Practice Assignment: Applications of Bar Graphs

1) Which two variables could be appropriately visualized using a side-by-side bar chart? Select two.

   a) Temperature outside (degrees Fahrenheit)

   b) Flavor of ice cream

   c) Grade in school

   d) Number of people at the beach

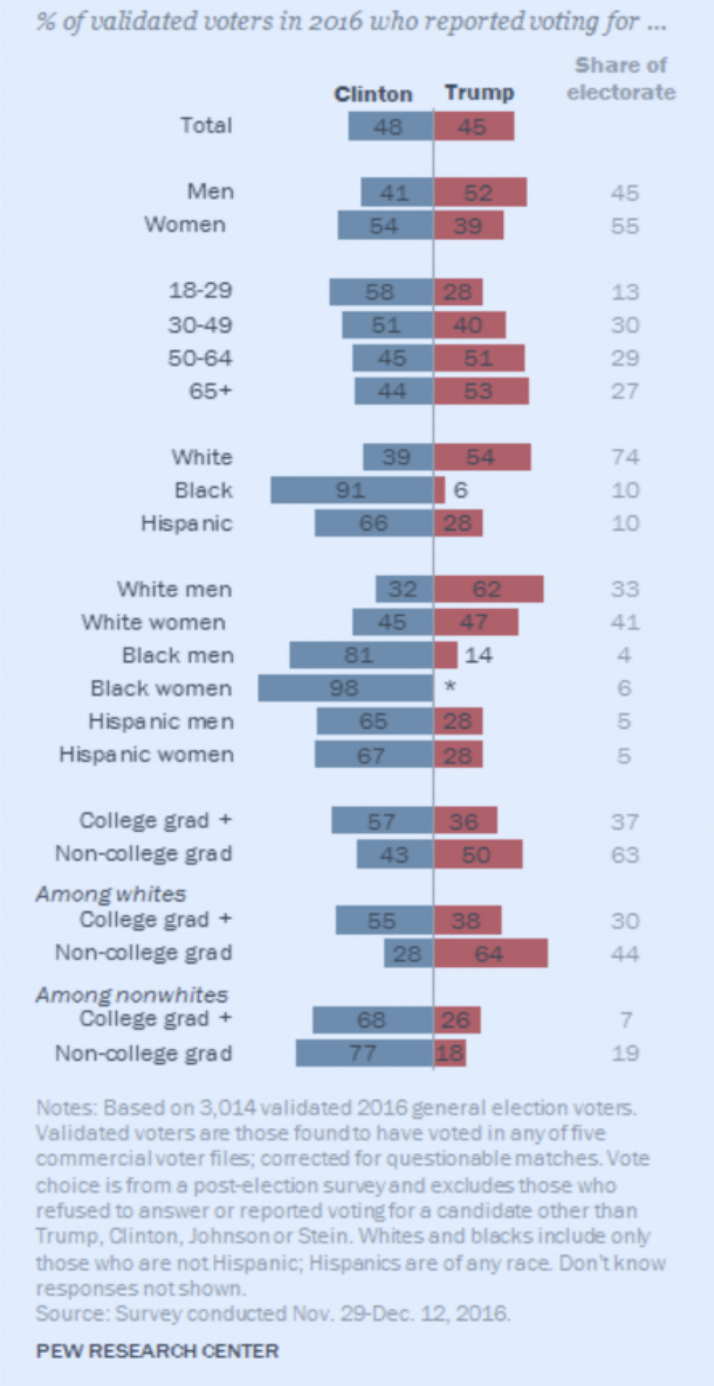
   Answer: b, c

The following stacked bar chart[1] displays the survey results of different groups of voters in the 2016 presidential election. Notice that this bar chart is slightly different than the standard stacked bar charts presented in the preview and in-class activities and contains information about the following populations:

- Gender: Men, Women
- Age group: 18–29, 30–49, 50–64, 65+
- Ethnicity/Gender: White Men, White Women, Black Men, Black Women, Hispanic Men, Hispanic Women
- Education: College Grad, Non-College Grad
- White Education: College Grad, Non-College Grad
- Non-White Education: College Grad, Non-College Grad

[Continued on the next page.]

[1] Pew Research Center. (2018, August 9). *An examination of the 2016 electorate, based on validated voters*. https://www.pewresearch.org/politics/2018/08/09/an-examination-of-the-2016-electorate-based-on-validated-voters/



2) In this study, what is the response variable?[2]

   Answer: Voting choice: Trump or Clinton

3) Focus on the section of the graph devoted to the comparison of White, Black, and Hispanic voters. Notice that it only displays the results of the voters who voted for Trump or Clinton and not the percentages of votes that went to someone else, or

[2] Pew Research Center. (2018, August 9). *An examination of the 2016 electorate, based on validated voters*. https://www.pewresearch.org/politics/2018/08/09/an-examination-of-the-2016-electorate-based-on-validated-voters/

"Other." For each group, calculate the percentage of votes that went to the "Other" candidate. Fill in the results in the following contingency table:

Survey Results of the 2016 Presidential Election			
	Clinton	Trump	Other
White	39	54	7 [calculated from 100−(39+54)]
Black	91	6	3
Hispanic	66	28	6

Answer: Noted above in red.

