



Progressive Education Society's
Modern College of Engineering, Pune
MCA Department
A.Y.2023-24

(310908) Python Programming Laboratory

Class: FY-MCA

Shift / Div : F2 / B

Roll Number : 51124

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Assignment No:2

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1. Write a Python Program to Check if a Number is Positive, Negative or 0

```
def check_number(num):  
    if num > 0:  
        print("The number is positive.")  
    elif num < 0:  
        print("The number is negative.")  
    else:  
        print("The number is zero.")
```

```
number = float(input("Enter a number: "))
```

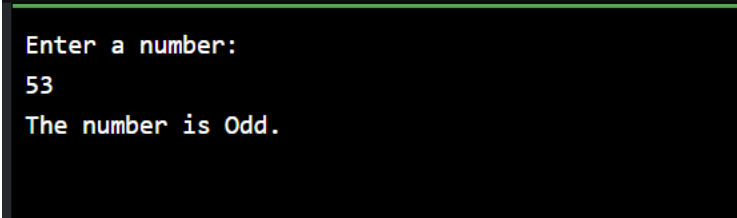
```
check_number(number)
```

```
Enter a number:  
5  
The number is positive.
```

2. Write a Python Program to Check if a Number is Odd or Even

```
def check_odd_even(num):  
    return "Even" if num % 2 == 0 else "Odd"
```

```
number = int(input("Enter a number: "))  
result = check_odd_even(number)  
print(f"The number is {result}.")
```



```
Enter a number:  
53  
The number is Odd.
```

3. Write a Python Program to Check Leap Year

```
def check_leap_year(year):  
    return (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0)
```

```
year = int(input("Enter a year: "))  
if check_leap_year(year):  
    print(f"{year} is a leap year.")  
else:  
    print(f"{year} is not a leap year.")
```

```
Enter a year:
2020
2020 is a leap year.
```

4. Write a Python Program to Find the Largest Among Three numbers

```
def find_largest(num1, num2, num3):
    return max(num1, num2, num3)
```

Example usage:

```
num1 = int(input("Enter the first number: "))
num2 = int(input("Enter the second number: "))
num3 = int(input("Enter the third number: "))
```

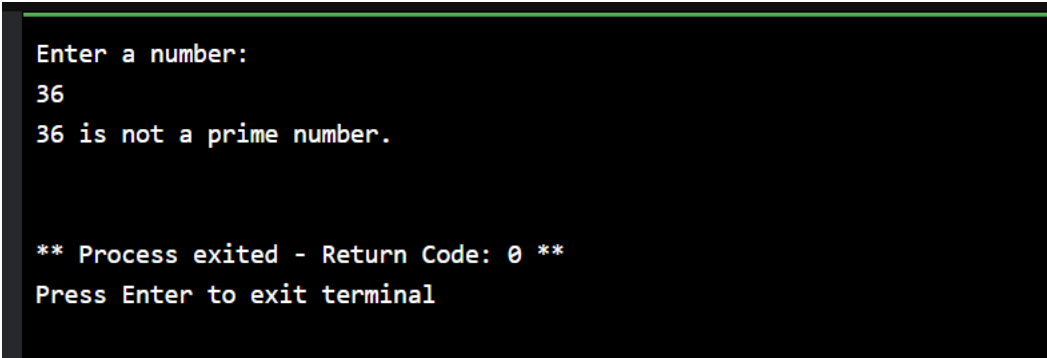
```
largest = find_largest(num1, num2, num3)
print(f"The largest number is: {largest}.")
```

```
Enter the first number:
23
Enter the second number:
104
Enter the third number:
65
The largest number is: 104.
```

5. Write a Python Program to Check Prime Number

```
def is_prime(num):  
    if num < 2:  
        return False  
    for i in range(2, int(num**0.5) + 1):  
        if num % i == 0:  
            return False  
    return True
```

```
number = int(input("Enter a number: "))  
if is_prime(number):  
    print(f"{number} is a prime number.")  
else:  
    print(f"{number} is not a prime number.")
```



```
Enter a number:  
36  
36 is not a prime number.  
  
** Process exited - Return Code: 0 **  
Press Enter to exit terminal
```

