**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Total \_\_\_\_\_/125**

**Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_**

**Assessor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date signed off as being completely correct \_\_\_\_\_\_\_\_\_\_\_**

**Hurricane Class**

\_\_\_\_\_ Comments include name, date, and summary using Javadoc and uses correct grammar.

\_\_\_\_\_ Instance variables – declared to be private and variable names are spelled out

\_\_\_\_\_ Constructor with correct parameters and it calls determineCategory

\_\_\_\_\_ getName, getPressure, getSpeed, getYear, getMonth, getCategory

\_\_\_\_\_ determineCategory

\_\_\_\_\_ toString – uses String.format method

\_\_\_\_\_ compareYearTo, compareNameTo, comparePressureTo, compareSpeedTo,

compareCategoryTo each are one-line methods, although compareNameTo can be multiple lines to make it

case insensitive.)

\_\_\_\_\_ CheckStyle finds no errors. Javadoc is correctly done for all methods and constructors. These include:

* Summary
* @param, if appropriate
* @return, if appropriate

**HurricaneOrganizer Class with an Array of Hurricane Objects**

\_\_\_\_\_ Author's unique name replaces "Name" in class name, e.g., HurricaneOrganizerArrayKing

\_\_\_\_\_ Comments include name, date, and summary using Javadoc and uses correct grammar.

\_\_\_\_\_ Instance variables – array of hurricane objects

\_\_\_\_\_ findMaxPressure without sorting first

\_\_\_\_\_ findMaxWindspeed without sorting first

\_\_\_\_\_ findMinPressure without sorting first

\_\_\_\_\_ findMinWindSpeed without sorting first

\_\_\_\_\_ calculateAveragePressure

\_\_\_\_\_ calculateAverageWindSpeed

\_\_\_\_\_ calculateAverageCategory

\_\_\_\_\_ sortYears – selection sort that sorts the years ascending and uses compareYearTo

\_\_\_\_\_ sortNames – insertion sort that sorts the names ascending and uses compareNameTo

\_\_\_\_\_ sortCategories – selection sort that sorts the categories descending and uses

compareCategoryTo

\_\_\_\_\_ sortPressures – merge sort (not recursive) that sorts the pressures descending and uses

comparePressureTo. Verify that sortPressures' helper method sorts a portion of the array.

\_\_\_\_\_ sortWindSpeeds – recursive merge that sorts ascending (base case is labeled)

\_\_\_\_\_ mergeWindSpeeds – merge to support sortWindSpeeds and uses compareSpeedTo

\_\_\_\_\_ searchYear – sequential search (array of hurricanes that occurred for a given year) (2 loops)

\_\_\_\_\_ searchHurricaneNameHelper – binary search (array of hurricanes with a given name) (2 base cases are labeled)

Verify that searchHurricaneNameHelper's retrieval helper method finds all occurrences of hurricanes with a given name.

\_\_\_\_\_ CheckStyle finds no errors. Javadoc is correctly done for all methods and constructors. These include:

* Summary
* @param, if appropriate (if the parameter is an index, the comment states if index is included or excluded)
* @return, if appropriate

**HurricaneOrganizer Class with an ArrayList of Hurricane Objects**

\_\_\_\_\_ Verify there is no **[** except on the line public static void main(String[]args)

\_\_\_\_\_ Comments include name, date, and summary using Javadoc and uses correct grammar.

Comments with the word array have been changed to use ArrayList.

\_\_\_\_\_ Verify in the main method that the object cane is a "HurricaneOrganizerArrayListName" object.

\_\_\_\_\_ Instance variables – ArrayList of hurricane objects

\_\_\_\_\_ determineFileLength method is not in the class

\_\_\_\_\_ findMaxPressure without sorting first

\_\_\_\_\_ findMaxWindspeed without sorting first

\_\_\_\_\_ findMinPressure without sorting first

\_\_\_\_\_ findMinWindSpeed without sorting first

\_\_\_\_\_ calculateAveragePressure

\_\_\_\_\_ calculateAverageWindSpeed

\_\_\_\_\_ calculateAverageCategory

\_\_\_\_\_ sortYears – selection sort that sorts the years ascending and uses compareYearTo

\_\_\_\_\_ sortNames – insertion sort that sorts the names ascending and uses compareNameTo

\_\_\_\_\_ sortCategories – selection sort that sorts the categories descending and uses

compareCategoryTo

\_\_\_\_\_ sortPressures – merge sort (not recursive) that sorts the pressures descending and uses

comparePressureTo. Verify that sortPressures' helper method sorts a portion of the ArrayList.

\_\_\_\_\_ sortWindSpeeds – recursive merge that sorts ascending (base case is labeled)

\_\_\_\_\_ mergeWindSpeeds/merge – merge to support sortWindSpeeds and uses compareSpeedTo

\_\_\_\_\_ searchYear – sequential search (ArrayList of hurricanes that occurred for a given year) (1 loop)

\_\_\_\_\_ searchHurricaneNameHelper – binary search (ArrayList of hurricanes with a given name) (2 base cases are labeled)

Verify that searchHurricaneNameHelper's retrieval helper method finds all occurrences of hurricanes with a given name.

\_\_\_\_\_ CheckStyle finds no errors. Javadoc is correctly done for all methods and constructors. These include:

* Summary
* @param, if appropriate (if the parameter is an index, the comment states if index is included or excluded)
* @return, if appropriate

**Hurricane Testing**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Array ✔** | **ArrayList ✔** | **Test** | **Array ✔** | **ArrayList ✔** | **Test**  (The number of matches is in the parentheses.) |
|  |  | Test the sorts in the following order: |  |  | Search for names: |
|  |  | * Sort wind speed (ascending) |  |  | * Alex (1) |
|  |  | * Sort names (ascending) |  |  | * Alicia (1) |
|  |  | * Sort categories (descending) |  |  | * AAA (0) |
|  |  | * Sort years (ascending) |  |  | * Wilma (1) |
|  |  | * Sort pressures (descending) |  |  | * Bob (2) |
|  |  |  |  |  | * Charley (2) |
|  |  | Test averages: |  |  | * Josh (0) |
|  |  | * Wind 90.86 |  |  | * Vince (1) |
|  |  | * Pressure 961.76 |  |  | * Fran (1) |
|  |  | * Category 2.12 |  |  | * Frances (1) |
|  |  |  |  |  | * ZZZ (0) |
|  |  | Test minimums and maximums: |  |  | Search for years: |
|  |  | * Speed min 64 |  |  | * 2006 (5) |
|  |  | * Speed max 150 |  |  | * 1980 (1) |
|  |  | * Pressure min 882 |  |  | * 3001 (0) |
|  |  | * Pressure max 1002 |  |  | * 1960 (0) |