

Rajalakshmi Engineering College

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_MCQ

Attempt : 2
Total Mark : 15
Marks Obtained : 15

Section 1 : MCQ

1. What will be the output of the following code snippet?

```
class DivisionExample {  
    public static void main(String[] args) {  
        double num1 = 10.5;  
        double num2 = 3;  
        int result = (int)(num1 / num2);  
        System.out.println(result);  
    }  
}
```

Answer

3

Status : Correct

Marks : 1/1

2. What is the output of the following program?

```
class Demo {  
    public static void main(String[] args) {  
        String text = "Hello, World!";  
        System.out.println(text);  
    }  
}
```

Answer

Hello, World!

Status : Correct

Marks : 1/1

3. What is the output of the following code?

```
class TestClass {  
    public static void main(String[] args) {  
        int a = 5;  
        int b = 10;  
  
        int sum = a + b;  
        int bitwiseAnd = a & b;  
        int bitwiseOr = a | b;  
  
        System.out.println(sum);  
        System.out.println(bitwiseAnd);  
        System.out.println(bitwiseOr);  
    }  
}
```

Answer

15015

Status : Correct

Marks : 1/1

4. What is the output of the following code?

```
class TestClass {
```

```
public static void main(String[] args) {  
    int count = 8;  
    count = count ^ 1;  
  
    System.out.println(count);  
}  
}
```

Answer

9

Status : Correct

Marks : 1/1

5. What is the output of the following code?

```
class TestClass {  
    public static void main(String[] args) {  
        int a = 10;  
        int b = 3;  
        System.out.println(a / b);  
    }  
}
```

Answer

3

Status : Correct

Marks : 1/1

6. What will be the output of the following code?

```
import java.util.*;
```

```
class TernaryOperatorExample {  
    public static void main(String[] args) {  
        int a = 5, b = 10;  
        int result = (a > b) ? a : b;  
        System.out.println(result);  
    }  
}
```

Answer

10

Status : Correct

Marks : 1/1

7. Which of the following data types is used to store floating-point numbers with greater precision?

Answer

double

Status : Correct

Marks : 1/1

8. What will be the output of the following program?

```
class DataTypesMCQ {  
    public static void main(String[] args) {  
        int a = 10;  
        double b = 5;  
        System.out.println(a / b);  
    }  
}
```

Answer

2.0

Status : Correct

Marks : 1/1

9. What will be the output of the following code snippet?

```
import java.util.*;
```

```
class OperatorPrecedenceExample {  
    public static void main(String[] args) {  
        int a = 5, b = 3, c = 2;  
        int result = a + b * c;  
  
        System.out.println(result);  
    }  
}
```

Answer

11

Status : Correct

Marks : 1/1

10. What is the output of the following code?

```
import java.util.*;

class RelationalOperatorExample {
    public static void main(String[] args) {
        int x = 8, y = 4;
        boolean result = (x != y);

        System.out.println(result);
    }
}
```

Answer

true

Status : Correct

Marks : 1/1

11. What is the output of the following code?

```
class TestClass {
    public static void main(String[] args) {
        int x = 5;
        int X = 10;

        int sum = x + X;
        int bitwiseResult = x | X;

        System.out.println(sum);
        System.out.println(bitwiseResult);
    }
}
```

```
}
```

Answer

1515

Status : Correct

Marks : 1/1

12. What is the output of the following program?

```
class Arithmetic {  
    public static void main(String[] args) {  
        char ch = 'A';  
        System.out.println(ch);  
    }  
}
```

Answer

A

Status : Correct

Marks : 1/1

13. Which of the following data types is used to store single characters?

Answer

char

Status : Correct

Marks : 1/1

14. Which of the following is not a primitive data type?

Answer

string

Status : Correct

Marks : 1/1

15. What is the result of the following expression?

```
import java.util.*;
```

```
class ComplexExpressionExample {  
    public static void main(String[] args) {  
        int a = 5, b = 2, c = 3, d = 4;  
        int result = a + b * c / d - b;  
  
        System.out.println(result);  
    }  
}
```

Answer

4

Status : Correct

Marks : 1/1

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q2

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. PROBLEM STATEMENT:

Dave got two students who want help with their doubt. Each hands out an integer and wants to find if one integer is positive while the other is not divisible by 3. Write a program to achieve this and conclude for them.

