Assignment#1, CS-2365, OOP

For each of the following programs, write your programming code, and the final output of the program. Upload your java file for each program on the black board. Each program should have two or more classes. Each java file should contain your name, your r#, your group number and programming question in the comment section. Q#0 is common to all groups.

Hand-in: 01/31/2019, Hand-out: 02/10/2019

Total Marks: 5.0

Q#0 (Common to all Groups)

Create a class DiningTable with attributes cost, weight, length and width. Provide methods that calculate the Table's perimeter and area. It has *set* and *get* methods for weight, length and width. The *set* methods should verify that weight, length and width are all floating-point numbers larger than 0.0 and less than 20.0. Also provide the cost method which generates the cost of DiningTable in dollars using the formula:

cost = weight * length * height.

Write a class TestDiningTable to test the class DiningTable. In the TestDiningTable class, use a 'while' loop to call each method of DiningTable class using input from keyboard (using Scanner class). If the values are not correct input again and show the results in a formatted manner using JOptionPane. Program stops if there is no more test data. Data encapsulation required.

G1, G5, G10, G15

Q1. Write a menu driven program which uses switch-case and do-while loop. Input option using JOpionPane. Write methods for each of the following task. Invoke these methods from cases of switch statement:

a) **Use random function to generate 10 positive unique numbers between 1 and 50. Store them in the array.**
b) **Displays the array elements as a single String using JOtionPane.**
c) **Input a number and search it in the array using binary search. Display "Found"/"Not Found"**
d) **Display the largest value and all elements of array as single String using JOptionPane after swaping the largest number with the last element of array.**
e) **Exit the program**

G2, G7, G12, G17,

Q2. Write a menu driven program which uses switch-case and do-while loop. Input option using JOpionPane. Write methods for each of the following task. Invoke these methods from cases of switch statement:

a) **Find first 10 prime numbers and store them in the array.**
b) **Display the array elements as a single String using JOtionPane.**
c) **Using random number generator readjusts the list and display it.**
d) **Swap first element of array with the last element and display the array as a single string using JOptionPane.**
e) **Exit the program**

G3, G8, G13, G18, G23

Q3. Write a menu driven program which using switch-case and do-while loop. Input option using JOpionPane. Write methods for each of the following task. Invoke these methods from cases of switch statement:

a) **Use random number to fill an array of size 10 such that the 1st element is divisible by 2, 2nd element by 3, 3rd element by 4 and so on.**
b) **Display the array elements as a single string using JOptionPane.**

c) Readjust the elements of array such that the even entries precede the odd entries and display the array elements as a single String
d) Display the array list such that the second largest element of the array is the last element of array
e) Exit the program

G4, G9, G14, G19, G24

Q4. Write a menu driven program which using switch-case and do-while loop. Input option using JOpionPane. Write methods for each of the following task. Invoke these methods from cases of switch statement:

a) Use random number generator to fill the array with 10 unique values from 1 to 20.
b) Displays the array elements as a single string using JOptionPane..
c) Delete the odd elements from the array and display the array as a single String. Keep the count of deleted elements.
d) Regenerate the deleted elements by multiplying the index of regenerating element with the value stored in the first index and so on.
e) Exit the program

G6, G11, G16, G21, G26

Q5. Write a menu driven program which using switch-case and do-while loop. Input option using JOpionPane. Write methods for each of the following task. Invoke these methods from cases of switch statement:

a) Use Random generator to input 10 unique characters between a-k. Store them in the array.
b) Display the array elements as a single String using JOptionPane.
c) Change the case of each array element and display the array again as a single String
d) Sort the array elements using insertion sort and display them.
e) Exit the program

G20, G25, G22,

Q6. Write a menu driven program which using switch-case and do-while loop. Input option using JOpionPane. Write methods for each of the following task. Invoke these methods from cases of switch statement:

a) **Using Random generator, generate unique month names in a random fashion and store them in a String array of size 12.**
b) **Display the array elements as a single String using JOptionPane.**
c) **Change the case of each array element and display the array again**
d) **Sort the array elements using Selection Sort and display the sorted elements of the array as a single String.**
e) **Exit the program**