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**SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT**
**COMPUTER SCIENCE AND ENGINEERING DEPARTMENT B. Tech-1st Year**
**(Even Semester- 2024-2025)**
**Subject – Web Programming (CS104)**

# Python Lab Assignment 7

1. Write a program to demonstrate different data types in python.

```
a = 1

b = 1.0

c = 1j

l = [1,2,3,4]
```

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```
t = 1,2,3,4

d = {"name":5, "age":18, "class":4}

s = "Hello"

se = {1,2,3,4,5}

f = frozenset([1,2,3,4])

print("Printing INT",a, type(a))

print("Printing FLOAT",b, type(b))
```

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```
print("Printing COMPLEX",c, type(c))

print("Printing LIST",l, type(l))

print("Printing TUPLE",t, type(t))

print("Printing DICTIONARY",d, type(d))

print("Printing STRING",s, type(s))

print("Printing SET",se, type(se))

print("Printing FROZENSET",f, type(f))
```

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```
Printing INT 1 <class 'int'>
Printing FLOAT 1.0 <class 'float'>
Printing COMPLEX 1j <class 'complex'>
Printing LIST [1, 2, 3, 4] <class 'list'>
Printing TUPLE (1, 2, 3, 4) <class 'tuple'>
Printing DICTIONARY {'name': 5, 'age': 18, 'class': 4} <class 'dict'>
Printing STRING Hello <class 'str'>
Printing SET {1, 2, 3, 4, 5} <class 'set'>
Printing FROZENSET frozenset({1, 2, 3, 4}) <class 'frozenset'>
```

2. Write a program to perform different arithmetic operations on numbers in python.

```
a = 10
b = 5


print("Performing Arithematic Operations :-")
print("a and b values are :", a, b)
print("+:", a+b)
print("-:", a-b)
print("*:", a*b)
print("/:", a/b)
print("//:", a//b)
```

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```
print("%:", a%b)
print("**:", a**b)
print("\n")

print("Performing Assignment Operations :-")
print("a and b values are :", a, b)
a+=b
print("+=:", a)
a-=b
print("-=:", a)
a*=b
print("*=:", a)
a/=b
print("/=:", a)
a//=b
print("//=:", a)
a%=b
print("%=:", a)
a=5
print("=:", a)
a**=b
```

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```
print("**=:", a)
a&=b
print("&=:", a)
a|=b
print("|=:", a)
a^=b
print("^=:", a)
a>>=b
print(">>=:", a)
a<<=b
print("<<=:", a)
print("\n")



print("Performing Relational Operations :-")
a = 5
b = 10
print("a and b values are :", a, b)
print(">:", a>b)
print("<:", a<b)
```

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


print("Performing Bitwise Operations :-")
a = 5
b = 10
print("a and b values are :", a, b)
print("|:", a|b)
print("&:", a&b)
print("^:", a^b)
print("~:", ~a)
print(">>:", a>>b)
print("<<:", a<<b)
print("\n")
```

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```
print("Performing Logical Operations :-")
print("a and b values are :", a, b)
print("and:", a and b)
print("or:", a or b)
print("not:", not a)
print("\n")


print("Performing Membership Operations :-")
print("a and b values are :", a, b)
print("in:", a in [1,2,3])
print("not in:", a not in [1,2,4])
print("\n")
```

3. Create a list and perform the following methods 1) insert() 2) remove() 3) append() 4) len() 5) pop() 6) clear()

```
l = [1,2,3,4,5]
print("Currently the List is :", l)
l.insert(5,6)
print("After Inserting 6 at 5 index :",l)
l.remove(6)
```

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```
print("After Removing 6 :",l)
l.append(6)
print("Appeding 6 :", l)
print("Printing the length :",len(l))
l.pop()
print("After popping 6 :",l)
l.clear()
print("After clearing :",l)
```

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```
Performing Arithematic Operations :-
a and b values are : 10 5
+: 15
-: 5
*: 50
/: 2.0
//: 2
%: 0
**: 100000


Performing Assignment Operations :-
a and b values are : 10 5
+=: 15
-=: 10
*=: 50
/=: 10.0
//=: 2.0
%=: 2.0
=: 5
**=: 3125
&=: 5
|=: 5
^=: 0
>>=: 0
<<=: 0


Performing Relational Operations :-
a and b values are : 5 10
>: False
<: True
>=: False
<=: True
==: False
!=: True


Performing Bitwise Operations :-
a and b values are : 5 10
|: 15
&: 0
^: 15
~: -6
>>: 0
<<: 5120
```

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```
Performing Logical Operations :-
a and b values are : 5 10
and: 10
or: 5
not: False


Performing Membership Operations :-
a and b values are : 5 10
in: False
not in: True
```

