

Rajalakshmi Engineering College

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Batch: 2028

Degree: B.E - CSE (CS)

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 7_Q3

Attempt : 1

Total Mark : 10

Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

A financial analyst, Alex, needs a program to calculate simple interest for various financial transactions. He requires a straightforward tool that takes in the principal amount, interest rate, and time in years and computes the interest.

The formula to be used is: $\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time} / 100$

Implement this functionality using the `InterestCalculator` interface and the `SimpleInterestCalculator` class.

Input Format

The first line of input consists of the principal amount `P` as a double value.

The second line of input consists of the annual interest rate r as a double value.

The third line of input consists of the number of years t as a positive integer, which is an integer value.

Output Format

The output displays the calculated simple interest in the following format: "Simple Interest: [interest_value]", Here, [interest_value] should be replaced with the actual interest value calculated by the program.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 1000.00

5.00

2

Output: Simple Interest: 100.0

Answer

```
import java.util.Scanner;
```

```
interface InterestCalculator {  
    double simpleInterest(double principal, double rate, int time);  
}  
  
class SimpleInterestCalculator implements InterestCalculator {  
    public double simpleInterest(double principal, double rate, int time) {  
        return (principal * rate * time) / 100;  
    }  
}
```

```
class Main {  
    public static void main(String[] args) {  
        Scanner scanner = new Scanner(System.in);  
  
        double principal = scanner.nextDouble();
```

```
double rate = scanner.nextDouble();

int time = scanner.nextInt();

InterestCalculator calculator = new SimpleInterestCalculator();

double interest = calculator.simpleInterest(principal, rate, time);

System.out.println("Simple Interest: " + interest);

}

}
```

Status : Correct

Marks : 10/10