Input Format

The first line of input represents the first integer.

The second line of input represents the second integer.

Output Format

The output should display as "One of the integers is positive while the other is not divisible by 3." or "Neither of the integers meets the condition."

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 4

3

Output: One of the integers is positive while the other is not divisible by 3.

Answer

// You are using Java

import java.util.*;

```
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        int a = sc.nextInt();  
        int b = sc.nextInt();  
        if ((a > 0 && b % 3 != 0) || (b > 0 && a % 3 != 0)) {  
            System.out.println("One of the integers is positive while the other is not  
divisible by 3.");  
        } else {  
            System.out.println("Neither of the integers meets the condition.");  
        }  
    }  
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q4

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Vishal and Arun are discussing the properties of numbers. Vishal gives Arun two integers. He asks Arun to check if the sum of these two numbers is a multiple of their product.

Can you assist Arun and determine whether the sum is a multiple of the product?

Input Format

The input consists of two space-separated integers.

Output Format

The output prints:

1. "Sum is Multiple of Product" if the sum of the two numbers is divisible by their product.
2. "Sum is Not Multiple of Product" otherwise.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1 2

Output: Sum is Not Multiple of Product

Answer

// You are using Java

import java.util.Scanner;

```
public class Main{
    public static void main(String[] args){
        Scanner s=new Scanner(System.in);
        int a=s.nextInt();
        int b=s.nextInt();
        if((a+b)%(a*b)==0){
            System.out.println("Sum is Multiple of product");
        }else{
            System.out.println("Sum is not Multiple of product");
        }
    }
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q6

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Joey is learning about bitwise operations and is working on a project that involves extracting specific bits from integers. He needs to write a program that takes an integer and the number of bits N as input and outputs the value of the lowest N bits of the integer.

Help Joey in his project to understand and visualize how bitwise operations work in practical scenarios.

Input Format

The first line of input consists of an integer X, representing the given integer.

The second line consists of an integer N, representing the number of bits to extract.

Output Format

The output displays "Result: " followed by an integer representing the value of the lowest N bits of the given integer.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 85

2

Output: Result: 1

Answer

```
// You are using Java
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int X = sc.nextInt();
        int N = sc.nextInt();
        int mask = (1 << N) - 1;
        int result = X & mask;
        System.out.print("Result: " + result);
    }
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q7

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement:

Miles is working on a program that involves analyzing two integers. He wants to check if either one of the integers is both:

Less than or equal to zero, and Odd. Can you help him create a program that identifies whether either of the integers meets these conditions?

Input Format

The input consists of two integers on separate lines, denoted as 'input1' and 'input2'.

Output Format

A single line with a boolean result (either 'true' or 'false') indicating whether either 'input1' or 'input2' is both less than or equal to zero and odd.

Refer to the sample output for format specifications

Sample Test Case

Input: -45

10

Output: true

Answer

// You are using Java

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

```
public class Main {
```

```
    public static void main(String[] args) {
```

```
        Scanner s = new Scanner(System.in);
```

```
        int a = s.nextInt(), b = s.nextInt();
```

```
        System.out.println((a <= 0 && a % 2 != 0) || (b <= 0 && b % 2 != 0));
```

```
    }
```

```
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q8

Attempt : 2
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

In the Kingdom of Finance, the royal treasury is managed by the treasurer, Sir Cedric. Sir Cedric tracks the daily expenses of the kingdom using an expense report that lists three major categories: food, clothing, and utilities. However, the King wants to know if the average daily expense is greater than at least two of these categories to ensure the kingdom is spending wisely.

Your task is to help Sir Cedric determine if the average daily expense is greater than two of the categories. Specifically, you need to calculate the average of the three expenses and check if it is greater than any two categories.

Note: Use the ternary operator

Input Format

Three integers a, b, and c represent the daily expenses for food, clothing, and utilities. Each integer is provided on a single line.

Output Format

The average of the three expenses, rounded to two decimal places.

A message indicating whether the average is greater than at least two of the expense categories.

