1.Write a program to demonstrate different number data types in Python.

a=10; #Integer Data type

b=11.5; #Float Data type

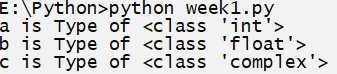
c=2.05j; #Complex Number

print("a is Type of",type(a)); #prints type of variable a

print("b is Type of",type(b)); #prints type of variable b

print("c is Type of",type(c)); #prints type of variable c

**Output:**



2.Write a program to perform different Arithmetic Operations on numbers in Python.

a=int(input("Enter a value")); #input() takes data from console at runtime as string.

b=int(input("Enter b value")); #typecast the input string to int.

print("Addition of a and b ",a+b);

print("Subtraction of a and b ",a-b);

print("Multiplication of a and b ",a\*b);

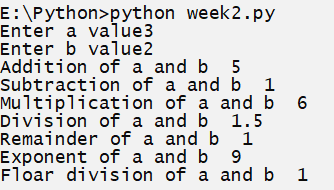
print("Division of a and b ",a/b);

print("Remainder of a and b ",a%b);

print("Exponent of a and b ",a\*\*b); #exponent operator (a^b)

print("Floar division of a and b ",a//b); # floar division

**Output:**



3. Write a program to create, concatenate and print a string and accessing sub-string from a given string.

s1=input("Enter first String : ")

s2=input("Enter second String : ")

print("First string is : ",s1)

print("Second string is : ",s2)

print("concatenations of two strings :",s1+s2)

print("Substring of given string :",s1[1:4])

**Out put:**

Enter first String : python

Enter second String : progrmming

First string is : python

Second string is : progrmming

concatenations of two strings : pythonprogrmming

Substring of given string : yth

**4**. Write a python script to print the current date in the following format “Sun May 29 02:26:23 IST 2017”

import time

import datetime

x =datetime.datetime.now()

print(x.strftime("%c"))

**Out Put:**

Mon Mar 27 15:12:29 2023

**5**. Write a program to create, append, and remove lists in python

pets = ['cat', 'dog', 'rat', 'pig', 'tiger']

snakes=['python','anaconda','fish','cobra','mamba']

print("Pets are :",pets)

print("Snakes are :",snakes)

animals=pets+snakes

print("Animals are :",animals)

snakes.remove("fish")

print("updated Snakes are :",snakes)

Output:

Pets are : ['cat', 'dog', 'rat', 'pig', 'tiger']

Snakes are : ['python', 'anaconda', 'fish', 'cobra', 'mamba']

Animals are : ['cat', 'dog', 'rat', 'pig', 'tiger', 'python', 'anaconda', 'fish', 'cobra', 'mamba']

updated Snakes are : ['python', 'anaconda', 'cobra', 'mamba']

**6. Write a program to demonstrate working with tuples in python**

# creating tuples with college names..

colleges = ("SIIET","BHARAT","GNIT", "AVN")

print("the lists in colleges tuple is",colleges)

print("we can\'t add or remove new elements in a tuple")

print("length of the tuple colleges is:",len(colleges))

# checking whether 'SIIET' is present in the tuple or not

if "SIIET" in colleges:

print("Yes, 'SIIET' is in the colleges tuple")

**Out Put:**

the lists in colleges tuple is ('SIIET', 'BHARAT', 'GNIT', 'AVN')

we can't add or remove new elements in a tuple

length of the tuple colleges is: 4

Yes, 'SIIET' is in the colleges tuple

**7. Write a program to demonstrate working with dictionaries in python.**

dict1 = {'StdNo':'532','StuName': 'Naveen', 'StuAge': 21, 'StuCity': 'Hyderabad'}

print("\n Dictionary is :",dict1)

#Accessing specific values

print("\n Student Name is :",dict1['StuName'])

print("\n Student City is :",dict1['StuCity'])

#Display all Keys

print("\n All Keys in Dictionary ")

for x in dict1:

print(x)

#Display all values

print("\n All Values in Dictionary ")

for x in dict1:

print(dict1[x])

#Adding items

dict1["Phno"]=85457854

#Updated dictoinary

print("\n Uadated Dictionary is :",dict1)

#Change values

dict1["StuName"]="Madhu"

#Updated dictoinary

print("\n Uadated Dictionary is :",dict1)

#Removing Items

dict1.pop("StuAge");

#Updated dictoinary

print("\n Uadated Dictionary is :",dict1)