6. Write a Python Program to Print all Prime Numbers in an Interval

```
def print_primes_in_interval(start, end):
```

```
    primes = []
```

```
    for num in range(start, end + 1):
```

```
        if is_prime(num):
```

```
            primes.append(num)
```

```
    return primes
```

```
def is_prime(num):
```

```
    if num < 2:
```

```
        return False
```

```
    for i in range(2, int(num**0.5) + 1):
```

```
        if num % i == 0:
```

```
            return False
```

```
    return True
```

```
start = int(input("Enter the start of the interval: "))
```

```
end = int(input("Enter the end of the interval: "))
```

```
prime_numbers = print_primes_in_interval(start, end)
```

```
print(f"The prime numbers in the interval are: {prime_numbers}.")
```

```
Enter the start of the interval:
10
Enter the end of the interval:
110
The prime numbers in the interval are: [11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89,
97, 101, 103, 107, 109].
```

7. Write a Python Program to Find the Factorial of a Number

```
def factorial(num):
```

```
    if num == 0:
```

```
        return 1
```

```
    else:
```

```
        return num * factorial(num - 1)
```

```
number = int(input("Enter a number: "))
```

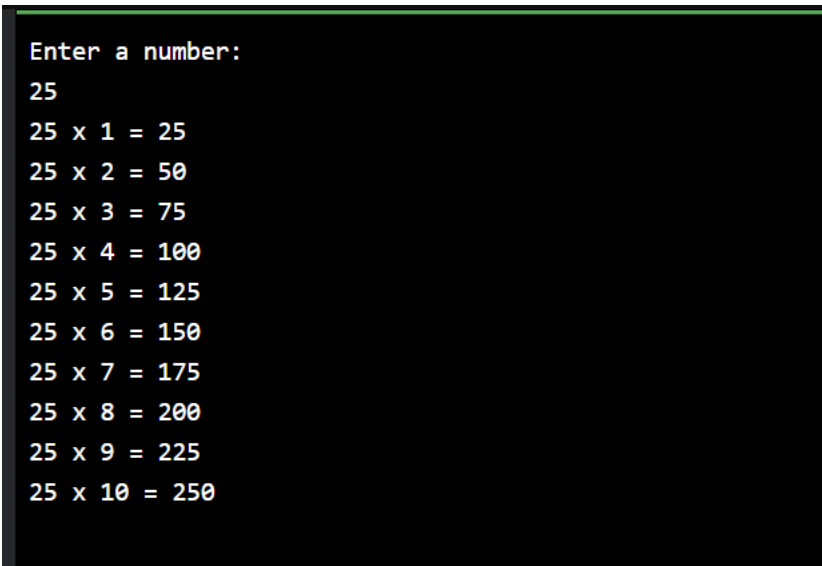
```
result = factorial(number)
```

```
print(f"The factorial of {number} is: {result}.")
```

```
Enter a number:
5
The factorial of 5 is: 120.
```

8. Write a Python Program to Display the multiplication Table

```
def multiplication_table(num):  
    for i in range(1, 11):  
        print(f"{num} x {i} = {num*i}")  
  
number = int(input("Enter a number: "))  
multiplication_table(number)
```

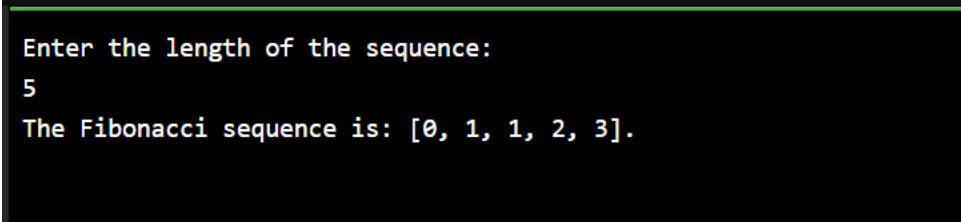


```
Enter a number:  
25  
25 x 1 = 25  
25 x 2 = 50  
25 x 3 = 75  
25 x 4 = 100  
25 x 5 = 125  
25 x 6 = 150  
25 x 7 = 175  
25 x 8 = 200  
25 x 9 = 225  
25 x 10 = 250
```

