



# Homework #1 Help

## Voting and Registration Problem

### Background Information

The right to vote has often been called the most important right Americans have. Since 1964, the U.S. Census Bureau has collected data on voter registration and participation rates every two years as part of the [Current Population Survey](#). This data allows researchers to review trends in voter participation over an extended period of time and across different types of election cycles.



### Problem Statement

In this assignment, students will analyze voter registration and participation statistics by rank and annual rates of change for the years 1980 through 2014.

### Instructions

**IMPORTANT:** This is not the actual Homework for your section. You will not receive any credit for completing this project.

**IMPORTANT:** Complete the steps below in the order they are given. Completing the steps out of order may complicate the assignment or result in an incorrect result.

1. Download and extract the provided Data Files ZIP file. It contains the following file for use in this assignment:
  - a. **voting.csv** – Information on the number of people who were registered to vote and who voted in years 1980 through 2014 [1].

Column Name	Type	Description
<b>Year</b>	Number	Year of the data.
<b>18-24 Voted</b>	Number	Number of people at age 18 to 24 who voted.
<b>18-24 Registered</b>	Number	Number of people at age 18 to 24 registered to vote.
<b>25-44 Voted</b>	Number	Number of people at age 25 to 44 who voted.
<b>25-44 Registered</b>	Number	Number of people at age 25 to 44 registered to vote.
<b>45-64 Voted</b>	Number	Number of people at age 45 to 64 who voted.
<b>45-64 Registered</b>	Number	Number of people at age 45 to 64 registered to vote.
<b>65 and over Voted</b>	Number	Number of people at age 65 and over who voted.
<b>65 and over Registered</b>	Number	Number of people at age 65 and over registered to vote.
<b>Total Voted</b>	Number	Total number of people who voted.
<b>Total Registered</b>	Number	Total number of people registered to vote.



# Homework #1 Help

## Voting and Registration Problem

- b. **gender.csv** – Information on gender group for voter data in years 1980 through 2014 [1].

Column Name	Type	Description
<b>Year</b>	Number	Year of the data.
<b>Male</b>	Number	Number of male voters.
<b>Female</b>	Number	Number of female voters.
<b>Total Voted</b>	Number	Total number of voters.

2. Begin by creating a new Microsoft Excel workbook named **lastname\_firstname\_hh1\_vrp.xlsx**.
3. We must adjust the sheets in our workbook.
  - a. Rename *Sheet1* to *Voting and Registration*.
  - b. Add a new sheet named *Gender*.
  - c. Add a new sheet named *Analysis Questions*.
4. Import the following item into the workbook:
  - a. **voting.csv** file – Import starting in cell **A3** of the *Voting and Registration* sheet. The file is comma-delimited and has headers.
  - b. **gender.csv** file – Import starting in cell **A3** of the *Gender* sheet. The file is comma-delimited and has headers.
5. We wish to apply formatting to the *Voting and Registration* sheet.
  - a. Create a table based on cells **A3** through **K21** using a style of your choice. The table has headers.

The table will overlap external data ranges. Convert the selection to a table and remove all external connections.
  - b. We need to add additional columns to store rank and percentage data.
    - i. Insert two new table columns to the right of existing column **K**.
  - c. For the table, turn on the **Total Row** option.
  - d. Enter text in the cells as indicated below.
    - i. **A1**: Voting and Registration – *Firstname Lastname*
    - ii. **L3**: Total Registered Rank
    - iii. **M3**: Voter Turnout
  - e. Merge-and-center cells **A1** through **M1**.
  - f. Set the font size to 16-point for cell **A1**.



