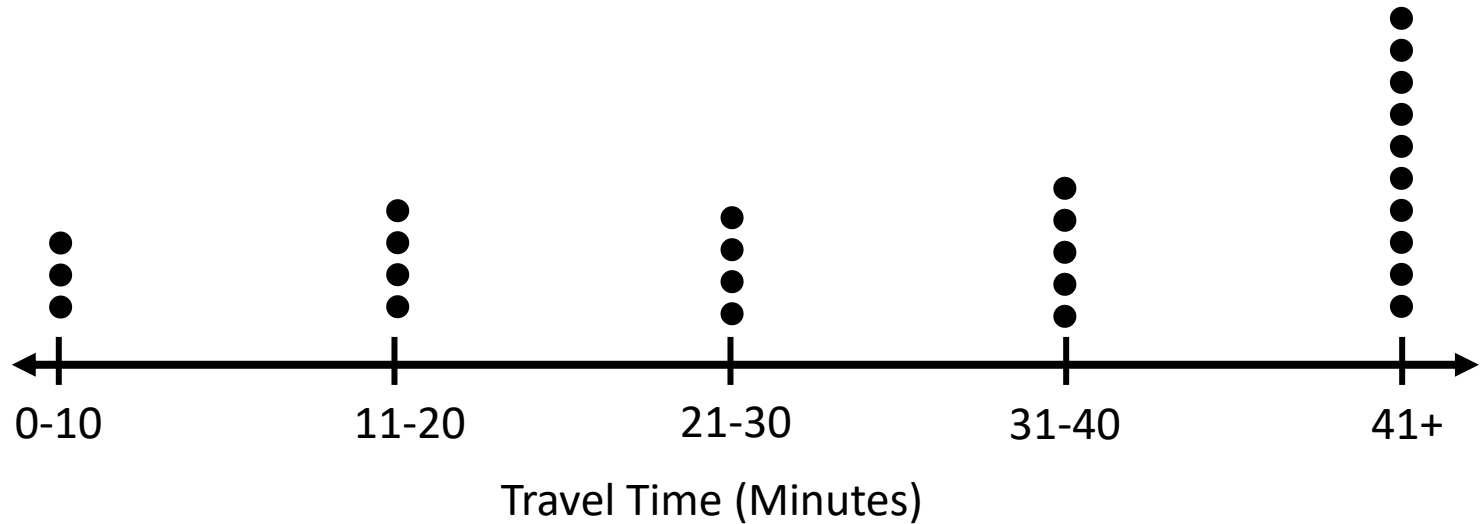
Potential Customers: Fried Chicken



Potential Customers: Pizza



Potential Customers: BBQ



Research Project 4: What's in a name?

Now you have lots of information to help you decide which restaurant you would like to buy. Review the data you have collected and decide which restaurant you will buy and why.

Once you have decided which restaurant you want to buy, you need to come up with the perfect name!

Instructions:

1. Review the information from all the research you have done so far and make sure you have recorded your rankings correctly on your business plan.
2. Based on your goal for your restaurant and your rankings, decide which restaurant you want to buy and why. Record this information on your business plan.
3. Think of 3 possible names for your restaurant and record them on your restaurant name survey form on the back of this sheet. Survey 15 people to find out what name they think is best. Record your findings on your survey form as a frequency table.
4. Based on your survey results, choose a name for your restaurant and write it on your business plan. Be sure to spell it just like you want it to be spelled on the sign for your restaurant.
3. Turn in your Business Plan to the Bank for processing.

Restaurant Name Survey Form

I am buying a _____ restaurant and I am trying to decide on the best name. Of these three possible names, which one do you think would be most likely to get you to try my restaurant?

Proposed Restaurant Names	Number of votes