Computer Science

Practical File

Riya Verma , XI B

Index

Term I

Sno.	Programs
1.	Write a program to find greatest of the 3 numbers
2.	Check whether a number is positive or negative
3.	Check if a person is eligible to vote or not
4.	Accept a character from the user and check whether it is in upper case alphabet, lower case alphabet, a digit or a special character.
5.	Write a program to find the sum of first 10 even numbers
6.	Write a program to find the factorial of a number
7.	Using nested loops, accept the number of lines (odd number). Draw the pattern
8.	Using nested loops, accept the number of lines (odd number). Print the pattern.

Term II

Sno.	Programs
1.	Write a program to find the length of each element of the list
2.	Check whether the element of a list is a palindrome or not. If it is then replace the element by ‘p’ , if not then replace it by ‘Np’
3.	Print the element of the list number of times the value of that digit is.
4.	Write a program to find the sum of digits of elements of a list and print them as elements of list
5.	Write a program to move all duplicate values in a list to the end of the list.
6.	Accept a 2-D array from the user and reverse elements of each row.
7.	Write a program on Bubble sort
8.	Write a program on Insertion sort.
9.	Write a program to input your friends' names and their Phone Numbers and store them in the dictionary as the key-value pair. Perform operations on the dictionary.
10.	Write a program to find the sum of elements which are perfect squares, in a 2-d list.

Program 1

Write a program to find greatest of the 3 numbers

INPUT

```
print('to check greatest of 3 numbers')
a = float(input('enter your first number'))
b = float(input('enter your second number'))
c = float(input('enter your third number'))
if(a > b and a > c):
    print(a,'is the greatest')
elif(b > c and b > a):
    print(b,'is the greatest')
elif(c > b and c > a):
    print(c,'is the greatest')
elif(a == b == c):
    print("all are equal")
else:
    print('error')
```

OUTPUT

```
to check greatest of 3 numbers
enter your first number 27.28
enter your second number 27.289
enter your third number 27.28
27.289 is the greatest
```

```
to check greatest of 3 numbers
enter your first number 12.0001
enter your second number 12.00012
enter your third number 12.000132
12.000132 is the greatest
```

Program 2

Check whether a number is positive or negative

INPUT

```
print("Checking whether a number is positive or negative")
print('Enter your number')
a = float(input())
if(a < 0):
    print(a, 'is negative')
elif(a > 0):
    print(a, 'is positive')
elif(a == 0):
    print(a, 'is zero')
else:
    print("error")
```

OUTPUT

```
Checking whether a number is positive or negative
Enter your number
-12
-12.0 is negative
```

```
Checking whether a number is positive or negative
Enter your number
19
19.0 is positive
```

```
Checking whether a number is positive or negative
Enter your number
-0.83
-0.83 is negative
```

```
Checking whether a number is positive or negative
Enter your number
0.843
0.843 is positive
```

```
Checking whether a number is positive or negative
Enter your number
0
0.0 is zero
```

Riya Verma , XI B

Program 3

Check if a person is eligible to vote or not

INPUT

```
print('Checking if a person is eligible to vote or not')
age = int(input('ENTER YOUR AGE'))
if(age >= 18):
    print('You are eligible to vote in India')
elif(age < 18):
    print('You are not eligible to vote in India')
else:
    print('error')
```

OUTPUT

```
Checking if a person is eligible to vote or not
ENTER YOUR AGE 15
You are not eligible to vote in India
```

```
Checking if a person is eligible to vote or not
ENTER YOUR AGE 18
You are eligible to vote in India
```

```
Checking if a person is eligible to vote or not
ENTER YOUR AGE 29
You are eligible to vote in India
```

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Program 4

Accept a character from the user and check whether it is in upper case alphabet, lower case alphabet, a digit or a special character.

