Rajalakshmi Engineering College

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Department: CSE - Section 10
Batch: 2028
Degree: B.E - CSE

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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

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

Status : Correct ***Marks : 10/10***

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Section 1 : Coding

1. Problem Statement

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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

```
import java.util.Scanner;
public class Main{
   public static void main(String[] args){
      Scanner scanner = new Scanner(System.in);
      int X=scanner.nextInt();
      int N=scanner.nextInt();
      int result=X&((1<<N) - 1);
      System.out.println("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, andOdd.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.*;
public class Main{
    public static void main(String[] args){
        Scanner scanner=new Scanner(System.in);
        int X=scanner.nextInt();
        int Y=scanner.nextInt();
        boolean result=(X<=0 && X%2!=0) || (Y<=0 && Y%2!=0);

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

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 : 1
Total Mark : 10
Marks Obtained : 5

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

```
// 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(),b=sc.nextInt(),c=sc.nextInt();
double avg=(a+b+c)/3.0;
System.out.printf("%.2f ",avg);
int min1=Math.min(a,Math.min(b,c));
int max1=Math.max(a,Math.max(b,c));
int mid=a+b+c-min1-max1;
System.out.println((avg>min1&&avg>mid)?
"Average is greater than both "+min1+" and "+mid:"Average is not greater than
```

```
two smallest expenses");
}
}
```

Status : Partially correct **Marks : 5/10**

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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 sc=new Scanner(System.in);
int S1=sc.nextInt();
int S2=sc.nextInt();
int S3=sc.nextInt();
boolean result=S2*2==(S1+S3);
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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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 d1 days by A, B, and C.Calculate the work completed in the next d2 days by A and B.Determine the remaining work after these d1 + d2 days.

Input Format

The first line of input contains five space-separated integers: x y z d1 d2

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

d1 represents the Days A, B, and C work together

d2 represents the Days A and B work together (after C leaves)

Output Format

The first line of output prints "Work done in first d1 days (A+B+C): " followed by a double value rounded to 2 decimal places.

The second line of output prints "Work done in next d2 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 d1 days (A+B+C): 0.37
Work done in next d2 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){
double rateA=1.0/x;
double rateB=1.0/y;
double rateC=1.0/z;
double work1=d1*(rateA+rateB+rateC);
System.out.printf("Work done in first d1 days (A+B+C): %.2f\n",work1);
double work2=d2*(rateA+rateB);
System.out.printf("Work done in next d2 days (A+B): %.2f\n",work2);
double remaining=1-(work1+work2);
System.out.printf("Remaining work: %.2f\n",remaining);
}
}
public class Main{
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();
WorkDistribution wd=new WorkDistribution();
wd.calculateWork(x,y,z,d1,d2);
}
}
```

Status : Correct **Marks : 10/10**