

Day-6 Assignment Questions:

1. Illustrate the concept of encapsulation with the Payment Gateway System.[The class should encapsulate private data members such as transaction ID, payer name, payee name, amount, payment method, and transaction status. Provide appropriate public getter and setter methods to access and modify these details securely. Also include a method to display the transaction summary.]

2. Create a Java application that demonstrates the use of user-defined packages by organising classes based on their functionality:

--- arithmetic: This package should include a class that defines methods to perform the following operations on two numbers:

- a. Addition
- b. Subtraction
- c. Multiplication
- d. Division
- e. Modulo

--- stringutils: This package should include a class that defines methods for:

- a. Concatenating two strings
- b. Reversing a string
- c. Finding the length of a string

In your main class (outside those packages), import the above packages and demonstrate the usage of all the methods.

3. Design a class `Employee` with private data members: employee ID, name, designation, department, and monthly salary. Use proper getter and setter methods to access and update these fields. Add a method to calculate and return the annual salary of the employee.

4. Design a travel booking system using two packages:

`travel.booking` – includes a class `Ticket` with ticket ID, destination, and fare.

`travel.user` – includes a class `User` with user details and a method to book a ticket.

Illustrate accessing ticket data from within the user class.

5. Design a class named `BankAccount` that uses the concept of encapsulation. The class should have the following private data members: account number, account holder name, and balance. Provide public getter and setter methods to access and modify these fields. Also, include a method to deposit and withdraw amount ensuring that the balance cannot go negative.