#Length of Dictionary

print("Length of Dictionary is :",len(dict1))

#Copy a Dictionary

dict2=dict1.copy()

#New dictoinary

print("\n New Dictionary is :",dict2)

#empties the dictionary

dict1.clear()

print("\n Uadated Dictionary is :",dict1)

**Output:**

Dictionary is : {'StdNo': '532', 'StuName': 'Naveen', 'StuAge': 21, 'StuCity': 'Hyderabad'}

Student Name is : Naveen

Student City is : Hyderabad

All Keys in Dictionary

StdNo

StuName

StuAge

StuCity

All Values in Dictionary

532

Naveen

21

Hyderabad

Uadated Dictionary is : {'StdNo': '532', 'StuName': 'Naveen', 'StuAge': 21, 'StuCity': 'Hyderabad', 'Phno': 85457854}

Uadated Dictionary is : {'StdNo': '532', 'StuName': 'Madhu', 'StuAge': 21, 'StuCity': 'Hyderabad', 'Phno': 85457854}

Uadated Dictionary is : {'StdNo': '532', 'StuName': 'Madhu', 'StuCity': 'Hyderabad', 'Phno': 85457854}

Length of Dictionary is : 4

New Dictionary is : {'StdNo': '532', 'StuName': 'Madhu', 'StuCity': 'Hyderabad', 'Phno': 85457854}

Uadated Dictionary is : {}

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

num1 = int(input("Enter first number: "))

num2 = int(input("Enter second number: "))

num3 = int(input("Enter third number: "))

if (num1 > num2) and (num1 > num3):

largest = num1

elif (num2 > num1) and (num2 > num3):

largest = num2

else:

largest = num3

print("The largest number is",largest)

**Output:**

Enter first number: 54

Enter second number: 43

Enter third number: 78

The largest number is 78

9) Write a Python program to convert temperatures to and from Celsius, Fahrenheit. [Formula: c/5 = f-32/9 ]

**Source code:**

print("Options are \n")

print("1.Convert temperatures from Celsius to Fahrenheit \n")

print("2.Convert temperatures from Fahrenheit to Celsius \n")

opt=int(input("Choose any Option(1 or 2) : "))

if opt == 1:

print("Convert temperatures from Celsius to Fahrenheit \n")

cel = float(input("Enter Temperature in Celsius: "))

fahr = (cel\*9/5)+32

print("Temperature in Fahrenheit =",fahr)

elif opt == 2:

print("Convert temperatures from Fahrenheit to Celsius \n")

fahr = float(input("Enter Temperature in Fahrenheit: "))

cel=(fahr-32)\*5/9;

print("Temperature in Celsius =",cel)

else:

print("Invalid Option")

**Out Put:**

Options are

1.Convert temperatures from Celsius to Fahrenheit

2.Convert temperatures from Fahrenheit to Celsius

Choose any Option(1 or 2) : 1

Convert temperatures from Celsius to Fahrenheit

Enter Temperature in Celsius: 34

Temperature in Fahrenheit = 93.2

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10) Write a python program to construct the following pattern using nested for loop:

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**Source code:**

n=int(input("ENTER A VALUE:"))

for x in range(0,n+1,1):

print(x\*'\*')

if(x==n):

for x in range(n,0,-1):

print(x\*'\*')

Output:

ENTER A VALUE:5

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9. Write a Python script that prints prime numbers less than 20.

print("Prime numbers between 1 and 20 are:")

ulmt=20;

for num in range(ulmt):

# prime numbers are greater than 1

if num > 1:

for i in range(2,num):

if (num % i) == 0:

break

else:

print(num)

Output:

Prime numbers between 1 and 20 are:

2

3

5

7

11

13

17

19

10. Write a python program to find factorial of a number using Recursion.

def recursion(n):

if(n<1):

print("FACTORIAL NOT POSSIBLE!!")

elif(n>1):

return n\*recursion(n-1)

else:

return 1

n=int(input("enter a number:"))

print("factorial of",n,"is:",recursion(n))

**Output:**

enter a number:5

factorial of 5 is: 120

1. Write a program that accepts the lengths of three sides of a triangle as inputs. The program output should indicate whether or not the triangle is a right triangle (Recall from the Pythagorean Theorem that in a right triangle, the square of one side equals the sum of

the squares of the other two sides).

base=float(input("Enter length of Base : "))

perp=float(input("Enter length of Perpendicular : "))

hypo=float(input("Enter length of Hypotenuse : "))

if hypo\*\*2==((base\*\*2)+(perp\*\*2)):

print("It's a right triangle")

else:

print("It's not a right triangle")