9. Write a Python Program to Print the Fibonacci sequence

```
def fibonacci_sequence(n):  
    fib_sequence = [0, 1]  
    while len(fib_sequence) < n:  
        fib_sequence.append(fib_sequence[-1] + fib_sequence[-2])  
    return fib_sequence
```

```
length = int(input("Enter the length of the sequence: "))
fib_sequence = fibonacci_sequence(length)
print(f"The Fibonacci sequence is: {fib_sequence}.")
```



```
Enter the length of the sequence:
5
The Fibonacci sequence is: [0, 1, 1, 2, 3].
```

10. Write a Python Program to Check Armstrong Number

```
def is_armstrong_number(num):
```

```
    order = len(str(num))
```

```
    sum = 0
```

```
    temp = num
```

```
    while temp > 0:
```

```
        digit = temp % 10
```

```
        sum += digit ** order
```

```
        temp //= 10
```

```
    return num == sum
```

```
number = int(input("Enter a number: "))
```

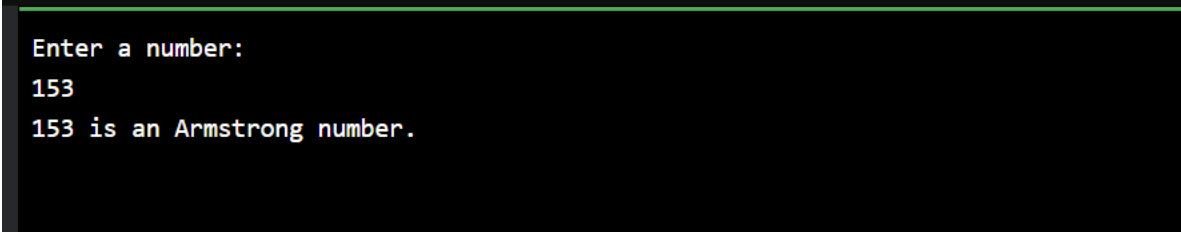
```
if is_armstrong_number(number):
```



```
print(f"{number} is an Armstrong number.")
```

else:

```
print(f"{number} is not an Armstrong number.")
```

A terminal window with a black background and green text. It shows the prompt 'Enter a number:', the input '153', and the output '153 is an Armstrong number.'

```
Enter a number:  
153  
153 is an Armstrong number.
```

11. Write a Python Program to Find Armstrong Number in an Interval

```
def find_armstrong_numbers(start, end):
```

```
    armstrong_numbers = []
```

```
    for num in range(start, end + 1):
```

```
        if is_armstrong_number(num):
```

```
            armstrong_numbers.append(num)
```

```
    return armstrong_numbers
```

```
def is_armstrong_number(num):
```

```
    order = len(str(num))
```

```
    sum = 0
```

```
    temp = num
```

```
    while temp > 0:
```

```
        digit = temp % 10
```

```
        sum += digit ** order
```

```
        temp //= 10
```

```
return num == sum
```

```
start = int(input("Enter the start of the interval: "))
```

```
end = int(input("Enter the end of the interval: "))
```

```
armstrong_numbers = find_armstrong_numbers(start, end)
```

```
print(f"The Armstrong numbers in the interval are:
```

```
{armstrong_numbers}.")
```

```
Enter the start of the interval:
```

```
100
```

```
Enter the end of the interval:
```

```
1100
```

```
The Armstrong numbers in the interval are: [153, 370, 371, 407].
```

12. Write a Python Program to Find the Sum of Natural Numbers

```
def sum_of_natural_numbers(n):
```

```
    return n * (n + 1) // 2
```

```
number = int(input("Enter a positive integer: "))
```

```
result = sum_of_natural_numbers(number)
```

```
print(f"The sum of natural numbers up to {number} is: {result}.")
```

```
Enter a positive integer:
```

```
45
```

```
The sum of natural numbers up to 45 is: 1035.
```