

Example:

Input : 153

Output : Yes

153 is an Armstrong number.

$$1*1*1 + 5*5*5 + 3*3*3 = 153$$

Input : 120

Output : No

120 is not a Armstrong number.

$$1*1*1 + 2*2*2 + 0*0*0 = 9$$

Python Program to check Armstrong Number

Python3



```
# python 3 program
```



```
# to check whether the given number is armstrong or not  
# without using power function
```



```
n = 153 # or n=int(input()) -> taking input from user
```



```
s = n # assigning input value to the s variable
```

```
b = len(str(n))
```

```
sum1 = 0
```

```
while n != 0:
```

```
    r = n % 10
```

```
    sum1 = sum1+(r**b)
```

```
    n = n//10
```

```
if s == sum1:
```

```
    print("The given number", s, "is armstrong number")
```

```
else:
```

```
    print("The given number", s, "is not armstrong number")
```

Python3



```
def is_armstrong(num):  
    num_str = str(num)  
    n = len(num_str)  
    sum = 0  
    for digit in num_str:  
        sum += int(digit)**n  
    if sum == num:  
        return True  
    else:  
        return False  
num=153  
print(is_armstrong(num))
```

Output

True

Python Program for n-th Fibonacci number

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In mathematical terms, the sequence F_n of Fibonacci numbers is defined by the recurrence relation

$$F_n = F_{n-1} + F_{n-2}$$

With seed values

$$F_0 = 0 \text{ and } F_1 = 1.$$

Python Program for n-th Fibonacci number Using recursion

Explanation:

[0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144]

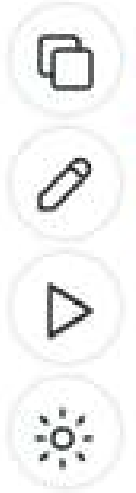
As we know that the Fibonacci series is the sum of the previous two terms, so if we enter 12 as the input in the program, so we should get 144 as the output. And that is what is the result.

Function for nth Fibonacci number



```
def Fibonacci(n):  
    if n<= 0:  
        print("Incorrect input")  
    # First Fibonacci number is 0  
    elif n == 1:  
        return 0  
    # Second Fibonacci number is 1  
    elif n == 2:  
        return 1  
    else:  
        return Fibonacci(n-1)+Fibonacci(n-2)  
  
# Driver Program  
  
print(Fibonacci(10))
```

Python3



```
# creating an array in the function to find the
#nth number in fibonacci series. [0, 1, 1, ...]
def fibonacci(n):
    if n <= 0:
        return "Incorrect Output"
    data = [0, 1]
    if n > 2:
        for i in range(2, n):
            data.append(data[i-1] + data[i-2])
    return data[n-1]

# Driver Program
print(fibonacci(9))
```

Output

```
# Function for nth fibonacci number - Space Optimisation
# Taking 1st two fibonacci numbers as 0 and 1
```



```
def fibonacci(n):
    a = 0
    b = 1
    if n < 0:
        print("Incorrect input")
    elif n == 0:
        return a
    elif n == 1:
        return b
    else:
        for i in range(2, n):
            c = a + b
            a = b
            b = c
        return b
```

```
# Driver Program
```

```
print(fibonacci(9))
```