4) Use the table in Question 3 to create a side-by-side bar chart of the estimated results of the 2016 presidential election by race. Follow these steps (hint provided on the next page):

STEP 1: Access the data analysis tools for this course at

https://lumen-learning.shinyapps.io/eda_categorical/

STEP 2: Click on the *Describing and Exploring Categorical Data* tool located in the **Exploratory Data Analysis** section.

STEP 3: At the top, click on "Two Categorical Variables."

STEP 4: Click on the dropdown menu for "Dataset" and choose "Contingency Table."

STEP 5: Appropriately define the row and column variables and provide the corresponding labels for each.

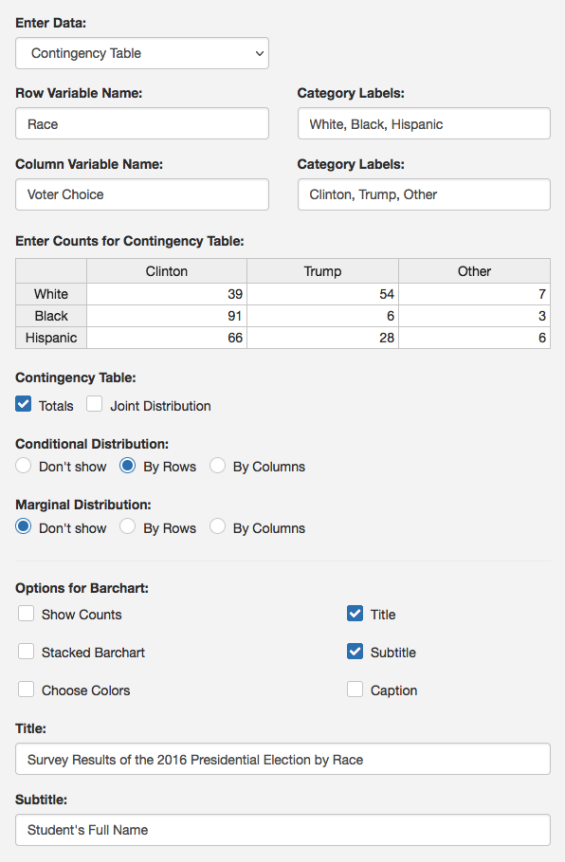
STEP 6: Enter the data in the electronic contingency table.

STEP 7: For the title, type "Survey Results of the 2016 Presidential Election by Race."

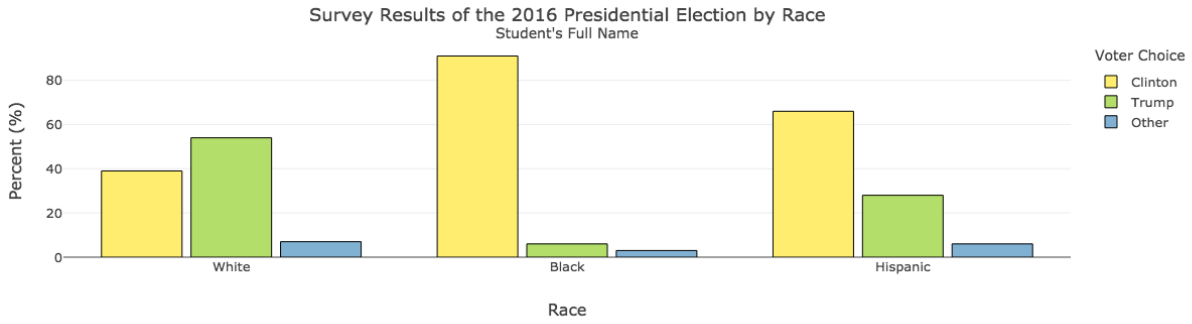
STEP 8: For the "Subtitle," type your full name.

STEP 9: Sketch the chart in your notebook.

Hint:

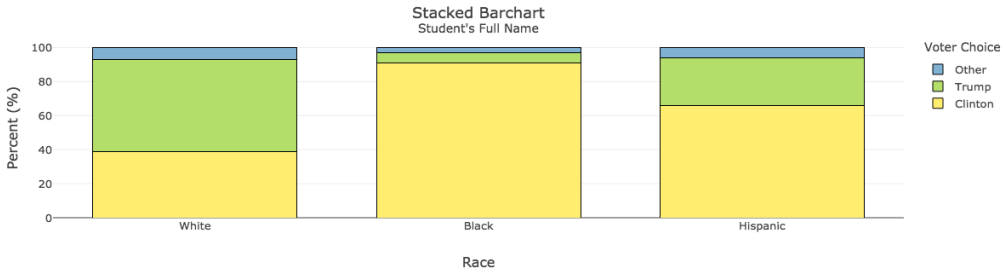


Answer:



5) Create a stacked bar chart of the estimated results of the 2016 presidential election by race by clicking “Stacked Barchart” under “Options for Barchart.” Take a screenshot of the chart and paste it below.

Answer:



6) Which graph is most appropriate for these data? Explain.

Answers will vary.

Sample explanation: The most appropriate graphic for these data would be the stacked bar chart because the data are reported as a portion of the whole.