**Question:**

A Disarium number is a number in which sum of digits to the power of their respective position is equal to the number itself.

Design a class Disarium to check if a given number is Disarium or not.

Some of the members methods are below.

Int num: store the number.

Int size: store the size of the number.

Member methods:

Disarium(int nn): parameterized constructor to initialize the data member n=nn and size =0.

Void countDigit(): counts the total number of digits and assign to its size.

Int sumofDigits(int r, int p): return the sum of the digits of the number(n) to the power of their respective position(p).

Void check(): check whether the number is disarium number and display the result with an appropriate message.

Specify the class Disarium giving details of the constructor(int), void countDigit() & int sumofDigit(int). Define the main() function to create an object & call the methods to check for Disarium number.

**Algorithm:**

1. **Start**
2. Define a class Disarium with two instance variables num and size.
3. Define a constructor for the class that takes an integer nn as input. Set num to nn and size to 0.
4. Define a method countDigit:
   * 1. Initialize temp to num. While temp is not 0, increment size and divide temp by 10.
5. Define a method sumofDigits that takes two integers r and p as input:
   * 1. If r is 0, return 0.
     2. Otherwise, calculate the last digit of r, raise it to the power of p, and add the result to the result of sumofDigits called with r divided by 10 and p decremented by 1.
6. Define a method check:
   * 1. Call the countDigit method.
     2. Compute sum as the result of sumofDigits called with num and size.
     3. If sum equals num, print that num is a Disarium number.
     4. Otherwise, print that num is not a Disarium number.
7. In the main method:
   * 1. Create a Scanner object sc.
     2. Prompt the user to enter a number.
     3. Read an integer x from the user.
     4. Create a Disarium object obj with x.
     5. Call the check method of obj.
     6. Close the scanner.
8. **End**

**Variable Description Table**

|  |  |  |
| --- | --- | --- |
| **Variable Name** | **Variable Type** | **Variable Description** |
| num | int | The number input by the user. |
| size | int | The number of digits in num. |
| x | int | The number input by the user in the main method. |
| obj | Disarium | An instance of the Disarium class. |
| sc | Scanner | A Scanner object used to read input from the user. |