1. If the average is greater than the two smallest monthly expenses, print "Average is greater than both X and Y," where X and Y are the two smallest expenses.
2. Otherwise, display "Average is not greater than two smallest expenses".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 4

6

10

Output: 6.67

Average is greater than both 4 and 6

Answer

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

```
class Main {
```

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

```
        int a = scanner.nextInt();
```

```
        int b = scanner.nextInt();
```

```
        int c = scanner.nextInt();
```

```
        double average = (a + b + c) / 3.0;
```

```
        System.out.printf("%.2f\n", average);
```

```
        String result = (average > a && average > b) ?
```

```
"Average is greater than both " + a + " and " + b :  
(average > a && average > c) ?  
"Average is greater than both " + a + " and " + c :  
(average > b && average > c) ?  
"Average is greater than both " + b + " and " + c :  
"Average is not greater than two smallest expenses";  
System.out.println(result);  
scanner.close();  
}  
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q9

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Phill is a quality control manager at a manufacturing plant. He needs to verify if a sensor reading at a midpoint station (S2) falls exactly halfway between the readings of the previous station (S1) and the next station (S3). Help him by developing a program that checks if the second sensor reading is the average (midpoint) of the first and third sensor readings.

Use the relational operator to solve the program.

Input Format

The first line of input consists of an integer S1, representing the sensor reading of the first station.

The second line consists of an integer S2, representing the sensor reading of the midpoint station.

The third line consists of an integer S3, representing the sensor reading of the next station.

Output Format

The first line of output displays a boolean value representing whether the sensor reading at the midpoint station is halfway between the readings of the first and the next stations.

The second line displays one of the following:

1. If the result is true, print "The second integer is halfway between the first and third integers."
2. Otherwise, print "The second integer is not halfway between the first and third integers."

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1

7

10

Output: false

The second integer is not halfway between the first and third integers.

Answer

```
// You are using Java
import java.util.Scanner;
```

```
public class Main{
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int S1 = scanner.nextInt();
        int S2 = scanner.nextInt();
        int S3 = scanner.nextInt();
        boolean result = (S2 == (S1 + S3) / 2);
        System.out.println(result);
        if (result) {
            System.out.println("The second integer is halfway between the first and
```

```
third integers.");
```

```
    } else {
```

```
        System.out.println("The second integer is not halfway between the first  
and third integers.");
```

```
    }
```

```
}
```

```
}
```

Status : Correct

Marks : 10/10

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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 task 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;
```

```
public class Main{
```

```
    public static void calculateWork(int x, int y, int z, int d1, int d2) {
```

```
        double workA = 1.0 / x;
```

```
        double workB = 1.0 / y;
```

```
        double workC = 1.0 / z;
```

```
        double work1 = (workA + workB + workC) * d1;
```

```
        double work2 = (workA + workB) * d2;
```

```
        double remaining = 1.0 - (work1 + work2);
```

```
        System.out.printf("Work done in first d1 days (A+B+C): %.2f", work1);
```

```
        System.out.printf("\nWork done in next d2 days (A+B): %.2f", work2);
```

```
        System.out.printf("\nRemaining work: %.2f", remaining);
```

```
    }
```

```
    public static void main(String[] args) {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        int x = sc.nextInt();
```

```
        int y = sc.nextInt();
```

```
        int z = sc.nextInt();
```

```
        int d1 = sc.nextInt();
```

```
        int d2 = sc.nextInt();
```

```
        calculateWork(x, y, z, d1, d2);
```

```
    }
```

```
}
```

Status : Correct

Marks : 10/10

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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_Q2

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. PROBLEM STATEMENT:

Dave got two students who want help with their doubt. Each hands out an integer and wants to find if one integer is positive while the other is not divisible by 3. Write a program to achieve this and conclude for them.

Input Format

The first line of input represents the first integer.

The second line of input represents the second integer.

Output Format

The output should display as "One of the integers is positive while the other is not divisible by 3." or "Neither of the integers meets the condition."

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 4

3

Output: One of the integers is positive while the other is not divisible by 3.

Answer

// You are using Java

import java.util.*;

```
public class Main {  
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        int a = sc.nextInt();  
        int b = sc.nextInt();  
        if ((a > 0 && b % 3 != 0) || (b > 0 && a % 3 != 0)) {  
            System.out.println("One of the integers is positive while the other is not  
divisible by 3.");  
        } else {  
            System.out.println("Neither of the integers meets the condition.");  
        }  
    }  
}
```

Status : Correct

Marks : 10/10