**CPSC165**

**Assignment#3**

**30 Points**

**Code the Program**

You have been hired as a subcontractor and assigned to a retail coffee cafe to assist them with an inventory application for their café drink menu. The menu information for this application exists in a file and contains a café drink ID, café drink name, calories, size, price, date the drink was introduced, and a category number. The category number is not unique. The ID for the drink is unique. You are to do the following:

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| --- | --- | --- |
|  | 1. Using a predefined ***CafeDrink*** object, the code for which is located on the course Canvas site, create an array class and its associated methods as defined below. | |
|  |  | Name this array class ***CafeDrinks.java*** and within this array class: |
|  | * 1. Code a private array object with appropriate counter variables | |
|  | * 1. Code a public method that is named ***LoadArray*** and inputs the information from the input file and stores each café drink’s information in a CafeDrink object in the array. The input file contains each item of information on a separate line in the input file. So you can utilize a scanner with .next() nextLine() nextInt () etc. Be careful when using nextLine() as discussed in class! | |
|  | * 1. Code a public method within the array class that is named ***sortCategories*** that uses the selection sort algorithm to sort the array in ascending order of category values.   2. Code a public method within the array class that is named printList. It is to print each object in the array using each object’s toString() method (coded already in CafeDrink.java). | |
|  | * 1. Code an efficient public sequential search method named ***effSeqSearchCategory*** that searches for and prints all of the CafeDrink information stored for each object that includes the category value passed as a parameter to this method. Note that if the category search value is a nonexistent category number, your program should print an appropriate informational message to that effect. Note that an efficient search means that since the array is sorted in ascending of order of category values, after all drinks matching the specified category have been printed, the search must terminate. This method also returns an integer count of the number of compare operations performed in the method to find the parameter value. | |
|  | * 1. Code a second public selection sort method named ***sortIDs*** that sorts the array in ascending order of café drink IDs. | |
|  | * 1. Code an efficient public sequential search method named ***effSeqSearchID*** that searches for and prints the CafeDrink information stored for the object that includes the ID value passed as a parameter to this method. Note that if the ID search value is nonexistent, your program should print an appropriate informational message to that effect. Note that an efficient search means that since the array is sorted in ascending of order of ID values, after any drink matching the specified ID has been found and its information printed, the search must terminate. This method also returns an integer count of the number of compare operations performed in the method to find the parameter value.   2. Code a public binarySearch method named ***binarySearchID*** that finds a specified drink ID value in the array of CafeDrink objects and prints all of the information stored in the object element with the matching drink ID. The ID search value is input by the main program and passed as a parameter to the binarySearch method. Note that if the ID value is nonexistent, your method should print an appropriate informational message to that effect. | |
|  | 1. You must download and use the main program that has been provided on the course Canvas website. The main program should **not** be modified. | |
|  | 1. Supply expected results to test your code. Assume that your code functions correctly and specify what output should be obtained for **EACH** of the following:    1. Category value 103    2. Category value 292    3. ID value 5655    4. ID value 9100    5. ID value 3242 | |
|  |  | |

### Compile and Test

When done, compile and run your code.

Then, debug any errors until your code is error-free.

Check your output to ensure that you have the desired output, modify your code as necessary, and rebuild.

### Submit Deliverables

* Capture the Console output window and paste into a Word document. Zip the output file along with the source code files.
* Upload to canvas.