

# Rajalakshmi Engineering College

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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;
```

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

```
interface InterestCalculator {  
    double simpleInterest(double principal, double rate, int time);  
}
```

```
class SimpleInterestCalculator implements InterestCalculator {  
    @Override  
    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