

# Rajalakshmi Engineering College

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Department: AI & ML - Section 1

Batch: 2028

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## 2024\_28\_III\_OOPS Using Java Lab

### 2028\_REC\_OOPS using Java\_Week 1\_Q10

Attempt : 1

Total Mark : 10

Marks Obtained : 10

#### **Section 1 : Coding**

##### **1. Problem Statement**

Aishu is supervising a construction project that needs to be completed with the help of three workers: A, B, and C.

She knows how many days each of them would take to complete the entire project individually:

A can complete it in x days,B in y days,C in z days.

Initially, all three workers (A, B, and C) work together for d1 days.

After that, C leaves, and only A and B continue for another d2 days.

Then B also leaves, and A works alone to finish the remaining work.

Your tasks is to help aishu to implement this functionality using the class WorkDistribution and Method calculateWork(int x, int y, int z, int d1, int d2)

Calculate the total work completed in the first  $d_1$  days by A, B, and C. Calculate the work completed in the next  $d_2$  days by A and B. Determine the remaining work after these  $d_1 + d_2$  days.

#### ***Input Format***

The first line of input contains five space-separated integers:  $x \ y \ z \ d_1 \ d_2$

where:

$x$  represents the Days A takes to complete the work alone

$y$  represents the Days B takes to complete the work alone

$z$  represents the Days C takes to complete the work alone

$d_1$  represents the Days A, B, and C work together

$d_2$  represents the Days A and B work together (after C leaves)

#### ***Output Format***

The first line of output prints "Work done in first  $d_1$  days (A+B+C):" followed by a double value rounded to 2 decimal places.

The second line of output prints "Work done in next  $d_2$  days (A+B):" followed by a double value rounded to 2 decimal places.

The third line prints "Remaining work:" followed by a double value rounded to 2 decimal places.

Refer to the sample output for formatting specifications.

#### ***Sample Test Case***

Input: 10 20 30 2 2

Output: Work done in first  $d_1$  days (A+B+C): 0.37

Work done in next  $d_2$  days (A+B): 0.30

Remaining work: 0.33

#### ***Answer***

```
import java.util.Scanner;

class WorkDistribution {
    public void calculateWork(int x, int y, int z, int d1, int d2) {
        // Work per day by A, B, C respectively
        double workA = 1.0 / x;
        double workB = 1.0 / y;
        double workC = 1.0 / z;

        // Work done in first d1 days (A + B + C)
        double workFirstPhase = (workA + workB + workC) * d1;

        // Work done in next d2 days (A + B)
        double workSecondPhase = (workA + workB) * d2;

        // Total work completed
        double totalWorkDone = workFirstPhase + workSecondPhase;

        // Remaining work
        double remainingWork = 1.0 - totalWorkDone;

        // Rounding values to 2 decimal places for output
        System.out.printf("Work done in first d1 days (A+B+C): %.2f\n",
                           workFirstPhase);
        System.out.printf("Work done in next d2 days (A+B): %.2f\n",
                           workSecondPhase);
        System.out.printf("Remaining work: %.2f\n", remainingWork);
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        // Read inputs
        int x = sc.nextInt();
        int y = sc.nextInt();
        int z = sc.nextInt();
        int d1 = sc.nextInt();
        int d2 = sc.nextInt();

        // Create object and call method
```

```
        WorkDistribution wd = new WorkDistribution();
        wd.calculateWork(x, y, z, d1, d2);
    }
}
```

**Status : Correct**

**Marks : 10/10**