



Graphic Era
HILL UNIVERSITY

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ASSIGNMENT

MACHINE

LEARNING USING

PYTHON

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Q1. Write a program to use the mathematical operators..

```
print("Enter first number")
a=int(input())
print("Enter second number")
b=int(input())
print("Enter 1 to add, 2 to subtract, 3 to multiply and 4 to divide")
op=int(input())
if(op==1):
    print("The sum is ",a+b)
elif(op==2):
    print("The difference is ",a-b)
elif(op==3):
    print("The product is ",a*b)
else:
    print("The quotient is ",a/b)
```

OUTPUT-

Enter first number

5

Enter second number

2

Enter 1 to add, 2 to subtract, 3 to multiply and 4 to divide

1

The sum is 7

Q2. Write a program to take an input of numbers from the user and print the Fibonacci series to the terminal number.

```
n=int(input("Enter a number "))
a=1
b=0
c=0
for i in range (0,n):
    print(c)
    c=a+b
    a=b
    b=c
```

OUTPUT-

Enter a number 10

```
0
1
1
2
3
5
8
13
21
34
```

Q3. Write a program to print the factorial of the number input by the user.

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

OUTPUT-

```
Enter a number 5
120
```

Q4. Write a program to check whether a given number is a prime number or not using loops.

```
n=int(input("Enter a number "))
a=1
if(n==1 or n==0):
    print("Not a prime number")
else:
    for i in range (2,int(n/2+1)):
        if(n%i==0):
            print("Not a prime number")
            quit()
    print("Prime number")
```

OUTPUT-

```
Enter a number 8
Not a prime number
```

Q5. Write a program to demonstrate the importing of modules of python.

FILE NAME: work.py

```
def doitFun():  
    return 24
```

FILE NAME: mainFile.py

```
import work  
print("My age is : ", doitFun())
```

OUTPUT-

My age is: 24

Q6. Write a program to demonstrate the use of nested if statements.

```
print("what is your age")
age=int(input("enter your age:"))
if age<18:
    print("you cannot drive:")
elif age==18:
    print("we will think about you:")
else:
    print("you can drive")
```

OUTPUT-

```
what is your age
enter your age:20
you can drive
```

Q7. Write a program to demonstrate the use of the else clause.

```
num=int(input("enter any number:"))  
if num>=0:  
    print("number is positive ")  
else:  
    print("number is negative")
```

OUTPUT-

```
enter any number:20  
number is positive
```


Q8. Write a program to illustrate the usage of Tuples.

```
tuple=()
print(type(tuple))
tuple=("physics","chemistry","maths",20,30,40,50)
print(tuple)
print(tuple[0])
print(tuple[1:5])
```

OUTPUT-

```
<class 'tuple'>
('physics', 'chemistry', 'maths', 20, 30, 40, 50)
physics
('chemistry', 'maths', 20, 30)
```

Q9. Write a program for searching an element and sorting a List.

```
list=[10,30,60,40,50,20,70,80]
n=int(input("Enter element to be search:"))
flag=0
for i in range(0,len(l)):
    if l[i]==n:
        flag=1
        break

if flag==1:
    print("Element Found")
else:
    print("Element not Found")
l.sort()
print("List after sorting:",l[0:])
```

OUTPUT

Enter element to be search:20

Element Found

List after sorting: [10,20,30,40,50,60,70,80]

10. Write a program to illustrate the usage of Dictionaries.

```
dict={"name":"Rohan","age":20,"city":"dehradun","dob":20-10-2020}
print(type(dict)) #print type
print(dict) #print dictionary
print(dict["name"])
dict["father name"]="jaiprakash"
print(dict)
print(dict.get("age"))
print(dict)
del dict["name"]
print(dict)
```

OUTPUT-

```
<class 'dict'>
{'name': 'Rohan', 'age': 20, 'city': 'dehradun', 'dob': -2010}
Rohan
{'name': 'Rohan', 'age': 20, 'city': 'dehradun', 'dob': -2010, 'father
name': 'jaiprakash'}
20
{'name': 'Rohan', 'age': 20, 'city': 'dehradun', 'dob': -2010, 'father
name': 'jaiprakash'}
{'age': 20, 'city': 'dehradun', 'dob': -2010, 'father name':
'jaiprakash'}
```

Q11. Write a program to find the mean. mode and median of the given range of numbers.

```
sum=0
x=[2,3,4,6,2,6,5,6,7,7]
for i in x:
    sum=sum+i
mean=sum/len(x)
print(mean)
n=len(x)
x.sort()
if(n%2==0):
    med1=n//2
    med2=(n//2)+1
    final_median=(x[med1-1]+x[med2-1])/2
else:
    final_median=x[n//2]
print(final_median)
import statistics
mode2=statistics.mode(x)
print(mode2)
```

Output:

4.8
5.5
6

Q12. Write a program to calculate the standard deviation of a given set of numbers.

```
ob = [1,5,4,2,3]
sum=0
for i in range(len(ob)):
    sum+=ob[i]
mean= sum/len(ob)
sum_of_squared_deviation = 0
for i in range(len(ob)):
    sum_of_squared_deviation+=(ob[i]- mean)**2
sd = ((sum_of_squared_deviation)/len(ob))**0.5
print("Standard Deviation of sample is ",sd)
```

Output:

Standard Deviation of sample is 1.4142135623730951

Q13. Write a program to calculate the addition of two 3x 3 matrices.

```
A = [[10, 13, 44],  
     [11, 2, 3],  
     [5, 3, 1]]
```

```
B = [[7, 16, -6],  
     [9, 20, -4],  
     [-1, 3, 27]]
```

```
C = [[0,0,0],  
     [0,0,0],  
     [0,0,0]]  
matrix_length = len(A)
```

```
for i in range(len(A)):  
    for k in range(len(B)):  
        C[i][k] = A[i][k] + B[i][k]
```

```
print("The sum of Matrix mat1 and mat2 = ", C)  
for i in C:  
    print (i)
```

Output:

```
The sum of Matrix mat1 and mat2 = [[17, 29, 38], [20, 22, -1], [4, 6,  
28]]  
[17, 29, 38]  
[20, 22, -1]  
[4, 6, 28]
```

Q14. Write a program to calculate the multiplication of two 3x 3 matrices.

```
X = [[12,7,3],  
     [4 ,5,6],  
     [7 ,8,9]]
```

```
Y = [[5,8,1,2],  
     [6,7,3,0],  
     [4,5,9,1]]
```

```
result = [[0,0,0,0],  
          [0,0,0,0],  
          [0,0,0,0]]
```

```
for i in range(len(X)):  
    for j in range(len(Y[0])):  
        for k in range(len(Y)):  
            result[i][j] += X[i][k] * Y[k][j]
```

```
for r in result:  
    print(r)
```

Output:

```
[114, 160, 60, 27]  
[74, 97, 73, 14]  
[119, 157, 112, 23]
```

Q15. Write a program to calculate the transpose of the given matrix.

```
X = [[12,7,3],  
     [4 ,5,6],  
     [7 ,8,9]]
```

```
T = [[0,0,0],  
     [0,0,0],  
     [0,0,0]]
```

```
for i in range(len(X)):  
    for j in range(len(X[0])):  
        T[j][i] = X[i][j]
```

```
for t in T:  
    print(t)
```

Output:
[12, 4, 7]
[7, 5, 8]
[3, 6, 9]