

Lec-1

November 25, 2021

```
[ ]: print("hello world")
```

hello world

```
[ ]: print("Shantanu Mane")
```

Shantanu Mane

```
[ ]: print("hello world");print("shantanu")
```

hello world
shantanu

```
[ ]: a = 20  
     print(a)
```

20

```
[ ]: num = 20  
     amt = 10.30  
     sign = 'S'  
     name = "Shantanu"  
     populationOfIndia = 100000000000  
  
     print("Number : ", num)  
     print("Amount : ", amt)  
     print("Signature : " + sign)  
     print("Population of India : " + str(populationOfIndia))  
     print("Name : " + name)
```

Number : 20
Amount : 10.3
Signature : S
Population of India : 100000000000
Name : Shantanu

```
[ ]: age = int(input("Enter your age : "))  
     name = "Shantanu Mane"
```

```

if (age >= 60):
    ↪️#! False
    print(f'Name : {name} \nAge = {age} \nClassification = Senior Citizen')
elif (age <= 60 or age >= 18):
    ↪️#*True
    print(f'Name : {name} \nAge = {age} \nClassification = Adult')
elif (age <= 18):
    ↪️#!False
    print(f'Name : {name} \nAge = {age} \nClassification = Child')
else:
    ↪️#$Conditional
    print(f'Name : {name} \nAge = {age} \nClassification = Senior Citizen')

```

Name : Shantanu Mane
 Age = 20
 Classification = Adult

```

[ ]: age = input("Enter your age : ")
      print("your age : " , age)

```

your age : 20

1 Try Yourself - 1

1.0.1 Write a program to accept two numbers as input and perform all arithmetic operations on them `[**, *, +, -, /, //, %]`

```

[ ]: a = int(input("Enter number a : "))
      b = int(input("Enter number b : "))

      print("Value of a = ", a)
      print("Value of b = ", b)

      print("Operation a**b = ", a**b)      #- Performs a^b
      print("Operation a*b = ", a*b)        #- Performs a * b
      print("Operation a+b = ", a+b)        #- Performs a + b
      print("Operation a-b = ", a-b)        #- Performs a - b
      print("Operation a/b = ", a/b)        #- Performs a / b
      print("Operation a%b = ", a%b)        #- Performs a % b, gives remainder value of
      ↪️a / b
      print("Operation a//b = ", a//b)      #- Performs a // b, gives quotient a / b

```

Value of a = 4
 Value of b = 6
 Operation a**b = 4096
 Operation a*b = 24
 Operation a+b = 10
 Operation a-b = -2

```
Operation a/b = 0.6666666666666666
Operation a%b = 4
Operation a//b = 0
```

2 Try Yourself - 2

2.0.1 Write a program to accept two numbers as input and print the values of :

1. Comparison/relational [$>$, $<$, $==$, $!=$, $>=$, $<=$]
2. Bitwise Operators[$\&$ [and], $|$ [or], $!$ not($!$) \wedge (xor), right shift (\gg) and left shift(\ll) operate on binary numbers

```
[ ]: a = int(input("Enter number a : "))
      b = int(input("Enter number b : "))

      print("Value of a = ", a)
      print("Value of b = ", b)

      print("a > b : ", a > b)
      print("a < b : ", a < b)
      print("a == b : ", a == b)
      print("a != b : ", a != b)
      print("a >= b : ", a >= b)
      print("a <= b : ", a <= b)
```

```
Value of a = 10
Value of b = 20
a > b : False
a < b : True
a == b : False
a != b : True
a >= b : False
a <= b : True
```

```
[ ]: a = True
      b = False

      print("Value of a = ", a)
      print("Value of b = ", b)

      print("a and b : ", a and b)
      print("a or b : ", a or b)
      print("not a : ", not a)
      print("not b : ", not b)
      print("a xor b : ", a ^ b)
```

```
Value of a = True
Value of b = False
```

```
a and b : False
a or b : True
not a : False
not b : True
a xor b : True
```

```
[ ]: a = 10      #- (1010)2
      b = 20      #- (10100)2

      ## Bitwise Operations on a and b

      print("a | b : ", a | b)
      print("a & b : ", a & b)
      print("a xor b : ", a ^ b)
      print("not a : ", ~a)
      print("not b : ", ~b)
```

```
a | b : 30
a & b : 0
a xor b : 30
not a : -11
not b : -21
```

```
[ ]: a = 10
      b = -10

      # print bitwise right shift operator
      print("a >> 1 =", a >> 1)
      print("b >> 1 =", b >> 1)

      a = 5
      b = -10

      # print bitwise left shift operator
      print("a << 1 =", a << 1)
      print("b << 1 =", b << 1)
```

```
a >> 1 = 5
b >> 1 = -5
a << 1 = 10
b << 1 = -20
```

3 Try Yourself - 3

3.0.1 Compute the value of an expression :

$A = b - c / d * e$

By accepting the values of b,c,d and e from the user.

```
[ ]: b = int(input("Enter a number :"))
      c = int(input("Enter a number :"))
      d = int(input("Enter a number :"))
      e = int(input("Enter a number :"))

      A = b - c/d * e

      print("b - c/d * e = ", A)
```

b - c/d * e = -1.6666666666666665

4 Try Yourself - 4

4.0.1 Write Python code to :

- Create a variable x with the value 100
- Increase the value of x fivefold using an augmented assignment operator

```
[ ]: x = 100

      x *= 5

      print(x)
```

500

5 PRACTICAL NO. 1 [Batch-1]

1. Write a python program to convert from Kilometer to miles [use type casting to float for input value.]
2. Write a python program to calculate Euclidean distance between two points A(x₁,y₁) and B(x₂,y₂) $AB = \sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$
3. Write a python program to generate bill a grocery store. Accept from user: name of item, quantity, cost for three items. Compute the actual cost payable by applying discount(in %) and tax(in %). Print the bill in following format.

```
[ ]: # Solution. 1

      distKm = float(input("Enter the distance (in km) : "))

      print(f"Entered value : {distKm} km\n")

      distMiles = distKm / 1.609
      accDistMiles = "{:.5f}".format(distMiles)

      print(f"Distance in miles : {accDistMiles} mi")
```

Entered value : 1.0 km

Distance in miles : 0.62150 mi

```
[ ]: # Solution. 2

import math

def delSq(x,y):
    z = (x - y)**2
    return z

# Points : A(3,4) , B(4,5)

x1 = 3
y1 = 4

x2 = 4
y2 = 5

zX = delSq(x2, x1)
zY = delSq(y2, y1)

Rez = math.sqrt(zX + zY)
accRez = "{:.5f}".format(Rez)

print(f"The distance between the two points A(3,4) and B(4,5) using the_
↪Euclidian formula is : {accRez}")
```

The distance between the two points A(3,4) and B(4,5) using the Euclidian formula is : 1.41421

```
[ ]:
```