**OutPut**

Enter length of Base: 3

Enter length of Perpendicular: 4

Enter length of Hypotenuse: 5

It's a right triangle

14. Write a python program Fibonacci Numbers

def fibonacci(n):

if n == 0:

return 0

elif n == 1:

return 1

else:

return fibonacci(n-1) + fibonacci(n-2)

# Generate the first 10 numbers in the Fibonacci series

for i in range(10):

print(fibonacci(i))

**Output**

0

1

1

2

3

5

8

13

21

34

**16**. Write a script named **copyfile.py**. This script should prompt the user for the names of two text files. The contents of the first file should be input and written to the second file .

#Note: create a text file as “input.txt” and write some date in it. This will be used in the program.

with open("input.txt") as input:

with open("output.txt","w") as output:

for line in input: output.write(line)

print("JOB DONE!!")

**Ouput:**

JOB DONE!!

**17)** Write a program that inputs a text file. The program should print all of the unique words in the file in alphabetical order.

fname = input("Enter file name: ")

fh = open(fname)

lst = list() # list for the desired output

words=[];

for line in fh: # to read every line of file romeo.txt

words += line.split()

words.sort()

# display the sorted words

print("The unique words in alphabetical order are:")

for word in words:

if word in lst: # if element is repeated

continue # do nothing

\else: # else if element is not in the list

lst.append(word)

print(word)

#print(lst)

**Output**

Enter file name: input.txt

The unique words in alphabetical order are:

cmrtc

to

welcome

**15)**  Write a python program to define a module and import a specific function in that module to another program

**# arth.py**

''' Arithmetic Operations Module with Multiple functions'''

def Add(a,b):

c=a+b

return c

def Sub(a,b):

c=a-b

return c

def Mul(a,b):

c=a\*b

return c

from arth import Add

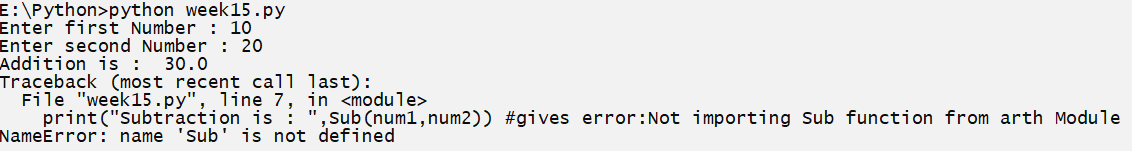
num1=float(input("Enter first Number : "))

num2=float(input("Enter second Number : "))

print("Addition is : ",Add(num1,num2))

print("Subtraction is : ",Sub(num1,num2)) #gives error:Not importing Sub function from arth Module

**Output:**

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1. Write a Python class to convert an integer to a roman numeral.

class irconvert:

num\_map = [(1000, 'M'), (900, 'CM'), (500, 'D'), (400, 'CD'), (100, 'C'), (90, 'XC'),(50, 'L'), (40, 'XL'), (10, 'X'), (9, 'IX'), (5, 'V'), (4, 'IV'), (1, 'I')]

def num2roman(self,num):

roman = ''

while num > 0:

for i, r in self.num\_map:

while num >= i:

roman += r

num -= i

return roman

num=int(input("Enter any Number :"))

print("Roman Number is : ",irconvert().num2roman(num))

**Out Put:**

Enter any Number :50

Roman Number is : L

1. **Write a Python class to implement pow(x, n)**

class py\_power:

def power(x,n):

print("power of given literals:\nx:",x,"\nn\n:",n,"is:",x\*\*n)

x=float(input("ENTER X(BASE) VALUE:"))

n=float(input("ENTER N(POWER) VALUE:"))

py\_power.power(x,n)

**Out Put:**

ENTER X(BASE) VALUE:34.5

ENTER N(POWER) VALUE:4

power of given literals:

x: 34.5

n

: 4.0 is: 1416695.0625

1. **Write a Python class to reverse a string word by word**.

class py\_reverse:

def revr(self, strs):

sp=strs.split()

sp.reverse()

res=" ".join(sp)

return res

str1=input("Enter a string with 2 or more words : ")

print("Reverse of string word by word: \n",py\_reverse().revr(str1));

**Out Put:**

Enter a string with 2 or more words : IT Students

Reverse of string word by word:

Students IT