INPUT

```
print("Checking whether character is in upper case, lower case, a digit or a special character")
print('Enter the character.(Kindly enter a single character)')
character = input()
if(character >= "a" and character <= 'z'):
    print(character , "is in lower case")
elif(character >= "A" and character <= 'Z'):
    print(character , "is in upper case")
elif(character in ['!','@','#','$','%','^','&','*','(',')','-','_','=','+','[',']','{','}','|',':',';','<','>','?',',','.','/','`','~','"',"'"]):
    print(character , "is a special character")
elif(character >= "0" and character <= '9'):
    print(character , "is a digit")
else:
    print('error')
```

OUTPUT

```
Checking whether character is in upper case, lower case, a digit or a special character
Enter the character.(Kindly enter a single character)
1
1 is a digit
```

```
Checking whether character is in upper case, lower case, a digit or a special character
Enter the character.(Kindly enter a single character)
a
a is in lower case
```

```
Checking whether character is in upper case, lower case, a digit or a special character
Enter the character.(Kindly enter a single character)
A
A is in upper case
```

```
Checking whether character is in upper case, lower case, a digit or a special character
Enter the character.(Kindly enter a single character)
@
@ is a special character
```

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Program 5

Write a program to find the sum of first 10 even numbers

INPUT

```
print('Finding sum of first 10 even numbers')
a = 0
for i in range(0,10):
    a = a + i*2
print(a)
```

OUTPUT

```
Finding sum of first 10 even numbers
90
```

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Program 6

Write a program to find the factorial of a number

INPUT

```
print('program to find the factorial of a number')
print('enter the number')
num1 = int(input())
fact = 1
#method 1
while num1 >= 1 :
    fact = fact*(num1)
    num1 = num1-1
print(fact)
print('')

#method 2
print('program to find the factorial of a number')
print('enter the number')
num1 = int(input())
for i in range(1,num1):
    num1 = num1*i
    i =+ 1
print(num1)
```

OUTPUT

```
program to find the factorial of a number
enter the number
5
120

program to find the factorial of a number
enter the number
6
720
```

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Program 7

Using nested loops, accept the number of lines (odd number). Draw the pattern.

INPUT

```
print('making a pattern')
print('enter the number of lines(kindly enter a odd number)')
a = int(input())
if a%2 == 0 :
    for i in range(1,101):
        print('enter the number of lines(kindly enter a odd number)')
        a = int(input())
        if(a%2):
            break
c = 1
i = 1
s = round((a-1)/2)
while c <= a :
    b = c*'*'
    d = s*' '
    e = d
    print(d,b)
    c = c + 2
    s = round((a - c)/2)

c = c - 4
s = round((a - c)/2)
while c >= 0 :
    b = c*'*'
    d = s*' '
    e = d
    print(d,b)
    c = c - 2
    s = round((a - c)/2)
```

OUTPUT

```
making a pattern
enter the number of lines(kindly enter a odd number)
12
enter the number of lines(kindly enter a odd number)
13
      *
     ***
    *****
   *******
  *********
 ***********
*************
 ***********
  *********
   *******
    *****
     ***
      *
```

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Program 8

Using nested loops, accept the number of lines (odd number). Print the pattern

INPUT

```
print('Pattern printing')
print('Enter the number of lines,kindly enter the number till 9 only')
n = int(input())
if n > 9:
    print('please restart')
else:
    s = 0
    m = n
    while s < n :
        a = s*" "
        for i in range(1,m+1):
            if i == 1:
                print(a,i,end="")
            else:
                print(i,end="")
        print( )
        m = m-1
        s = s + 1
```

OUTPUT

```
Pattern printing
Enter the number of lines,kindly enter the number till 9 only
8
 12345678
  1234567
   123456
    12345
     1234
      123
       12
        1
```

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Program 1

Write a program to find the length of each element of the list.

