

Conditionals, Loops and functions

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If-Then-Else statement

If Condition

```
age=60
if age<50:
    print("Group1")
print("Done with if")
```

```
age=40
if age<50:
    print("Group1")
print("Done with if")
```

If-else statement

```
age=60
```

```
if age<50:
```

```
    print("Group1")
```

```
    print("Done with if")
```

If-else statement

```
age=60
```

```
if age<50:
```

```
    print("Group1")
```

```
else:
```

```
    print("Group2")
```

```
print("Done with if")
```

Multiple else conditions in if

If condition for checking whether a candidate secured First class/ second class or failed in an exam.

```
marks=86
```

```
if(marks<30):  
    print("fail")  
elif(marks<60):  
    print("Second Class")  
elif(marks<80):  
    print("First Class")  
elif(marks<100):  
    print("Distinction")  
else:  
    print("Error in marks")
```


LAB: If-else statement

- Write if-then-else condition to check whether the income is Low or medium or high
 - Income < 5,000 - low
 - Income 5,000 - 15,000 - medium
 - above 15,000 - high
- Write if-then-else condition to print if Age < 18 or Income < 10,000 then “Disqualified” else “Qualified”.

For loop

For loop

Print first 20 values

#Example-1

```
for i in range(1,20):  
    print("Number is", i)
```

LAB : For loop

Print first 20 values cumulative running sum

```
sumx=0
```

```
for i in range(1,10):  
    sumx=sumx+i  
    print("Cumulative sum is", sumx)
```

Break Statement in for loop

- To stop execution of a loop
- Stopping the loop in midway using a condition
- Print cumulative sum and stop when sum reaches 100

```
sumx=0
for i in range(1,200):
    sumx=sumx+i
    if(sumx>100):
        break
print("Cumulative sum is", sumx)
```

LAB: for-loop

- Create a list: [1,2,5,4,6,3,4,8]. Use for-loop and if statement to print out all even values
- Print every 4th number in the first 100 numbers using a for-loop. Output should look like 4, 8, 12, 16.....96, 100

List Comprehension

```
#for i in range(1,20):  
#  print("Number is", i)
```

```
[i for i in range(1,20)]
```

```
result=[i for i in range(1,20)]  
print(result)
```

List Comprehension

```
result=[i for i in range(1,20) if i<15]  
print(result)
```

```
result=[i for i in range(1,20) if i<15 if i%2 == 1 ]  
print(result)
```


LAB: List Comprehension

- Create a list: [1,2,5,4,6,3,4,8]. Use List-Comprehension to print out all even values
- Print every 4th number in the first 100 numbers using List-Comprehension. Output should look like 4, 8, 12, 16.....96, 100

Writing Function

```
def my_function_name(param1, param2, param3):  
    code lines  
    code lines  
    code lines  
    return;
```

Distance Calculation function

- Distance Calculation function

```
def mydistance(x1,y1,x2,y2):  
    import math  
    dist=math.sqrt(pow((x1-x2),2)+pow((y1-y2),2))  
    return(dist)
```

```
mydistance(0,0,2,2)
```

```
mydistance(4,6,1,2)
```

Lab: User Defined Functions

- Create a function that takes bill_amount as input value and returns bill amount + GST of 18% + Delivery Charges of 50.
 - Input 1000
 - Output - 1230
- Create a function that takes length and width of a rectangle and calculates Area of rectangle and perimeter of a rectangle
 - Input 5, 8
 - Output - 40, 26
- Create a function that takes full name as input and prints the first letter of first name and last name
 - Input - Giridhar Sripathi
 - Output - GS