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2024_28_III_OOPS Using Java Lab

2028_REC_OOPS using Java_Week 1_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 40

Section 1 : Coding

1. Problem Statement

In the faraway land of Arithmetica, there exists an ancient calculator that can only perform bitwise operations. The calculator is locked with a secret code that only works when the number is modified using a special operation called right shifting.

The ruler of Arithmetica, King Thales, needs your help to unlock the calculator. The lock on the calculator is encoded with a number, and the calculator will only open if you apply a right shift by 2 on the number. Your task is to help King Thales determine the magic number that will unlock the ancient calculator.

Input Format

The first line of input represents an integer.

Output Format

The output should display the right-shifted value by 2 bits.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 16

Output: 4

Answer

```
// You are using Java\
import java .util.*;
public class Main{
   public static void main(String args[]){
      Scanner s = new Scanner(System.in);
      int a=s.nextInt();
      System.out.printf("%d",a>>2);
   }
}
```

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

2. Problem Statement

In a logistics company, each delivery pack contains a specific number of items, and the priority customer receives double the amount. Write a program to determine the total number of delivery packs required for the operation, considering the number of items per pack and the number of customers given as input by the user.

Example

Input:

Number of items per pack = 96

Number of customers = 8

Output:

10

Explanation:

Given the number of items per pack = 96 and the number of customers = 8, the calculations are as follows:

Total number of items needed = number of items per pack * number of customers = 96 * 8 = 768.Priority customer's share = double the amount of items per pack = 2 * 96 = 192.Total items with the priority customer = total items needed + priority share = 768 + 192 = 960.Number of packs needed = (960 + 96 − 1)/ 96 = 10.98Since we cannot have a fraction of a pack, the output is 10.

Input Format

The input consists of two space-separated integers N and C, representing the number of items per pack and the number of customers.

Output Format

The output displays an integer, representing the total number of delivery packs required for the operation.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 1 1

Output: 3

Answer

```
// You are using Java
import java .util.*;
public class Main{
   public static void main(String args[]){
      Scanner s = new Scanner(System.in);
      int n = s.nextInt();
      int c = s.nextInt();
```

```
        int t_no_items = n*c;
        int p_cust_shar = 2*n;
        int t_no_wi_p = t_no_items + p_cust_shar;
        int no_pack=(t_no_wi_p + n - 1) / n ;
        System.out.println(no_pack);

    }

}
```

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

3. Problem Statement

Mandy is working on a cybersecurity project that involves basic encryption techniques. She wants to write a program that takes an integer number and performs a bitwise XOR operation to flip all the bits.

Help Mandy in this encryption using bitwise operations.

Input Format

The input consists of an integer N, representing the number to be flipped.

Output Format

The output displays "Result: " followed by an integer representing the result of the bitwise XOR operation to flip all the bits.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 0

Output: Result: 255

Answer

```
// You are using Java
import java .util.*;
public class Main{
```

```
    public static void main(String args[]){
        Scanner s = new Scanner (System.in);
        int a = s.nextInt();
        int b = a^255;
        System.out.println("Result: "+b);
    }
}
```

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

4. Problem Statement:

Tom is tasked with writing a program that determines whether a given integer is the square of another integer. A perfect square is a number that can be expressed as the square of an integer. The program should take an integer as input and determine if it is a perfect square or not.

The task is to implement the logic to check if the provided integer is the square of an integer and return the result.

Input Format

The first line of the input contains an integer, "input", where |input| represents the absolute value of the integer.

Output Format

The output should display a boolean value, "result," which should be set to true if the input is a perfect square (the square of an integer), and false if it is not.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 16
Output: Is the integer a perfect square? true

Answer

// You are using Java

```
import java.util.*;
public class Main{
   public static void main(String args[] ){
      Scanner s = new Scanner(System.in);
      int a = s.nextInt();
      double b=Math.sqrt(a);
      if(a==b*b){
         System.out.println("Is the integer a perfect square? true");
      }
      else{
         System.out.println("Is the integer a perfect square? false");
      }
   }
}
```

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