Functions.....

1. Optimizes the code
2. Helps in breaking a large-scale problem
3. Increases Modularity
4. combination of if-else, loops, variables in built in functions

keyword - def function name - user defined parameters - defined within the parenthesis

Syntax - def function_name(parameters): return

```
def add():
    return 2+5

add()
```

```
7
```

```
def function():
    print("Hello World!")

function()
```

```
Hello World!
```

```
# function without parameters
def helloworldprint():
    return print("Hello World!")

helloworldprint()
```

```
Hello World!
```

```
def add(num1,num2):
    sum=num1+num2
    return sum
num1=int(input("Enter num1: "))
num2=int(input("Enter num2: "))
print("Sum of",num1,"and",num2,"is",add(num1,num2))
```

```
Enter num1: 2
Enter num2: 3
Sum of 2 and 3 is 5
```

```
# Not to write a function each because it for example num which is used thrice can be replaced by one variable
# Function helps in reusing the code that is used more than once
def multiply(num):
    return num*2
print("Multiplied",multiply(2))
```

```
Multiplied 4
```

```
def add(num1,num2):
    sum=num1+num2
    return sum
num1=int(input("Enter num1: "))
num2=int(input("Enter num2: "))
print("Sum of",num1,"and",num2,"is",add(num1,num2))
```

```
Enter num1: 2
Enter num2: 3
Sum of 2 and 3 is 5
```

```
# Local variable
def add(num1,num2):
    sum=num1+num2
    return sum
num1=int(input("Enter num1: "))
num2=int(input("Enter num2: "))
print("Sum of",num1,"and",num2,"is",add(num1,num2))
print(sum)
```

```
Enter num1: 2
Enter num2: 3
Sum of 2 and 3 is 5
NameError: name 'sum' is not defined
```

```
# Global variable
sum=0
def add(num1,num2):
    global sum
    sum=num1+num2
    return sum
num1=int(input("Enter num1: "))
num2=int(input("Enter num2: "))
print("Sum of",num1,"and",num2,"is",add(num1,num2))
print(sum)
```

```
Enter num1: 2
Enter num2: 3
Sum of 2 and 3 is 5
5
```

```
# Lambda function
add=lambda num1,num2:num1+num2
print("Sum",add(2,3))
```

```
Sum 5
```

```
# Lambda function with if-else
add=lambda num1,num2:num1 if num1>num2 else num2
print("Max",add(2,3))
```

```
Max 3
```

```
# Lambda function with if-elif-else
add=lambda num1,num2:num1 if num1>num2 else num2 if num1==num2 else 0
print("Max",add(2,3))
```

```
Max 3
```

```
# Lambda function with if-elif-else
add=lambda num1,num2:num1 if num1>num2 else num2 if num1==num2 else 0
print("Max",add(2,2))
```

```
Max 0
```

```
# Lambda function with if-elif-else
add=lambda num1,num2:num1 if num1>num2 else num2 if num1==num2 else 0
print("Max",add(3,2
```