Assignment [redacted]

UCSE373 : OOP using JAVA Lab

[redacted]

1. Write an application that shows the sum of 1 to n for every n from 1 to 50. That is, the program displays 1 (the sum of 1 alone), 3 (the sum of 1 and 2), 6 (the sum of 1, 2, and 3), 10 (the sum of 1, 2, 3, and 4), and so on.

2. Write an application that displays every perfect number from 1 through 1,000. A perfect number is one that equals the sum of all the numbers that divide evenly into it. For example, 6 is perfect because 1, 2, and 3 divide evenly into it, and their sum is 6; however, 12 is not a perfect number because 1, 2, 3, 4, and 6 divide evenly into it, and their sum is greater than 12.

3.

Create a `Delivery` class for a delivery service. The class contains fields to hold the following:

- A delivery number that contains eight digits. The first four digits represent the year, and the last four digits represent the delivery number. For example, the 76th delivery in 2011 has a complete delivery number of 20110076.
- A code representing the delivery area. A local delivery is code 1, and a long-distance delivery is code 2.
- A weight, in pounds, of the item to be delivered.
- The fee for the delivery, as follows:

Distance	Weight	Fee ($)
1	Under 5 pounds	12.00
1	5 to 20 pounds	16.50
1	Over 20 pounds	22.00
2	Under 5 pounds	35.00
2	5 pounds or more	47.95

Create a constructor for the Delivery class that accepts arguments for the year, delivery number within the year, delivery distance code, and weight of the package. The constructor determines the eight-digit delivery number and delivery fee. Also include a method that displays every Delivery object field.

Assignment 2

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4. Write a program to interchange the largest with the smallest element in an array.

5. Write a program to delete duplicate values from an array.

6. Write a program to count the total number of non-zero elements in an array.

7. Write a program that reads an array of 10 integers. Display all the pairs of elements whose sum is 50.

8. Write a program to find the smallest distance between two neighboring numbers in an array.
   For example, in the sequence 4, 8, 6, 1, 2, 9, 4 the minimum distance is 1 (between 1 and 2).

9. Write a program to find the length of the longest consecutive element sequence from a given unsorted array of integers.
   Sample Array: [49, 1, 3, 200, 2, 4, 70, 5] the longest consecutive element sequence is [1, 2, 3, 4, 5], therefore the program will return its length 5.

10. Define a class DATE containing three integers- day, month and year. Write methods to read data, to validate the date entered by the user and then print the date on the screen.

11. Using the class definition of the above program, write a method to increment the date. Make sure that the incremented date is a valid date.

12. Using the structure definition of the above program, write a method to compare two date variables.

Assignment [redacted]

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13. Write a program to read and display the information about all the employees in a department. Edit the details of the i^{th} employee and redisplay the information.

14. Define a class to store the name, date of birth, an array **marks[]** which stores marks of five different subjects. Write a method to display the name of the students who have secured less than 40% of aggregate.

15. Make an array of students as illustrated in the above question and write a program to display the details of the student with the given date of birth.

16. Write a program to define a class for a hotel that has the members name, address, grade, number of rooms, and room charges. Write a method to print the name of the hotels in a particular grade. Also write a method to print name of the hotels that have room charges less than the specified value.