Lab 3 – Sections 1.2, 2.1, 2.2, and 2.3 — Due Wed., 9/4

The problems on this page are taken from Section 1.2 in the book titled, "Collecting Data: Planning an Observational Study"

For each of the situations described in questions 1 through 5, state whether the sampling procedure is simple random sampling, stratified random sampling, cluster sampling, systematic sampling, or convenience (or voluntary response) sampling.

1. All first-year students at a university are enrolled in one of 30 sections of a seminar course. To select a sample of freshmen at this university, a researcher selects four sections of the seminar course at random from the 30 sections and all students in the four selected sections are included in the sample.

1. Cluster Sampling

2. To obtain a sample of students, faculty, and staff at a university, a researcher randomly selects 50 faculty members from a list of faculty, 100 students from a list of students, and 30 staff members from a list of staff.

2. Stratified

3. A student in this class gets the data for his final project by conducting a facebook poll. One of his group partners gets data by asking coworkers for responses. The focus of the group's study was to find out if less than 5% of people ages 18 to 30 have ever tried narcotics.

3. Convinience Sampling

4. To obtain a sample of the seniors at a particular high school, a researcher writes the name of each senior on a slip of paper, places the slips in a box and mixes them, and then selects 10 slips. The students whose names are on the selected slips of paper are included in the sample.

4. Simple Random Sampling

5. To obtain a sample of those attending a basketball game, a researcher selects the 24th person through the door. Then, every 50th person after that is also included in the sample.

5. Systematic Sampling

6. What type of bias is present in the sample described in problem 3? Explain the reasoning for your answer.

This is an example of response bias because the question being asked is about an illegal behavior which may influence the participants' response.

The problems on this page are taken from Section 2.1 in the book titled, "Data Classification"

For problems 7 through 14, Classify each variable as numerical or categorical.

7. A Gallup poll asked Americans, "Which subject (Math, English, Art...), if any, has been the most valuable in your life?" — 7. Categorical
8. Price of a textbook — 8. Numerical
9. The different flavors of donuts at Dunkin Donuts — 9. Categorical
10. Heights of NBA atheletes — 10. Numerical
11. The numbers on the back of NBA atheletes' uniforms — 11. Categorical
12. Concentration of a contaminant (micrograms per cubic centimeter) in a water sample — 12. Numerical
13. Bank account numbers of each person in this class — 13. Categorical
14. Zip code of each person's residence. — 14. Categorical

For problems 15 through 20, classify each variable as discrete or continuous.

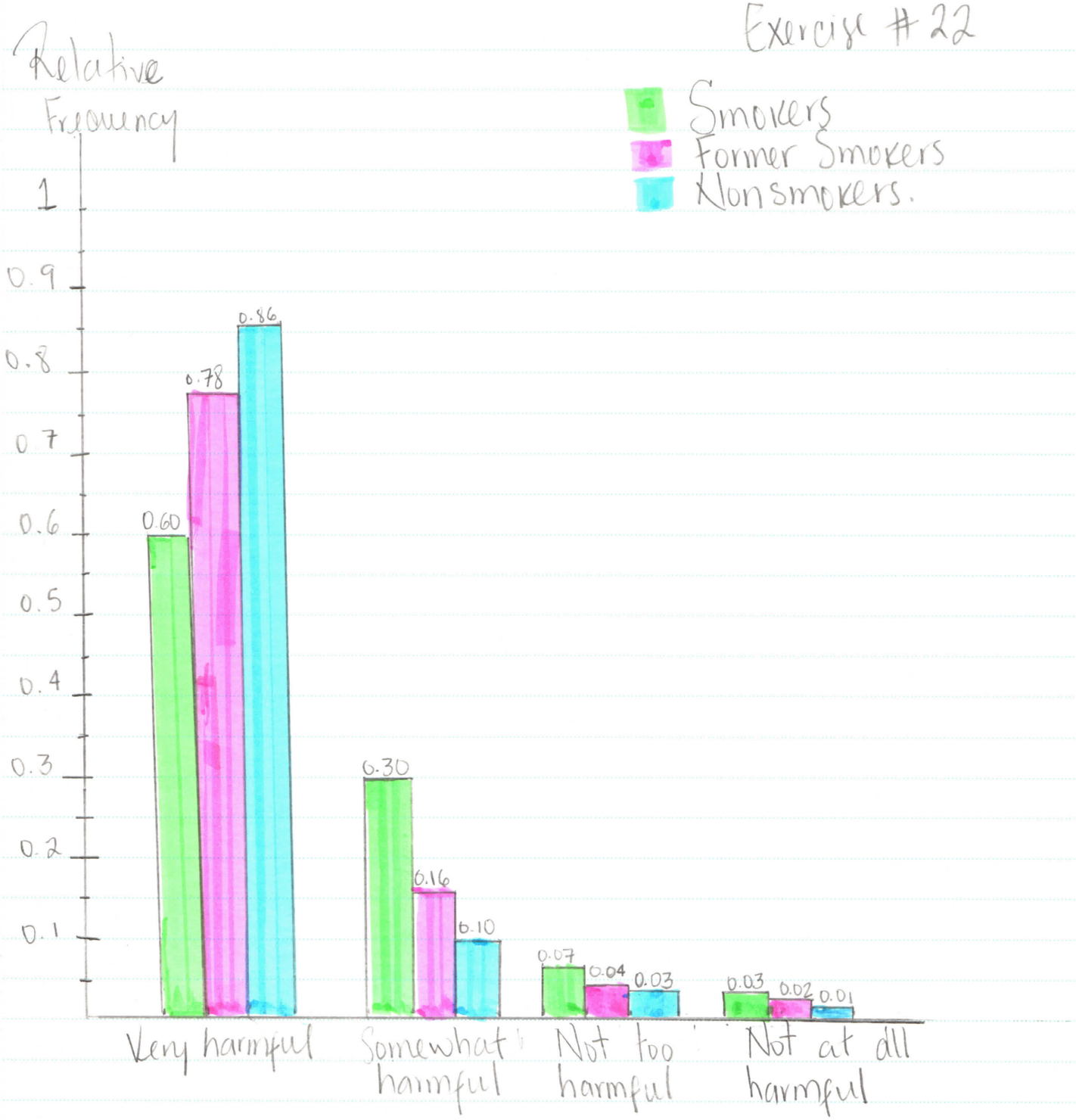
15. The number of people who buy a coffee from Starbucks today. — 15. Discrete
16. The volume of water (in cubic feet) of each of the Great Lakes. — 16. Continuous
17. Number of pages in a book — 17. Discrete
18. The length of a 1-year-old rattlesnake — 18. Continuous
19. The amount of time it takes to answer this question. — 19. Continuous
20. The number of nuclear power plants in the world — 20. Discrete

