Question:

Design a class ArmNum to check if a given number is an Armstrong number or not. Class Name: ArmNum

Data members/ Instance variable:

n: to store the number.

l: to store the length of the number.

Methods:

ArmNum(int nn): parameterized constructor to initialize the data member n == nn. Int sum\_pow(int i): returns the sum of each digit raised to the power of the length of the number using recursive technique.

Void isArmstrong(): checks weather the given number is an Armstrong number by invoking the function sum\_pow() and display the result with an appropriate message.

Specify the class ArmNum giving details of the constructor (), int sum\_pow(), and void is Armstrong(). Define a main() function to create an object and call the function accordingly to enable the tasks.

Algorithm:

1. **Start**
2. Define a class ArmNum with two instance variables n and l.
3. Define a constructor for the class that takes an integer nn as input. Set n to nn and l to the number of digits in nn.
4. Define a method sum\_pow that takes an integer i as input:
   * 1. If i is 0, return 0.
     2. Otherwise, return the sum of the lth power of the last digit of i and the result of sum\_pow called with i divided by 10.
5. Define a method isArmstrong:
   * 1. Compute a as the result of sum\_pow called with n.
     2. If a equals n, print that n is an Armstrong number.
     3. Otherwise, print that n is not an Armstrong number.
6. 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 an ArmNum object obj with x.
     5. Call the sum\_pow method of obj with x.
     6. Call the isArmstrong method of obj.
     7. Close the scanner.
7. **End**

**Variable Description Table**

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| **Variable** | **Variable Type** | **Description** |
| n | Integer | To store the number given by the user. |
| l | Integer | The number of digits in ‘n’. |
| i | Integer | The number used in the recursive function sum\_pow to calculate the sum of the **l**th power of the digits. |
| a | Integer | The result of the sum\_pow function i.e. sum of the **l**th power of the digits of n. |
| x | Integer | The number input by the user in the main method. |
| obj | Object of ArmNum | An instance of the ArmNum class. |
| sc | Scanner | A Scanner object to read input from the user. |