INPUT

```
list1 = list(eval(input("Enter the list : ")))
list2 = []
for i in range(len(list1)):
    a = len(str(list1[i]))
    list2.append(a)
print("Orignal list :",list1)
print("Modified list : ",list2)
```

OUTPUT

```
Enter the list : [123,'abc',45,'675']
Orignal list : [123, 'abc', 45, '675']
Modified list :  [3, 3, 2, 3]
>>>
```

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Program 2

Check whether the element of a list is a palindrome or not. If it is then replace the element by ‘p’ , if not then replace it by ‘Np’

INPUT

```
list1 = list(eval(input('Enter the list : ')))
list2 = []
for i in range(len(list1)):
    ele = str(list1[i])
    for j in range(len(ele)):
        if (ele[j] == ele[len(ele)-(j+1)]):
            p = 'P'
        else:
            p = 'NP'
    list2.append(p)
print("Orignal list :",list1)
print("New list :",list2)
```

OUTPUT

```
Enter the list : [212,345,78987,6776]
Orignal list : [212, 345, 78987, 6776]
New list : ['P', 'NP', 'P', 'P']
>>>
```

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Program 3

Print the element of the list number of times the value of that digit is.

INPUT

```
list1 = list(eval(input('Enter the list : ')))
list2 = []
for i in range(len(list1)):
    ele = str(list1[i])*list1[i]
    print(ele)
```

OUTPUT

```
Enter the list : [5,6,7]
55555
666666
7777777
```

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Program 4

Write a program to find the sum of digits of elements of a list and print them as elements of list

INPUT

```
list1 = list(eval(input('Enter the list : ')))
list2 = []
for i in range(len(list1)):
    ele = str(list1[i])
    count = 0
    for j in range(len(ele)):
        count = count + int(ele[j])
    list2.append(count)
print("Orignal list :",list1)
print("New list :",list2)
```

OUTPUT

```
Enter the list : [121,34,909]
Orignal list : [121, 34, 909]
New list : [4, 7, 18]
>>>
```

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Program 5

Write a program to move all duplicate values in a list to the end of the list.

INPUT

```
list1 = list(eval(input("Enter the list : ")))
new_list = []
dupli_list = []
for i in range(len(list1)):
    if list1[i] not in new_list:
        new_list.append(list1[i])
    else:
        dupli_list.append(list1[i])
new_list = new_list + dupli_list
print(new_list)
```

OUTPUT

```
Enter the list : [1,2,4,2,4,7,4,3,2,1,4,5,6,8,8]
[1, 2, 4, 7, 3, 5, 6, 8, 2, 4, 4, 2, 1, 4, 8]
```

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Program 6

Accept a 2-D array from the user and reverse elements of each row.

INPUT

```
list1 = list(eval(input('Enter a 2-D list : ')))
for i in range(len(list1)):
    list1[i] = list1[i][::-1]
print("rows' elements reversing :",list1)
```

OUTPUT

```
Enter a 2-D list : [[1,2,3],[4,5,6],[7,8,9]]
rows' elements reversing : [[3, 2, 1], [6, 5, 4], [9, 8, 7]]
>>>
```

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Program 7

Write a program on Bubble sort.

INPUT

```
list1 = list(eval(input("Enter the list : ")))
n = len(list1)
while 0 < n:
    for i in range(0,n-1):
        if list1[i] > list1[i+1]:
            list1[i],list1[i+1] = list1[i+1],list1[i]
        else:
            continue
    n = n-1
print(list1)
```

OUTPUT

```
Enter the list : [1,2,5,3,9,7,4,0,8]
[0, 1, 2, 3, 4, 5, 7, 8, 9]
>>>
```

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Program 8

Write a program on Insertion sort.

INPUT

```
list1 = list(eval(input("Enter the list : ")))
n = len(list1)
for i in range(1,n):
    item = list1[i]
    pos = i - 1
    while pos >= 0 and item < list1[pos]:
        list1[pos + 1] = list1[pos]
        pos = pos - 1
    list1[pos + 1] = item
print(list1)
```

OUTPUT

```
Enter the list : [36,13,90,32,45,66,43]
[13, 32, 36, 43, 45, 66, 90]
>>>
```

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Program 9

Write a program to input your friends' names and their Phone Numbers and store them in the dictionary as the key-value pair. Perform operations on the dictionary.