4. Create a dictionary and apply the following methods 1) Print the dictionary items 2) access items 3) use get() 4) change values 5) use len()

```
d = {
    "name" : "Sravanthi",
    "class" : "B tech 1st yeear",
    "branch" : "CSE",
    "college" : "at NIT - SURAT",
}
```

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```
print("Dictionary Items :", d)
print("Student Name :", d["name"])
print("Student branch :", d.get("branch"))
d["college"] = "NIT,Surat"
print("College Name :", d["college"])
print("Length of dictionary is :", len(d))
```

```
Dictionary Items : {'name': 'Sravanthi', 'class': 'B tech 1st yeear', 'branch': 'CSE', 'college': 'at NIT - SURAT'}
Student Name : Sravanthi
Student branch : CSE
College Name : NIT,Surat
Length of dictionary is : 4
```

5. Write a program to create, concatenate and print a string

```
a = "Hello "
b = "World"
print("Printing a and b strings :", a, b)
print("string concatenation :", a+b
```

```
Printing a and b strings : Hello  World
string concatenation : Hello World
```

6. Write a python program to add two numbers.

```
a = int(input("Enter a number :"))
```

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```
b = int(input("Enter a number :"))
print("Sum of the given numbers is :", a+b)
```

```
Enter a number :10
Enter a number :20
Sum of the given numbers is : 30
```

7. Write a python program to print a number is positive/negative using if-else.

```
a = int(input("Enter a number :"))
if a>0:
    print("Its a Positive Number")
elif a == 0:
    print("Its a Zero")
elif a<0:
    print("Its a Negative number")
else:
    print("Invalid input !")
```

```
Enter a number :-45
Its a Negative number
```

8. Write a python program to find largest of three numbers

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

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```
if a > b and a > c:
    print(a, "is greater")
elif b > a and b > c:
    print(b, "is greater")
else:
    print(c, "is greater")
```

```
Enter a number :10
Enter a number :20
Enter a number :30
30 is greater
```

9. Python program for factorial of a number

```
n = int(input("Enter a number :"))
m = 1
for i in range(1, n+1):
    m *= i

print("Factorial of a given number is", m)
```

```
Enter a number :5
Factorial of a given number is 120
```

10. Python program for simple interest

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```
p = int(input("Enter a principle :"))
t = int(input("Enter a time :"))
r = int(input("Enter a rate of interest :"))
print("Simple Interest is :", (p*t*r)/100)
```

```
Enter a principle :1000
Enter a time :10
Enter a rate of interest :10
Simple Interest is : 1000.0
```

11. Python program to check Perfect Number (Example: 6, divisors of 6 are 3,2,1 and sum of divisors is the number itself)

```
n = int(input("Enter a number :"))
s = 0
for i in range(1, n):
    if(n%i == 0):
        s += i

if(n==s):
    print("It is a Perfect Number!")
else:
    print("It is a NOT Perfect Number!")
```

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```
Enter a number :6
It is a Perfect Number!
```

12. Python program to calculate grade of a student. Take in the marks of 5 subjects and display the grade.

```
m1 = int(input("Enter Marks of Sub 1 out of 100 :"))
m2 = int(input("Enter Marks of Sub 2 out of 100 :"))
m3 = int(input("Enter Marks of Sub 3 out of 100 :"))
m4 = int(input("Enter Marks of Sub 4 out of 100 :"))
m5 = int(input("Enter Marks of Sub 5 out of 100 :"))
p = (m1+m2+m3+m4+m5)//500
a = p/10
if a>9 and a<10:
    print("Your Grade : AA")
elif a>8 and a<9:
    print("Your Grade : AB")
elif a>7 and a<8:
    print("Your Grade : BB")
elif a>6 and a<7:
    print("Your Grade : BC")
elif a>5 and a<6:
    print("Your Grade : CC")
```

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```
elif a>4 and a<5:
    print("Your Grade : CD")
elif a>3 and a<4:
    print("Your Grade : DD")
elif a>2 and a<3:
    print("Your Grade : DF")
elif a>1 and a<2:
    print("Your Grade : FAIL")
```

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```
Desktop\E1S2\WPP\PY\PYTHON_LABS\LAB1\l1q12.py"
Enter Marks of Sub 1 out of 100 :50
Enter Marks of Sub 2 out of 100 :65
Enter Marks of Sub 3 out of 100 :64
Enter Marks of Sub 4 out of 100 :68
Enter Marks of Sub 5 out of 100 :51
Your Grade : CC
PS C:\Users\srava\OneDrive\Desktop\E1S2\WPP\PY\PYTHON_LABS> pyth
Desktop\E1S2\WPP\PY\PYTHON_LABS\LAB1\l1q12.py"
Enter Marks of Sub 1 out of 100 :80
Enter Marks of Sub 2 out of 100 :81
Enter Marks of Sub 3 out of 100 :87
Enter Marks of Sub 4 out of 100 :85
Enter Marks of Sub 5 out of 100 :84
Your Grade : AB
```