Intro to Statistics Project – due **Mon 11/5** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Central Tendency and Variation Data Comparison Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

For this project, you will collect data about your classmates and then describe the central tendency and variation in the data you collected.

**Day 1: Data Collection**

1. In the “My Data” row below, estimate the number of hours you sleep per night on week nights; the number of hours you sleep per night on weekends; the number of text messages you receive each day; your height (in inches); the number of minutes you spend on a computer each day; and the number of minutes you spend watching TV each day.

2. Poll ten of your classmates for their responses to complete the other ten rows. What type of sampling did you use?

3. By hand, calculate the mean, median, and mode of the first three columns. Keep a record of your work. There is a table for your answers on the back of this page. Some answers will be N/A.

4. By hand, calculate the range, variance, and standard deviation for the data in the first three columns. Some answers will be N/A.

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| --- | --- | --- | --- | --- | --- | --- |
| **Male/Female** | **Number Hours Sleep per Night (Week Nights)** | **Number of Hours Sleep per Night (Weekends)** | **Number of Text Messages Per Day** | **Height in Inches** | **Number of Minutes of Computer Use Per Day** | **Number of Minutes Watching TV per day** |
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| **My Data** |  |  |  |  |  |  |

**Some questions once you’re done with Day 1:**

1. What type of data has no mean or median, but does have a mode?

2. Which data set is most skewed?

3. Circle the data set that has more variation:

“Number of Hours of Sleep per Night (Week Nights)” or “Number of Hours of Sleep per Night (Weekends)”

**One question for Day 2:**

4. Why did you have to type “S” at the end of the built-in “VAR” function in Excel?

**Day 2: Excel**

1. Find and log in to a computer. Treat it well!

2. Open Excel. Copy any columns of data for which you have not yet found a mean, median, mode, range, and standard deviation into columns in Excel, starting at column B. (You will need Column A to label your work.) Don’t forget to label your columns in row 1.

3. In cell A-13, type “Median.” Under each column of data, type “=MEDIAN( “ and then highlight the data in the column. Press enter.

4. In cell A-14, type “Mode.” Under each column of data, type “=MODE( “ and then highlight the data in the column. Press enter. (DON’T highlight the median!)

5. In cell A-15, type “Average.” Under each column of data, type “=AVERAGE( “ and then highlight the data in the column. Press enter. (DON’T highlight the median!)

6. To the right of the column “Number of Minutes Watching TV per Day,” make a new column “Minutes of TV Squared.” Click on the cell to the right of the first datum, and type “=.” Then select the first datum by clicking on it, and type “^2.” Hit enter. To fill the rest of the column, mouse over the bottom right corner of the cell you just filled until your cursor becomes a solid black plus sign, click and drag down to the bottom of the data.

7. In cell A-16, type “Sum.” Under the “Number of Minutes Watching TV per Day” column, type “=SUM( “ and select the data in that column. Repeat this for “Minutes of TV Squared.”

8. To the right of the sum at the bottom of the “Minutes of TV Squared” column, find the variance by typing the equation for sample variance after an equal sign. Use parentheses for the numerator and for the denominator (i.e. “=(10\*[F16]-[E16]^2)/(10\*9)” ). You may click on the sum cells to input those numbers into the formula.

9. To the right of the variance you just found, type “=,” click on the variance, type “^.5,” and hit enter. This will calculate the square root of the variance.

10. Label cell A-17 “Variance.” Under each column of data in row 17, type “=VAR.S( “, highlight the data in the column, and press enter.

11. Label cell A-18 “Standard Deviation.” Under each column of data in row 18, type “=STDEV.S( “, highlight the data in the column, and press enter.

12. Print and submit your results OR share/email them with burchfieldj@dcpsmd.org. ALSO use your results to complete the table below.

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| --- | --- | --- | --- | --- | --- | --- |
|  | **Mean** | **Median** | **Mode** | **Range** | **Variance** | **Standard Deviation** |
| **Male/Female** |  |  |  |  |  |  |
| **Number Hours Sleep per Night (Week Nights)** |  |  |  |  |  |  |
| **Number of Hours Sleep per Night (Weekends)** |  |  |  |  |  |  |
| **Number of Text Messages Per Day** |  |  |  |  |  |  |
| **Height in Inches** |  |  |  |  |  |  |
| **Number of Minutes of Computer Use Per Day** |  |  |  |  |  |  |
| **Number of Minutes Watching TV per day** |  |  |  |  |  |  |