INPUT

```
n = int(input(("Enter the number of pairs in the dictionary : ")))
dict1 = {}
for i in range(n):
    key , value = eval(input("enter the Name , Number : "))
    dict1[key] = value
print(dict1)
m = int(input("How many modifications you want to make? "))
print('''Do you want to:(enter the adjecent number)
1. print all numbers and names
2. adding a number
3. delete a number
4. modify a number
5. check if a number is present or not
6. sorted phone book''')
for i in range(m):
    a = int(input())
    if a == 1:
        elements = dict1.items()
        for i in elements:
            print(i)
    elif a==2 :
        n1 = int(input("How many numbers you want to add ? "))
        for i in range(n1):
            key , value = eval(input("enter the Name , Number : "))
            dict1[key] = value
        print(dict1)
    elif a == 3:
        del_ele = input("which name you want to delete? ")
        del dict1[del_ele]
        print(dict1)
    elif a == 4:
        modify = input("Which phone number you want to modify? ")
        dict1[modify] = int(input("Enter the new phone number : "))
        print(dict1)
    elif a == 5:
        find = input("Enter the name you want to find : ")
        if find in dict1 :
            print("Yes", find,"is present in dict1")
        else :
            print("No", find,"is not present in dict1")
    elif a == 6:
        list1 = sorted(dict1.keys())
        print(list1)
    else:
        print("ERROR")
```

OUTPUT

```
Enter the number of pairs in the dictionary : 5
enter the Name , Number : 'Rose', 9231474563
enter the Name , Number : 'Harsha', 9087652341
enter the Name , Number : 'Dia', 91230872534
enter the Name , Number : 'Anushka',9267281993
enter the Name , Number : 'Priya',9981303223
{'Rose': 9231474563, 'Harsha': 9087652341, 'Dia': 91230872534, 'Anushka': 926728
1993, 'Priya': 9981303223}
How many modifications you want to make? 6
Do you want to:(enter the adjecent number)
1. print all numbers and names
2. adding a number
3. delete a number
4. modify a number
5. check if a number is present or not
6. sorted phone book
1
('Rose', 9231474563)
('Harsha', 9087652341)
('Dia', 91230872534)
('Anushka', 9267281993)
('Priya', 9981303223)
2
How many numbers you want to add ? 1
enter the Name , Number : 'Jasmine',9273772819
{'Rose': 9231474563, 'Harsha': 9087652341, 'Dia': 91230872534, 'Anushka': 926728
1993, 'Priya': 9981303223, 'Jasmine': 9273772819}
3
which name you want to delete? Rose
{'Harsha': 9087652341, 'Dia': 91230872534, 'Anushka': 9267281993, 'Priya': 99813
03223, 'Jasmine': 9273772819}
4
Which phone number you want to modify? Priya
Enter the new phone number : 9012347352
{'Harsha': 9087652341, 'Dia': 91230872534, 'Anushka': 9267281993, 'Priya': 90123
47352, 'Jasmine': 9273772819}
5
Enter the name you want to find : Eesha
No Eesha is not present in dict1
6
['Anushka', 'Dia', 'Harsha', 'Jasmine', 'Priya']
>>>
```

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Program 10

Write a program to find the sum of elements which are perfect squares, in a 2-d list.

INPUT

```
import math
list1 = list(eval(input("Enter the list : ")))
for i in range(len(list1)):
    for j in range(len(list1[i])):
        s = math.sqrt(list1[i][j])
        if int(s)**2 == list1[i][j]:
            string = str(list1[i][j])
            count = 0
            for k in range(len(string)):
                count =  count + int(string[k])
            list1[i][j]=count
        else:
            continue
print(list1)
```

OUTPUT

```
Enter the list : [[121,34,56],[45,81,100],[32,0,9]]
[[4, 34, 56], [45, 9, 1], [32, 0, 9]]
```

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