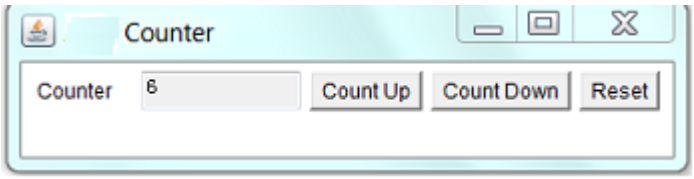
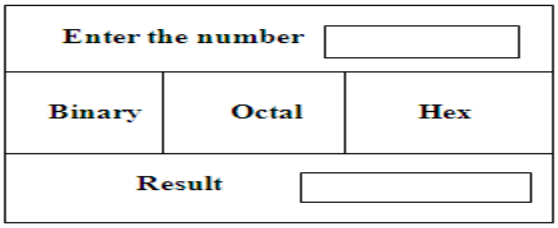
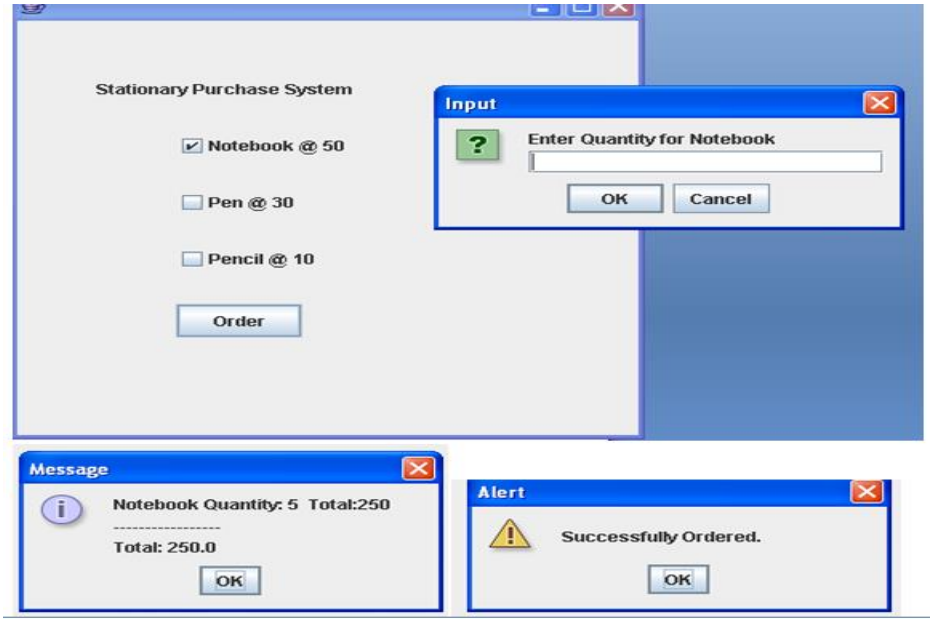
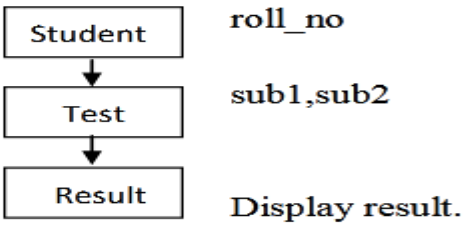
AOOC Java sample problem statements 2024-25 for practice

1	Develop a BankAccount class which should contain all methods of Bank i.e. balanceEnquiry(), withdraw() and deposit(). Generate user defined exception LowBalanceException and NegativeNumberException whenever required. Develop application program to use this user defined exception.
2	Implement java program to perform following on 2*2 matrix A. Addition B. Multiplication C. Transpose
3	Create a class called Employee that includes three pieces of information as instance variables- first name, a last name and a monthly salary. Your class should have 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, set it to 0.0. 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.
4	Implement java program to perform Stack Operations using class and object (use switch case).
5	Take file name as input to your program through command line. If file exists, then open it and display contents of the file. After displaying contents of file ask user – do you want to add the data at the end of file. If user response is "Yes", then accept data from user and append it to file. If file in not existing then create a fresh new-file and store user data into it. User should type "exit" on new line to stop the program. Do this program using Character stream classes.
6	Implement a Java program to merge two sorted arrays.
7	a. Write a Java Program to demonstrate the use of static variable, static block & static method b. Write a Java program to read text file and find number of vowels, number of words from it. Also find number of times 'a' occurred in text file.
8	Create the interface stack which has variable size, abstract methods push (), pop (), display (), overflow () and underflow (). Implement subclass IntegerStack by implementing interface. Create one test class and check for the working of all the methods of IntergerStack class.

