#1. Write a program to demonstrate basic datatype in python:

```
a=10
b="Python"
c = 10.5
d=2.14j
e=True
print("Data type of Variable a :",type(a))
print("Data type of Variable b :",type(b))
print("Data type of Variable c :",type(c))
print("Data type of Variable d :",type(d))
print("Data type of Variable e :",type(e))
```

 # 2. Create a list and perform the following methods.

```
#a) insert( ) b) remove( ) c) append( ) d) pop( ) e) clear( )
```

```
a=[1,3,5,6,7,4,"hello"]
print(a)
#insert()
a.insert(3,20)
print(a)
#remove()
a.remove(7)
print(a)
#append()
a.append("hi")
print(a)
c=len(a)
print(c)
#pop()
a.pop()
print(a)
a.pop(6)
print(a)
# clear()
a.clear()
print(a)
```

3. Create a tuple and perform the following methods.
a) Add items b) len( ) c) Check for item in tuple d) Access items


```
#creating a tuple

rainbow=("v","i","b","g","y","o","r")
print(rainbow)
colour=("violet","blue","green","yellow","orange","red")
print(colour)

# Add items in tuples

rainbow_colour=rainbow+colour
 print(rainbow_colour)

#length of the tuple

c=len(rainbow_colour)
print(c)

#Access items in tuple

print("rainbow[2]:",rainbow[2])
print("rainbow[1:3]",rainbow[1:3])
print("rainbow[0:4]",rainbow[0:4])
```


```
#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( )

# creating a dictionary

college={'name': "QIS", 'code': "INDIA",'pincode': 560050 }
print(college)

#adding items to dictionary

college["location"] = "IBP"
print(college)

#changing values of a key

college["location"] = "vijayawada"
print(college)
```

```python
#know the length using len()

print("length of college is:",len(college))

#Acess items

print("college['name']:",college['name'])

# use get ()

x=college.get('pincode')
print(x)

#to copy the same dictionary use copy()

mycollege= college.copy()
print(mycollege)
```

#5. Write a program to create a menu with the following options
#1. TO PERFORM ADDITITON 2. TO PERFORM SUBTRACTION 3. TO PERFORM
MULTIPICATION 4. TO PERFORM DIVISION Accepts users input and perform the operation
accordingly. Use functions with arguments.

```python
def add(n1,n2):
 return n1+n2
def sub(n1,n2):
 return n1-n2
def mul(n1,n2):
 return n1*n2
def div(n1,n2):
 return n1/n2
print("Welcome to the Arithmetic Program")
choice =1
while(choice!=0):
 x = int(input(" Enter the first number\n"))
 y = int(input(" Enter the second number\n"))
 print("1. TO PERFORM ADDITION")
 print("2. TO PERFORM SUBTRACTION")
 print("3. TO PERFORM MULTIPLICATION")
 print("4. TO PERFORM DIVISION")
 print("0. To Exit")
 choice = int(input("Enter your choice"))
 if choice == 1:
  print(x, "+" ,y ,"=" ,add(x,y))
```

```python
    elif choice == 2:
     print(x, "-" ,y ,"=" ,sub(x,y))
    elif choice == 3:
     print(x, "*" ,y ,"=" ,mul(x,y))
    elif choice == 4:
     print(x, "%" ,y ,"=" ,div(x,y))
    elif choice ==0:
     print("Exit")
    else:
     print("Invalid Choice");
```

#6.Write a Program to print a number is Positive / Negative using if-else

```python
print("Program to print a number is Positive / Negative")
choice =1
while(choice!=0):
 number=int(input("Enter a Number"))
 if number >=0:
     print("The Number",number,"is Positive")
 else:
     print("The Number",number, "is negative")
 choice=int(input("Do you wish to continue 1/0"))
```

7.Write a program for filter() to filter only even numbers form a given file.

```python
def even(x):
  return x % 2 == 0
a=[1,2,3,4,5,6,7,8,9,10,11,12,13,15]
result = filter(even,a)
print("Original List:",a)
print("Filtered List:",list(result))
```

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#8.Write a python program to print date, time for today and now

```python
import datetime
a=datetime.datetime.today()
b=datetime.datetime.now()
print(a)
print(b)
```

#9. Write a program to add some days to your present date and print the date added.

```python
from datetime import datetime
from datetime import timedelta
from datetime import date
Begindatestring = date.today()
print("Beginning date")
print(Begindatestring)
Enddate= Begindatestring + timedelta(days=10)
print("Ending date")
print(Enddate)
```

#10. Write a program to count frequency of characters in a given file.

#(Note: File name in this program is sample.txt replace it with the actual text file name)

#save a file of notepad

```python
def frequency_letter(fileName , letter):
 file=open(fileName,'r')
 text=file.read()
 return text.count(letter)
print("Frequency of the character e is: ")
print(frequency_letter('sample.txt','e'))
```

#11. Using a numpy module create an array and check the following

#1.Type of array 2.Axis of the array 3. Shape of array 4.Type of element in array

```python
import numpy as np
arr=np.array([[1,2,3],[4,2,5]])
print("Array is of type:",type(arr))
print("Number of dimensions:",arr.ndim)
print("shape of array:",arr.shape)
print("Size of array:",arr.size)
print("Array stores elements of type:",arr.dtype)
```

#12. Write a python program to concatenate the dataframes with two different objects.

```python
import pandas as pd
df1=pd.DataFrame({'id':['A01','A02','A03','A04'],'Name':['SREE','NAGGI','KOWSHI',
'SATHWIKA']})
print("Data Frame 1: ")
print(df1)
df2=pd.DataFrame({'id':['B04','B05','B06','B07'],'Name':['SADHANA','SAHANA',
'DISHA','VRINDA']})
print("Data Frame 2: ")
print(df2)
frames=[df1,df2]
result=pd.concat(frames)
print("Concatenated Data Frame")
print(result)
```

#13. Write a python code to read a csv file using panda module & print the first and last. (Note: The csv file name in the program is 14.csv)

```python
import pandas as pd

df=pd.read_csv("14.csv")

print("First 5 Rows")

print(df.head(5))

print("\n Last 5 Rows:")

print(df.tail(5))
```

#14. Write a python program which accepts the radius of a circle from user and computes the area (use math module)

```python
import math as M

radius = float (input("Enter the radius: "))

area_of_circle= M.pi*radius*radius

circumference_of_circle= 2*M.pi*radius

print("The area of circle is :", area_of_circle)

print("The circumference of circle is :",circumference_of_circle)
```