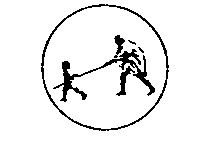
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**M.G.M’S College of Engineering, Nanded**

**Department of Computer Science & Engineering**

**Academic Year : 2024-25 (ODD SEMESTER)**

**Class: SY(CSE)-A & B Sub: Object Oriented Programming Lab (BTCOL306)**

**List of Programming Assignments**

**Simple Programs for Weak Learners –**

* Write a Java program to perform addition of two numbers.
* Write a Java program to check number is even or odd.
* Write a program to create a class GradeBook with method display(). Create another class GradeBookTest, instantiate the object of GradeBook class and call display() method.

1. **Program on operators in Java**
   1. Write an application that inputs three integers from the user and displays the sum, average, Product, smallest and largest of the numbers.
   2. Write an application that reads two integers, determines whether the first is a multiple of the second and prints the result. [Hint:Use the remainder operator.]
   3. Write a program that inputs five numbers and determines and prints the number of negative numbers input, the number of positive numbers input and the number of zeros input.
2. **Java program on Constructors**
   1. Create class Account to provide a method called debit that withdraws money from an Account. Ensure that the debit amount does not exceed the Account’s balance. If it does, the balance should be left unchanged and the method should print a message indicating "Debit amount exceeded count balance." Modify class AccountTest to test method debit.
   2. Create a class called Employee that includes three instance variables a first name (type String), a last name (type String ) and a monthly salary (double). Provide a constructor that initializes the three instance variables. Provide a set and a get method for each instance variable. If the monthly salary is not positive, do not set its value. Write a test application named EmployeeTest that demonstrates class Employee’s capabilities. Create two Employee objects and display each object’s yearly salary. Then give each Employee a 10% raise and display each Employee’s yearly salary again.
3. **Java program on counter-controlled repetition**

Write a program for the following problem statement:

*“A class of ten students took a quiz. The grades (integers in the range 0 to 100) for this quiz are available to you. Determine the total of all grades and average on the quiz.”*

1. **Java program on sentinel-controlled repetition**

Write a program for the following problem:

*“Develop a class-averaging program that processes grades for an arbitrary number of students each time it’s run.”*

1. **Java program on control statement**

An online retailer sells five products whose retail prices are as follows:

Product 1, $2.98;

Product 2,$4.50;

Product 3, $9.98;

Product 4, $4.49 and

a) Product 5, $6.87.

Write an application that reads a series of pairs of numbers as follows:

product number

b) Quantity sold

Your program should use a switch statement to determine the retail price for each product. It should calculate and display the total retail value of all products sold.

1. **Java program on arrays**
   1. Write a program to accept an array from user and sort it in ascending order
   2. Write a program to calculate the frequency of faces of six-sided dice if it is rolled 100 times using array.
2. **Java program on Exception Handling**

Write a program for the following problem:

*“Twenty students were asked to rate on a scale of 1 to 5 the quality of the food in the student cafeteria, with 1 being “awful” and 5 being “excellent.” Place the 20 responses in an integer array and determine the frequency of each rating.”*

1. **Java program on Inheritance and polymorphism.**
2. **Programs on Java Script -**
   1. **Programs on Java script client side scripting.**
   2. **Programs on Java script Operators, Comparisons, Statements, Loops, Events, Objects.**
   3. **Programs on Java script User defined functions.**
   4. **Programs on Java script Validations using object functions.**
   5. **Programs on Java script Validations using regular expressions.**
   6. **Programs on Java script JS document object model, Popovers, Windows.**

**Challenging Programs for Bright Learners –**

1. Given two non-negative integers, num1 and num2 represented as string, return the sum of num1 and num2 as a string. You must solve the problem without using any built-in library for handling large integers (such as BigInteger). You must also not convert the inputs to integers directly.

Example 1:

Input: num1 = "11", num2 = "123"

Output: "134"

Example 2:

Input: num1 = "456", num2 = "77"

Output: "533"

1. Count number of pairs with absolute difference k - Given an integer array nums and an integer k, return the number of pairs (i, j) where i< j such that |nums[i] – nums[j]| == k.

The value of |x| is defined as:

- x if x >= 0.

- x if x < 0

Example 1: Input: nums = [1,2,2,1], k = 1

Output: 4

Explanation: The pairs with an absolute difference of 1 are:

- [1,2,2,1]

- [1,2,2,1]

- [1,2,2,1]

- [1,2,2,1]

Example 2: Input: nums = [1,3], k = 3

Output: 0

Explanation: There are no pairs with an absolute difference of 3.

Ms. Nitu L. Pariyal Mr. R. G. Bisen

**Subject Incharge (SY CSE-A)**  **Subject Incharge (SY CSE-B)**