S.No: 14	Exp. Name: ***Write a C program to find whether the given number is Armstrong or not***	Date:2023-01-03

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,
$9 = 9^1 = 9$
$371 = 3^3 + 7^3 + 1^3 = 27 + 343 + 1 = 371$
$8208 = 8^4 + 2^4 + 0^4 + 8^4 = 4096 + 16 + 0 + 4096 = 8028$]

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 n,count=0,arm=0,n2,rem;
   printf("Enter any number : ");
   scanf("%d",&n);
   int n1=n;
   while(n1!=0)
   {
      n1=n1/10;
      count++;
   }
   n2=n;
   while(n2!=0)
   {
      rem=n2%10;
      arm=arm+pow(rem,count);
      n2=n2/10;
   }
   if(n==arm)
   {
      printf("The given number %d is an armstrong number\n",n);
```

```
    }
    else
    {
       printf("The given number %d is not an armstrong number\n",n);
    }
    return 0;
}
```

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

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