```

```

functions and module

```
def greet(name):
  print("hello, "+name+"!")
greet("alice")
```

```
hello, alice!
```

functions Arguments

positional Arguments

```
def add(a,b):
  return a+b
print(add(5, 3))
```

```
8
```

keyward arguments

```
def greet(name, message):
  print(message + "," + name + "!")
greet(name="alice", message="Good morning")
```

```
Good morning,alice!
```

default arguments

```
def greet(name, message="Hello"):
  print(message + "," + name + "!")
greet("Alice")
greet("Bob", "hi")
```

```
Hello,Alice!
hi,Bob!
```

variable length arguments

```
def sum_numbers(*numbers):
  return sum(numbers)
print(sum_numbers(1,2,3,4))
```

```
10
```

```
def greet(name, age):
    print(f"Hello {name}, you are {age} years old.")
```

```
greet("Alice", 30)  # Positional: name="Alice", age=30
```

```
Hello Alice, you are 30 years old.
```

```
def Manjunath(**kwargs):
  for key, value in kwargs.items():
    print(f"{key}: {value}")
Manjunath(name="madan",age="18",city="new york")
```

```
name: madan
age: 18
city: new york
```

Return Statements

```
def square(num):
  return num*num
square(5)
```

```
25
```

```
result= square(5)
print("Square is:",result)
```

```
Square is: 25
```

Modules

importing module

```
import math
print(math.sqrt(16))
```

```
4.0
```

```
from math import pi, sin
print(pi)
print(sin(math.radians(90)))
```

```
3.141592653589793
1.0
```

```
def greet(name):
  print("Hello, " + name)
def add(a,b):
  return a + b\
```

```
import my_module
```

```
my_module.greet("Alice")
print(my_module.add(5,3))
```

```
Hello, Alice
8
Hello, Alice
8
```

write a function to check if a number is prime

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

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

create a function to Generate Fibonaacci sequence

```
def fibonacci(n):
  sequence = []
  a, b = 0, 1
  for i in range(n):
    sequence.append(a)
    a,b=b,a+b
  return sequence

terms=int(input("Enter the number of terms: "))
print("Fabonacci sequence:",fibonacci(terms))
```

```
Enter the number of terms: 5
Fabonacci sequence: [0, 1, 1, 2, 3]
```

use the math module to solve a problem

```
import math

angle=float(input("Enter the angle in degrees: "))
```

```
radian=math.radians(angle)
print("Sine of anngle:",math.sin(radian))
print("Cosine of anngle:",math.cos(radian))
```

```
Enter the angle in degrees: 45
Sine of anngle: 0.7071067811865475
Cosine of anngle: 0.7071067811865476
```

problem solving

factorial using Recursion

```
#factorial using recursion
def factorial(n):
  if n == 0:
    return 1
  else:
    return n *factorial(n - 1)
num=int(input("Enter a number:"))
print("Factorial:",factorial(num))
```

```
Enter a number:6
Factorial: 720
```

fibonacci series Using Functions

```
#fibonacci series Using Functions
def fibonacci(n):
  a,b =0, 1
  for _ in range(n):
    print(a,end="")
    a,b=b,a+b
count = int(input("Enter the number of terms:"))
fibonacci(count)
```

```
Enter the number of terms:6
011235
```

check if a number is prime

```
#check if a number is prime
def is_prime(n):
  if n <= 1:
    return False
  for i in range(2,int(n**0.5) + 1):
    if n%i == 0:
      return False
  return True
```

```
num=int(input("Enter a number:"))
if is_prime(num):
  print("Prime number")
else:
  print("Not a prime number")
```

```
Enter a number:56
Not a prime number
```

Reverse a string using a function

```
#Reverse a string using a function
def reverse_string(s):
  return s[::-1]
text = input("Enter a string:")
print("Reversed string:",reverse_string(text))
```

```
Enter a string:5
Reversed string: 5
```

Find GCD of two numbers using a function

```
#Find GCD of two numbers using a function
def gcd(a,b):
  while b:
    a,b=b,a%b
  return a
num1=int(input("Enter first number:"))
num2=int(input("Enter second number:"))
print("GCD:",gcd(num1,num2))
```

```
Enter first number:7
Enter second number:8
GCD: 1
```