ASSIGNMENT-3

Title: Develop a program to create and initialize a class representing a student with attributes such as name, roll number, and marks.

Objective: To create a class representing a student in Java and initialize it with attributes such as name, roll number, and marks. The program will also demonstrate how to instantiate objects and display the student's information.

Theory: A class in Java serves as a blueprint for creating objects. Each object created from a class will have its own set of attributes and methods. In this case, we will create a Student class with three attributes: name, roll number, and marks. These attributes will be initialized using a constructor, and their values will be displayed through a method.

We will use the constructor __init__ to initialize these attributes when a new instance of the class is created.

Algorithm:

1. Define a class named Student.
2. Declare instance variables for the student's name, roll number, and marks.
3. Create a constructor to initialize the values of these attributes.
4. Define a method to display the student's information.
5. In the main method, create an instance of the Student class and initialize the student's details.
6. Call the method to display the student's details.

Program:

```
// Student.java
class Student {
    // Instance variables (attributes)
    String name;
    int rollNumber;
    double marks;

    // Constructor to initialize the student's details
    public Student(String studentName, int studentRollNumber, double studentMarks)
{
        name = studentName;
        rollNumber = studentRollNumber;
        marks = studentMarks;
    }

    // Method to display student's information
    public void displayDetails() {
        System.out.println("Student Name: " + name);
```

```
        System.out.println("Roll Number: " + rollNumber);
        System.out.println("Marks: " + marks);
    }

    public static void main(String[] args) {
        // Creating a Student object and initializing the attributes
        Student student1 = new Student("John Doe", 101, 85.5);

        // Displaying the student's details
        student1.displayDetails();
    }
}
```

Output:
Student Name: John Doe
Roll Number: 101
Marks: 85.5

Explanation:

- **Class Definition**: We define a class named Student which contains the attributes name, rollNumber, and marks as instance variables.
- **Constructor**: The constructor is used to initialize these attributes when a Student object is created. The constructor parameters take values that will be assigned to the instance variables.
- **Method to Display Details**: The displayDetails() method is used to print out the student's name, roll number, and marks.
- **Main Method**: The main method creates a Student object, initializes it with specific values, and calls the displayDetails() method to print the student's information.

Conclusion:

The program illustrates how to define a class in Java, initialize its attributes through a constructor, and display the information using a method. This approach helps manage related data and provides clear structure in object-oriented programming.