9	Implement Following: Create interface shape area() method. Class rectangle and triangle inherits shape class. Calculate area of rectangle and triangle.
10	Implement Following: Class student with variable rollno, getrollno(), setrollno() methods. Class test inherits student class and have variables sub1, sub2 and getmarks(), setmarks() methods. Interface sports with variable smarks and set() method. Class result inherits test class and an implements sport interface and displays that marks. Demonstrate these classes with application.
11	Design a standard calculator using Swing components that supports basic operations ○ Use JTextField to display input/output. ○ Use JButton for digits (0-9) and operations (+, -, *, /, =, %, square, square-root, cube etc.). ○ Implement event handling for button clicks. ○ Display results in the text field.
12	A. Implement  B. Implement GUI with a JTextArea and a label. As the user types, show the character count and word count in real-time using a KeyListener.
13	Implement following Example of Border Layout 
14	Implement Following: Create abstract class shape with dim1, dim2 variables and abstract area() method. Class rectangle and triangle inherits shape class. Calculate area of rectangle and triangle.
15	Develop a mathematical package for Statistical operations like factorial, cube. Create a sub package in the math package -convert. In “convert” package provide classes to convert decimal to octal, binary, hex and vice-versa. Develop application program to use this package.

16	Write a Java program to perform employee payroll processing using packages. In the java file, Emp.java creates a package employee and creates a class Emp. Declare the variables name, empid, category, bpay, hra, da, npay, pf, grosspay, incometax, and allowance. Take da 5%, hra 9%, pf 11% and allowance 10% of bpay. Calculate the values in methods. Create another java file Emppay.java. Create an object e to call the methods to perform and print values.
17	Implement java program to perform Queue Operations using class and object (use switch case).
18	Implement the following 
19	A. Create a Java program using FlowLayout (aligned left, with horizontal gap 10px and vertical gap 20px) that adds three checkboxes labeled "Java", "Python", and "C++" into the frame.B. Implement GridLayout Demonstration of GridLayout 1 2 3 4 5 6 Before Clicking 1 2 3 4 5 6 After Clicking
20	A. Write Java GUI Program using Swing to change background on selecting color. B. Write Java GUI Program using Swing to check given number is prime or not.

21	Create a package Ecommerce containing classes Product, Customer, and Order. Implement methods for placing an order, displaying product details, and calculating total order cost. Use this package in another program.
22	Implement a package LibraryManagement with classes Book and Member. The Book class should have attributes like title, author, and ISBN, while the Member class should store member details. Use this package to create a simple library system.
23	Implement chatting application using java socket programming.
24	A**.** **Write a program to perform Multilevel Inheritance**  B. Write Java Program to display number of words, lines, vowels from given text file.
25	Write a Java program to create a class known as "BankAccount" with methods called deposit() and withdraw(). Create a subclass called SavingsAccount that overrides the withdraw() method to prevent withdrawals if the account balance falls below one hundred.
26	A. Take Student information such as name, age, weight, height, city, phone from user and store it in the file using DataOutputStream and FileOutputStream and Retrive data using DataInputStream and FileInputStream and display the result. B. Implement java program to arrange 10 names in alphabetical order.
27	1. Write a Java program with a method that takes an integer as input. If the number is odd, the method should throw a custom exception (OddNumberException). Handle this exception in the main program. 2. Write a Java program to display the contents of “sample.txt” file.
28	1. Create a package named MathOperations that contains classes for mathematical functions like floor, round, and ceil. Implement a program that uses these functions to perform operations on different numbers. (The Math class in Java contains the methods floor(), ceil(), and round()) 2. Implement GUI Program to implement a simple Timer (using background events). Include a Start and Stop button to control the timer.