# Homework #1 Help

## Voting and Registration Problem

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6. We need to perform calculations to analyze the *Voting and Registration* sheet data.
- In column **M**, calculate the voter turnout (percentage of registered people that voted) using the formula:
$$\frac{[Total\ Voted]}{[Total\ Registered]}$$
  - In column **L**, use the `RANK.EQ()` function to rank each year by the total number of people registered to vote.
  - We would like to summarize our voting and registration data.
    - In the total row, individually average columns **B** through **K**.
    - In the total row, do not display any statistics in columns **L** and **M**.
7. We must apply additional formatting to the *Voting and Registration* sheet.
- Add borders to the cells as indicated below:
    - J3** through **J22**: left – thick solid line
    - L3** through **L22**: left – thin solid line
  - Format the cells as indicated below:
    - B4** through **K22**: number with no decimal places, use 1000 separator
    - M4** through **M21**: percentage with 1 decimal place
  - AutoFit the widths of columns **A** through **M**.
  - Apply conditional formatting to the percentages of registered people who voted in cells **M4** through **M21**.
    - If the percentage was less than 80% ( $< 0.80$ ), change the cell fill color to red and the text color to white.
    - If the percentage was at least 85% ( $\geq 0.85$ ), change the fill color to green and the text color to white.
8. We also wish to apply formatting to the *Gender* sheet.
- Create a table based on cells **A3** through **D21** using a style of your choice. The table has headers.

The table will overlap external data ranges. Convert the selection to a table and remove all external connections.
  - Insert one new table column to the right of column **D**.



# Homework #1 Help

## Voting and Registration Problem

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- c. Enter text in the cells as indicated below:
    - i. **A1:** Reported Voters by Gender
    - ii. **E3:** Female Percentage
  - d. Merge (but do not center) cells **A1** through **E1**.
  - e. Apply the *Title* cell style to cell **A1**.
9. On the *Gender* sheet, we wish to calculate voter statistics.
- a. In column **E**, calculate the percentage of total voters from female voters using the formula:
$$\frac{[Female]}{[Total Voted]}$$
10. We must apply additional formatting to the *Gender* sheet.
- a. Format the cells as indicated below:
    - i. **B4** through **D21**: number with no decimal places, use 1000 separator
    - ii. **E4** through **E21**: percentage with 1 decimal place
  - b. AutoFit the widths of columns **A** through **E**.
11. We need to setup the *Analysis Questions* sheet so that it can store responses to the analysis questions.
- a. Enter text in the cells as indicated below:
    - i. **A1:** Question Number
    - ii. **B1:** Response
  - b. Bold the contents of row **1**.
  - c. AutoFit the width of column **A**. Set the width of column **B** to 100 (8.39").
  - d. Set the height for rows **2** through **5** to 110 (1.53").
  - e. Change the vertical alignment setting for columns **A** and **B** so that the text is displayed at the top of each row.
  - f. Turn on text wrapping for column **B**.
12. Starting in row **2** of the *Analysis Questions* sheet, answer four of the five analysis questions below. Respond to one question per row.
- a. The number of registered voters tended to increase for each age group over time. Why might this be the case?
  - b. Voter turnout is higher in presidential election years (1980, 1984, 1988, 1992, 1996, 2000, 2004, 2008, 2012) than in other years. Why might this be the case?



# Homework #1 Help

## Voting and Registration Problem

- c. Voter participation tends to be much higher among voters aged 65+ compared to those aged 18-24. How might this impact political policy?
- d. Voter participation rates tend to drop among those aged 75+. Why might this be the case?
- e. Name at least one thing that could be done to increase voter participation rates.

### Grading Rubric

This is a practice assignment and is worth no points. A comparable Homework would be worth 50 points and graded using this rubric, with partial credit awarded as appropriate:

Steps 3a-c	1.5 points total	Steps 7d(i)-(ii)	4 points total
Step 4	5 points	Steps 8a-e	3 points total
Steps 5a-f	3.5 points total	Step 9a	4 points total
Step 6a	4 points total	Steps 10a-b	1.5 points total
Step 6b	5 points total	Steps 11a-f	3 points total
Steps 6c(i)-(ii)	3.5 points total	Steps 12a-e (pick 4 of 5)	2.5 points each
Steps 7a-c	2 points total		

The analysis questions in Steps 12a-e can be evaluated using this rubric:

<b>Standard</b>	<b>Meets Requirements (1.25 points)</b>	<b>Does Not Meet Requirements (0 points)</b>
Answer is reasonable.	Answer addresses the question prompt and is factually correct or a reasonable interpretation of available data.	Answer does not address the question prompt, is factually incorrect, or is an unreasonable interpretation of available data.
Answer is supported.	Logical rationale is provided to support the given answer.	Logical rationale is not provided to support the given answer.

### References

- [1] "Voting and Registration Tables," *U.S. Census Bureau*. Available: <https://www.census.gov/topics/public-sector/voting/data/tables.html>.