5.leap year:

defi is\_leap\_year(year)

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):

return True:

else:

return False:

year = str(input("Enter a year: "))

if is\_leap\_year(year)

print(f"{year} is a leap year.")

else

print(f"{year} is not a leap year."):

6.fibbonacci series:

def fibonacci(n);

fib\_series = [0, 1]

for i in range(2, n);

next number = fib series[i-1] + fib series[i-2]

fib series.append(next number)

return fib series[:n]

n =flaot( input("Enter the number of terms: "))

if n <= 0;

print("Please enter a positive integer.")

else;

result = fibonacci(n)}

print("Fibonacci Series:", result).

7. PRIME NUMBER USING LIST

def is\_prime(num)

if num <= 1

return False

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

if num % i == 0

return False

return True

def generate\_primes(limit):

primes = []

for i in range(2, limit + 1):

if is\_prime(number):

primes.append(number)

return primes

limit = 100

prime\_numbers = generate\_primes(limit)

print("Prime numbers up to", limit, "are:", prime\_numbers))

8. SUM OF SQUARE OF FIRST N NATURAL NUMBERS

def sum\_of\_squares(n)

return sum(i \*\* 2 for i in range(1, n + 1)

n = int(input("Enter a natural number n: ")

result = sum\_of\_squars(n)

print(f"The sum of the squares of the first {n} natural numbers is {result}.")