COMPUTER PROGRAMMING I
Introduction To Python

BIL2205

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Functions in Python

- A **function** is a block of organized, reusable code that is used to perform a single, related action.
- A **function** is a piece of code written to carry out a specified task.
- Functions provide better **modularity** for your application and a high degree of **code reusing**.

Functions in Python

- 3 types of functions in Python:
  - Built-in Functions

    `print(), int(), help(), round(), etc...`

  - User-Defined Functions (UDFs)

  - Lambda functions

Functions in Python

- User-Defined Functions (UDFs)
- Defining a function:

```
def functionname([parameter1, parameter2,...]):
        statements…
        statements…
        statements…
        return [return_value]
```

Functions in Python

User-Defined Functions (UDFs)

```
def hello():
      print ("Hello dear")
      print ("How are you today?")

hello()
```

Functions in Python

- User-Defined Functions (UDFs)
- Parameters

```
def hello(name):
      print ("Hello dear ", name)
      print ("How are you today?")


hello("Alper")
```

Functions in Python

- User-Defined Functions (UDFs)
- Parameters

```
def hello(name):
      print ("Hello dear ", name)
      print ("How are you today?")


person = "Alper"
hello(person)
```

Functions in Python

- User-Defined Functions (UDFs)
- Parameters

```
def hello(name, age):
      print ("Hello dear ", name)
      print ("So you are ", age, "years old")


person = "Alper"
age = 35
hello(person, age)
```

Functions in Python

- User-Defined Functions (UDFs)
- Parameters

```
def hello(name, age):
      print ("Hello dear ", name)
      print ("So you are ", age, "years old")
      age = 99

person = "Alper"
age = 35
hello(person, age)
print(age)
```

Functions in Python

- User-Defined Functions (UDFs)
- Return values

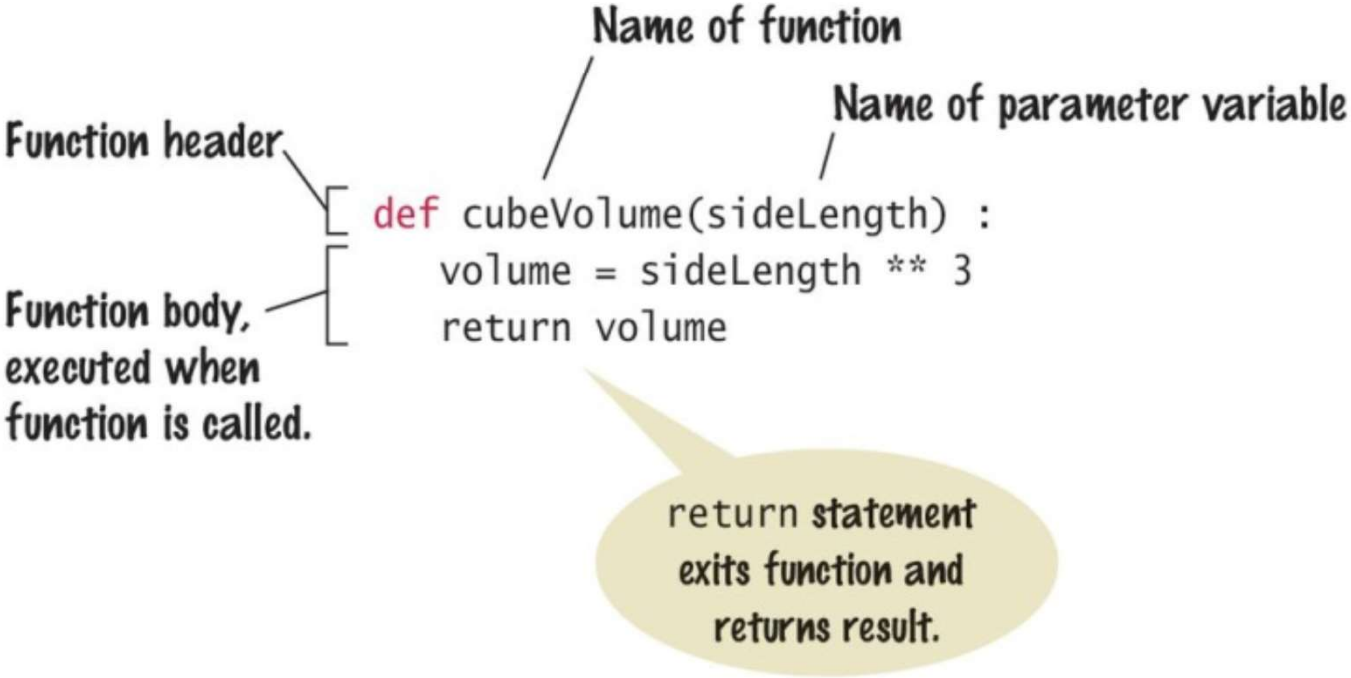
```
def karekök(x):
      sonuc = x ** 0.5
      return sonuc


print (karekök(49))
```

Functions in Python

User-Defined Functions (UDFs)

Syntax `def` *functionName*(*parameterName*$_1$, *parameterName*$_2$, . . .) :
statements



Functions in Python

- Ex: Write a function to calculate the volume of cylinder with given height (h) and radius (r)

```
def volume(h, r):
    v = 3.14*r*r*h
    return v



print(volume(10,5))
```

Functions in Python

- Ex: Write a function to calculate x^y for given x and y values.

```
def us(x, y):
      sonuc = 1
      for i in range(y):
            sonuc = sonuc * x
      return sonuc


print(us(2,8))
```

Functions in Python

- Ex: Write a function to calculate x! for given x.

```
def fact(x):
      sonuc = 1
      for i in range(1,x+1):
            sonuc = sonuc * i
      return sonuc


print(fact(5))
```

Functions in Python

- Ex: Write a function to calculate Permutation (n,r) for given n and r values.

```
def perm(n, r):
      return (fact(n)/fact(n-r))


print(perm(5,2))
```

Functions in Python

- Ex: Write a function to calculate Combination (n,r) for given n and r values.

```
def komb(n, r):
      return (fact(n)/(fact(r)*fact(n-r))


print(komb(5,2))
```

Functions in Python

- Write a function to calculate the average of a given list.
- Write a function to calculate the standart deviation of a given list.
- Write a function to calculate the median of a given list.
- Write a function to calculate the confidence interval of a given list for a table value.