

# FUNCTIONS

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# Return Statement

- ▣ Return statement sends a result back to the caller.
- ▣ If return statement does not exist, by default the control terminates the program.
- ▣ Relate it to mathematical functions.

# Example

```
def function():
```

```
    a = 20
```

```
    b = 40
```

```
    c = a + b
```

```
    return c
```

# Example

```
def function (a,b):
```

```
    c = a + b
```

```
    return c
```

```
# we are calculating (5+11) * (2+3)
```

```
def calculate():
```

```
    var1 = function(5,11)
```

```
    var2 = function(2,3)
```

```
    var3 = var1 * var2
```

```
    print var3
```

# Conclusion

- ▣ If we want to do same functionality again and again we use functions and return statement.

# Problem 1

- ▣ Write a function that takes two arguments, your age and your name. And displays:

Your name is John and your age is 20

Where the user entered John and 20.

# Solution 1

```
def function(name,age):  
    print "Your name is", name, "Your age is", age
```

You call the function as:

```
function("John",20)
```

- ▣ Write a function that takes two numbers and checks if one number is greater than another and displays:

45 is greater than 25

if both are equal than displays

Both are equal

Where the user entered 45 and 25.



# Solution 2

```
def max(x,y):  
    if x>y:  
        print x, "is greater than", y  
    elif y>x:  
        print y, "is greater than", x  
    else:  
        print "both are equal"
```

# Problem 3

- ▣ Write a function that calculates factorial of a number  $n$ , where the user enters  $n$ .  
(Hint:  $n! = 1*2*3*.... *n$ , Use for loop)

## Solution 3

```
def fact(n):  
    f=1  
    for x in range(1,n+1):  
        f=f*x  
    print "factorial of number is", f
```

Note: edit this function to consider the conditions for a number = 0 or <0 in that case your output should be 1.

## Problem 3 (considering condition where a number is less than or equal to zero)

```
def fact(n):  
    f=1  
    if n<=0:  
        print "factorial is 1"  
#you are calculating the factorial of a function in  
the else part of your if statement.  
    else:  
        for x in range(1,n+1):  
            f=f*x  
        print "factorial of number is", f
```

# Problem 4

▣ Write a function which takes 2 inputs (p,r) and calculates this formula:

- $\text{result} = p! / (p-r)!$

- Hints:

you will have 2 functions, one will calculate your result and other will calculate your factorial.

use return statement in factorial function to calculate n! and (n-r)! in where you pass values as arguments.

Solution will be given in next class!!!

# Solution 4

```
def fact(n):  
    f=1  
    if n<=0:  
  
    else:  
        for x in range(1,n+1):  
            f=f*x  
    return(f)  
#a new function which is calling fact() function to calculate factorial  
def result(p,r):  
    var1 = fact(p)  
    var2 = fact(p-r)  
    var3 = var1/var2  
    print "Output is", var3
```

**DO MORE PRACTICE!!!  
USE TA EXAMPLES WHICH  
ARE THERE ON WIKI...**

I have my CT hours on Thursday 3-5, come and see me if you have any problem in understanding any program or concept.