= YOU!!

Exercise 21

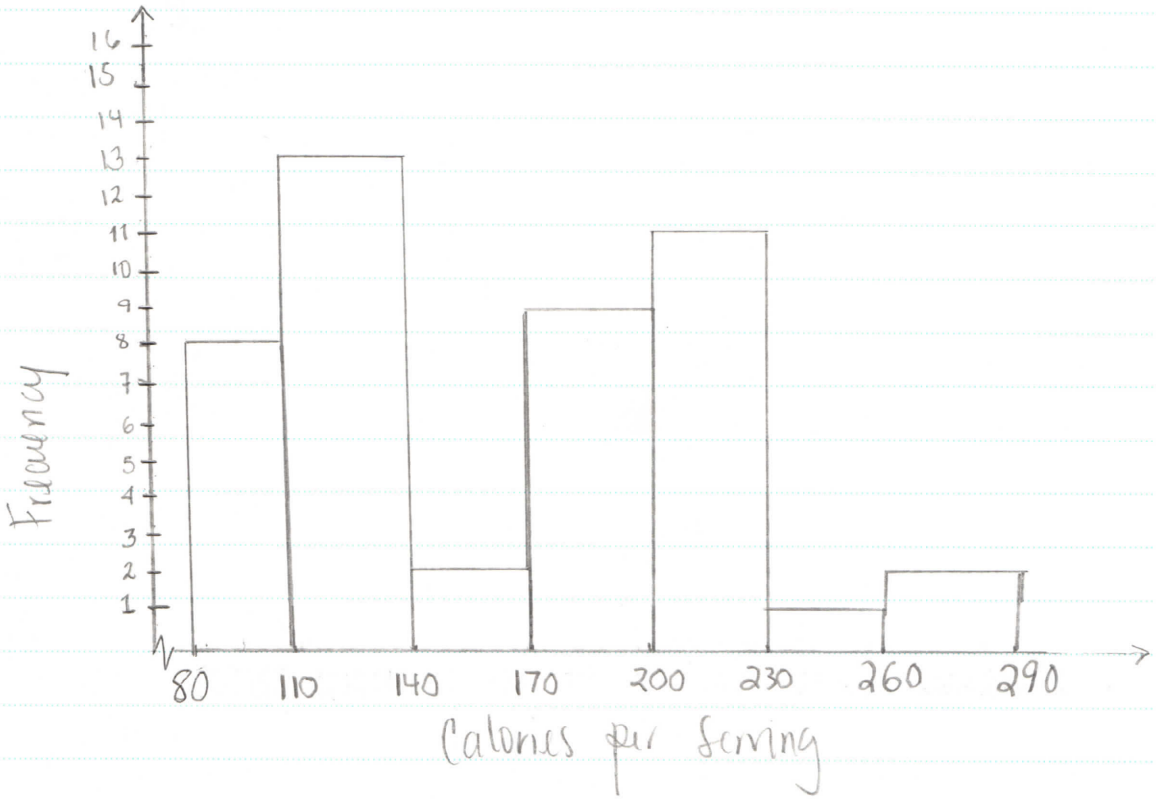
Category	Freeuray	Relative Freeuray
Independents	11	0.22
Democrats	17	0.34
Republicans	19	0.38
Libertarian	3	0.06
Total	50	

Exercise #22


Relative Frequency
Smokers
Former Smokers
Nonsmokers.
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.60
0.78
0.86
0.30
0.16
0.10
0.07
0.04
0.03
0.03
0.02
0.01
Very harmful
Somewhat harmful
Not too harmful
Not at all harmful

Exercise #23

Calories per Serving	Frequency
80 to < 110	8
110 to < 140	13
140 to < 170	2
170 to < 200	9
200 to < 230	11
230 to < 260	1
260 to < 290	2



Exercise 24

Amount of Protein (grams)	Frecuency
10 to< 20 gr	7
20 to< 30 gr	19
30 to < 40 gr	9
40 to< 50 gr	4
50 to< 60	1