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Lab Assignment - 5

Q1: Write a Java program that defines a method to calculate the factorial of a given integer. The program should take an integer as an argument and return its factorial. Use a recursive method to implement this.

Input:

```
package CoreJava;

public class Factorial {
        // Recursive method to calculate factorial
    public static long calculateFactorial(int n) {
        // Base case: factorial of 0 is 1
        if (n == 0) {
            return 1;
        } else {
            // Recursive case: factorial of n is n multiplied by factorial of (n-1)
            return n * calculateFactorial(n - 1);
        }
    }

    public static void main(String[] args) {
        int num = 12; // Change this to the integer for which you want to calculate the factorial
        long factorial = calculateFactorial(num);

        System.out.println("Factorial of " + num + " is " + factorial);
    }
}
```

Output:

```
Factorial of 12 is 479001600
```

Q2: Define a Java class called "Employee" with methods for setting and getting employee information (name, ID, salary). Create instances of the class and call the methods.

Input:

```
package CoreJava;

public class Employee {

	// Instance variables
    private String name;
    private int id;
    private double salary;

    // Constructor to initialize employee information
    public Employee(String name, int id, double salary) {
        this.name = name;
        this.id = id;
        this.salary = salary;
    }

    // Getter method for employee name
    public String getName() {
        return name;
    }

    // Setter method for employee name
    public void setName(String name) {
        this.name = name;
    }

    // Getter method for employee ID
    public int getId() {
        return id;
    }

    // Setter method for employee ID
    public void setId(int id) {
        this.id = id;
    }
```

```
    // Getter method for employee salary
    public double getSalary() {
        return salary;
    }

    // Setter method for employee salary
    public void setSalary(double salary) {
        this.salary = salary;
    }

    public static void main(String[] args) {
        // Create an instance of the Employee class
        Employee employee = new Employee("R Anush", 79797, 92590.0);

        // Get and print employee information
        System.out.println("Employee Name: " + employee.getName());
        System.out.println("Employee ID: " + employee.getId());
        System.out.println("Employee Salary: " + employee.getSalary());

        // Update employee information
        employee.setName("R Kushal");
        employee.setSalary(85940.0);

        // Print updated employee information
        System.out.println("\nUpdated Employee Name: " +
employee.getName());
        System.out.println("Updated Employee Salary: " + employee.getSalary());
    }
}
```

Output:

Employee Name: R Anush
Employee ID: 79797
Employee Salary: 92590.0

Updated Employee Name: R Kushal
Updated Employee Salary: 85940.0