

Department of Computer Science
Final Exam Spring 2020

ID: 14300

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Semester no: 5th

Subject: Date science

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Students must have to provide the output of their respective programs. Students have same answers or programs will be considered fail. Programs in Python and codes should be explained clearly.

Q1. a. Why Functions are used discuss in detail?

b. How arguments are used in function , write a simple program in Python?

Answer 1:

a): functions are the group of related statements or piece of code that are used to perform a specific task . function help break our program into smaller and modular chunks.

As our program grows larger and larger . function make it more organized and manageable . it avoids repetition and makes the code reusable

It provides the ability that write once and run anywhere it means we write a function for once then can be used many times in different places

b): how arguments are used in function , write a simple program in python?

Parameters (arguments) through which we pass values to a function . they are optional .

```
In [ ]: #function is a peice of code used to perform a specific task
        #parameter are used through we pass values to a function
```

```
In [4]: def print_name(name):
        print("hello ",name)
```

```
In [23]: print_name("alikhel")
```

```
Out [23]: 'alikhel'
```

Q2. a. Why .upper(),.lower(),capitalize() and .swapcase() function are used ?

b. Write a program in which the discussed functions are used.

Note : Q2 part a functions.

Answer 2:

a): these are the string functions which are used to convert string variables

.lower() → this function used to convert string to lower case

.upper()→ this function used to convert string to upper case

.capitalize()→ this function used to convert string to capitalized form that the first letter must be capital and others must be small

.swapcase() → this function used to convert all upper case characters to lower case and lower to upper case

b):

```
In [11]: alikhel="I LOVE PROGRAMMING"
```

```
# .lower()
print(alikhel.lower())
# .upper()
print(alikhel.upper())
# .swapcase()
print(alikhel.swapcase())
# .capitalize()
print(alikhel.capitalize())
```

```
i love programming
I LOVE PROGRAMMING
i love programming
I love programming
```

Q3. a. What are the rules for defining the function?

b. Write a suitable program of our defined function in Python?

Answer 3:

a) What are the rules for defining the function?

Def keyword is used to define custom function or method the arguments of the functions are given between parentheses followed by a colon then the function body and finally the return objects for optionally returning values

Note: Functions can be called from another function as well

Function without return statement and function without return statement

```
In [12]: #function without return statement

def print_msg(msg):
    print(msg)

#calling of function
print_msg('hello world')

hello world

In [18]: #function with return keyword that returns values
def add(a,b):
    return a+b

#calling of function from another function
print(add(12,5))

17
```

- Q4. a. What are the rules for defining the function and Parameter passing to the function?
- b. Write a suitable program of our defined function by parameter passing in Python?

Answer 4:

a): what are the rules for defining the function and parameters passing to the function?

Def keyword is used to define custom function or method the arguments of the functions are given between parentheses followed by a colon then the function body and finally the return objects for optionally returning values Those function which return statement should be passed to another function or to another variable . it can not called directly .

```
In [19]: #function with parameters
def multiply(a,b):
    return a*b

#calling function
result=multiply(3,5)
print(result)

15

In [20]: #function with parameter of string
def print_name(name):
    return name

myname=print_name("najeebullah Alikhel")
print(myname)

najeebullah Alikhel
```

- Q5. a. What are return values to a Function discuss in detail?
b. Write a suitable program of a Function with returning value?

Answer 5:

a): A **return** statement is used to end the execution of the **function** call and “**returns**” the result (**value** of the expression following the **return** keyword

return statement is used to return values , string double that are passed to a function in parameters

```
In [21]: #function with return statement
```

```
def sqrt(a):  
    return a*a
```

```
#calling function
```

```
a=sqrt(2)  
print(a)
```

4

```
In [22]: #function which return double values
```

```
def add_double(a,b,c):  
    return a+b+c
```

```
#calling of function within another function
```

```
print(add_double(12.5,4.5,5.5))
```

```
#pass function to variable then to print function
```

```
z=add_double(1.5,5.5,90.5)  
print(z)
```

22.5

97.5

All code of the above programs typed by me...

```
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In [23]: print_name("alikhel")
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# .lower()
print(alikhel.lower())
# .upper()
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# .swapcase()
print(alikhel.swapcase())
# .capitalize()
print(alikhel.capitalize())
```

```
i love programming
I LOVE PROGRAMMING
i love programming
I love programming
```

```
In [12]: #function without return statement
```

```
def print_msg(msg):
    print(msg)
```

```
#calling of function
print_msg('hello world')
```

```
hello world
```

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```
In [18]: #function with return keyword that returns values
def add(a,b):
    return a+b

#calling of function from another function
print(add(12,5))
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17

In []:

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def multiply(a,b):
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myname=print_name("najeebullah Alikhel")
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najeebullah Alikhel

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In [21]: #function with return statement
def sqrt(a):
    return a*a
```

```
#calling function
a=sqrt(2)
print(a)
```

4

```
In [22]: #function which return double values
def add_double(a,b,c):
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#calling of function within another function
print(add_double(12.5,4.5,5.5))
#pass function to variable then to print function
z=add_double(1.5,5.5,90.5)
print(z)
```

22.5

97.5

In []: