**Assignment 4: Classes and Objects**

**Desing/Create a class using Java for the followings:**

1. **Bank Account Management System:**

• Design a class named BankAccount with the following data members:

**–** Account number

**–** Account holder name

**–** Account type (e.g., savings, current)

**–** Account balance

• Member functions:

**–** Methods to set account details (setAccountDetails()).

**–** Methods to deposit, withdraw, and check balance.

• Objective: Manage individual bank accounts, perform transactions, and maintain

account balances.

2. **Library Book Management System:**

• Create a class named Book with the following data members:

**–** Book ID

**–** Title

**–** Author

**–** Genre

**–** Availability status

• Member functions:

**–** Methods to set book details (setBookDetails()).

**–** Method to check availability and borrow the book.

• Objective: Manage library books, track availability, and handle borrowing

transactions.

3. **Employee Payroll Management System:**

• Define a class named Employee with the following data members:

**–** Employee ID

**–** Name

**–** Department

**–** Salary

• Member functions:

**–** Methods to set employee details (setEmployeeDetails()).

**–** Methods to calculate and update salary.

• Objective: Manage employee data, compute salaries, and facilitate payroll

processing.

4. **Online Shopping Cart System:**

• Create a class named CartItem representing items in a shopping cart with

the following data members:

**–** Product ID

**–** Product name

**–** Price

**–** Quantity

• Member functions:

**–** Methods to set item details (setItemDetails()).

**–** Methods to calculate subtotal and apply discounts.

• Objective: Model shopping cart items, calculate totals, and handle discounts.

5. **Student Grading System:**

• Design a class named Student with the following data members:

**–** Student ID

**–** Name

**–** Scores (array)

• Member functions:

**–** Methods to set student details and scores (setStudentDetails() and setScores()).

**–** Methods to calculate average score and grade.

• Objective: Store student information, compute grades, and generate reports.

6. **Inventory Tracking System:**

• Define a class named Product representing items in inventory with the following

data members:

**–** Product ID

**–** Name

**–** Quantity

**–** Unit price

• Member functions:

**–** Methods to set product details (setProductDetails()).

**–** Methods to update quantity and calculate total value.

• Objective: Manage inventory items, track quantities, and evaluate stock

Value.

7. **Flight Reservation System:**

• Create a class named Flight with the following data members:

**–** Flight number

**–** Destination

**–** Departure time

**–** Seat availability

• Member functions:

**–** Methods to set flight details (setFlightDetails()).

**–** Methods to book seats and check availability.

• Objective: Manage flight information, handle reservations, and track seat

availability.

8. **Hotel Booking System:**

• Design a class named Room representing rooms in a hotel with the following

data members:

**–** Room number

**–** Type (e.g., single, double)

**–** Availability status

**–** Rate per night

• Member functions:

**–** Methods to set room details (setRoomDetails()).

**–** Methods to book rooms and calculate charges.

• Objective: Manage hotel rooms, handle bookings, and calculate bills.

9. **Car Rental Management System:**

• Define a class named Car representing cars available for rental with the following

data members:

**–** Car ID

**–** Model

**–** Type (e.g., sedan, SUV)

**–** Rental status

**–** Rental rate per day

• Member functions:

**–** Methods to set car details (setCarDetails()).

**–** Methods to rent cars and calculate rental charges.

• Objective: Manage rental cars, process bookings, and calculate rental fees.

10. **Restaurant Ordering System:**

• Create a class named MenuItem representing items on a restaurant menu with

the following data members:

**–** Item ID

**–** Name

**–** Price

**–** Description

• Member functions:

**–** Methods to set item details (setItemDetails()).

**–** Methods to display item details and update prices.

• Objective: Manage restaurant menu items, display menu, and update prices.