

06.04 Assignment Instructions

Instructions: Write a program to calculate the average category, pressure, and wind speed of Atlantic hurricanes that have occurred between a given year range. Also, tally the number of storms in each category according to the Saffir-Simpson scale.

1. Create a new project folder called Challenge Program in the Mod06 Assignments folder.
2. Create a new class named HurricaneSelector for your project.
3. Download the **HurricaneData.txt** file to the new project.
4. Examine the text file to become familiar with the information it contains. The name, pressure (mb), wind speed (kts), month, and year have been provided.
5. Write your program in functional units to do one task at a time. Document each section of code. Use for-each loops and traditional for loops where they are appropriate.
6. Read all data from the text file and store in arrays. Use a separate array for each group of data. For instance, use one array for the years and another for the wind speeds. Think carefully about how to read multiple data items during one loop iteration.
7. Convert the wind speed from knots to miles per hour.
8. The category of each storm is not provided. Use the Saphir-Simpson Wind Speed Scale to determine the category of each storm.
9. Ask the user to provide a range of years. Use this range to create the output. Ensure the user picked years for which you have data.
10. For the given year range, calculate the average for category, wind speed, and pressure.
11. For the given year range, determine the maximum and minimum values for the category, wind speed, and pressure. Use the **Integer.MIN_VALUE** and **Integer.MAX_VALUE** constants. Do not use Java's **max()** or **min()** methods.
12. Print the results in a well formatted, user-friendly fashion. String data should be left justified. Numeric data needs to be aligned on the decimal point. Use the sample below as a guide.
13. Write the summary statistics to a new text file. Include the year range and the count for each category.

Saphir-Simpson Hurricane Wind Scale: Scale used to categorize hurricanes.

Wind Speed	Category
74–95 mph	1
96–110 mph	2
111–129 mph	3
130–156 mph	4
157 mph or higher	5

Expected Output: Your program's output should be similar to the following screen shot. Due to the amount of information, only the top and bottom of the output generated is shown in this image.

Hurricanes 2003 - 2005				
Year	Hurricane	Category	Pressure (mb)	Wind Speed (mph)
2003	Claudette	1	979	92.06
2003	Danny	1	1000	74.80
2003	Erika	1	986	74.80
2003	Fabian	4	939	143.85
2003	Isabel	5	915	166.86
2003	Juan	2	969	103.57
2003	Kate	3	952	126.59
2004	Alex	3	957	120.83
2004	Charley	4	941	149.60
2005	Stan	1	977	80.55
2005	Vince	1	988	74.80
2005	Wilma	5	882	184.12
2005	Beta	3	962	115.08
2005	Epsilon	1	981	86.31
Average:		2.7	955.4	117.49
Minimum:		1	882	74.80
Maximum:		5	1000	184.12
Summary of Categories:				
Cat 1: 12				
Cat 2: 3				
Cat 3: 5				
Cat 4: 5				
Cat 5: 6				

