C-DAC Mumbai

PG-DAC September ’23

Logic Building Session (Practice Set-2)

Question:

Part 1 (Class and Constructor):

Problem Statement: Create a Student class with attributes name, age, and grade. Write a constructor to initialize these attributes. Then, create an object of the Student class and display the student's information.

Expected Output for Part 1:

Student Name: John
Student Age: 18
Student Grade: A

Part 2 (Parameterized Constructor):

Problem Statement: Enhance the Student class by adding a parameterized constructor that allows you to set the student's name, age, and grade when creating an object. Create two objects using this constructor and display their information.

Expected Output for Part 2:

Student 1:
Student Name: Alice
Student Age: 20
Student Grade: B

Student 2:
Student Name: Bob
Student Age: 19
Student Grade: C

Part 3 (Method Overloading):

Problem Statement: Add a method calculateFinalGrade() to the Student class that calculates the final grade based on the student's current grade. If the current grade is 'A', add a '+' to the final grade. If it's 'F', add a '-' to the final grade. Create an object and demonstrate the use of this method.

Expected Output for Part 3:

Student Name: Carol
Student Age: 21
Student Grade: B
Final Grade: B

Part 4 (Method Overloading with Parameters):
Problem Statement: Overload the calculateFinalGrade() method to accept an additional parameter, bonusPoints, which is an integer representing bonus points earned by the student. Adjust the final grade calculation by considering the bonus points. Create an object and use both versions of the calculateFinalGrade() method to display the final grade.

Expected Output for Part 4:
Student Name: David
Student Age: 22
Student Grade: C
Final Grade (Without Bonus Points): C
Final Grade (With Bonus Points): B

Part 5 (School Class):
Problem Statement: Create a School class with an attribute schoolName and a constructor to initialize it. Also, create a method enrollStudent() that takes a Student object as a parameter and enrolls the student in the school. Demonstrate the enrollment of multiple students in the school.

Expected Output for Part 5:
School Name: ABC School
Enrolled Students:
1. John (Age: 18, Grade: A)
2. Alice (Age: 20, Grade: B)
3. Bob (Age: 19, Grade: C)