

Aim:

Write a sample code to check whether the given number is an **armstrong number** or not.

[Hint: An **armstrong number** is a number that is the sum of its own digits each raised to the power of the number of digits.

For example,

$$9 = 9^1 = 9$$

$$371 = 3^3 + 7^3 + 1^3 = 27 + 343 + 1 = 371$$

$$8208 = 8^4 + 2^4 + 0^4 + 8^4 = 4096 + 16 + 0 + 4096 = 8208]$$

At the time of execution, the program should print the message on the console as:

Enter any number :

For example, if the user gives the **input** as:

Enter any number : 153

then the program should **print** the result as:

The given number 153 is an armstrong number

Similarly, if the input is given as 121 then the output should be "The given number 121 is not an armstrong number".

Note: Do use the **printf()** function with a **newline** character (**\n**) at the end.

Source Code:Program410.c

```
#include<stdio.h>
#include<math.h>
int main()
{
    int num,count=0,arm=0,num2,rem;
    printf("Enter any number : ");
    scanf ("%i",&num);
    int num1=num;
    while(num1!=0)
    {
        num1=num1/10;
        count++;
    }
    num2=num;
    while(num2!=0)
    {
        rem=num2%10;
        arm=arm+pow(rem,count);
        num2=num2/10;
    }
    if(num==arm)
    {
```

```

        printf("The given number %d is an armstrong number\n",num);
    }
    else
    {
        printf("The given number %d is not an armstrong number\n",num);
    }
}

```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter any number : 370
The given number 370 is an armstrong number

Test Case - 2
User Output
Enter any number : 1824
The given number 1824 is not an armstrong number

Test Case - 3
User Output
Enter any number : 5
The given number 5 is an armstrong number

Test Case - 4
User Output
Enter any number : 1634
The given number 1634 is an armstrong number