Programming_Assingment12

Programming_Assingment13

Question 1:

Write a program that calculates and prints the value according to the given formula:

Q = Square root of [(2 * C * D)/H]

Following are the fixed values of C and H:

C is 50. H is 30.

D is the variable whose values should be input to your program in a comma-separated

sequence.

Example

Let us assume the following comma separated input sequence is given to the program:

100,150,180

The output of the program should be:

18,22,24

In [4]:

```
import math

numbers = input("Provide D in with comma separated: ")
numbers = numbers.split(',')

result_list = []
result_string = ''
for D in numbers:
    Q = round(math.sqrt(2 * 50 * int(D) / 30))
    result_list.append(str(Q))

print(','.join(result_list))
```

```
Provide D in with comma separated: 2,39,45
3,11,12
```

Question 2:

Write a program which takes 2 digits, X,Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be i*j.

Note: i=0,1.., X-1; j=0,1,¡Y-1.

Example

Suppose the following inputs are given to the program:

3,5

Then, the output of the program should be:

[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]

In [5]:

```
def createMatrix(n,m):

    M=[]
    print("Enter the element :")
    for i in range(n):
        #stor row
        row =[]
        for j in range(m):
            row.append(i*j)
        M.append(row)
    return(M)

x = int(input("Enter x : "))
y = int(input("enter y : "))
createMatrix(x,y)
```

```
Enter x : 3
enter y : 5
Enter the element :
```

Out[5]:

```
[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]
```

Question 3:

Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.

Suppose the following input is supplied to the program:

without,hello,bag,world

Then, the output should be:

bag,hello,without,world

In [4]:

```
items=[x for x in input('Enter comma seperated words ').split(',')]
items.sort()
print(','.join(items))
```

```
Enter comma seperated words without,hello,bag,world
bag,hello,without,world
```

Question 4:

Write a program that accepts a sequence of whitespace separated words as input and prints

the words after removing all duplicate words and sorting them alphanumerically.

Suppose the following input is supplied to the program:

hello world and practice makes perfect and hello world again

Then, the output should be:

again and hello makes perfect practice world

In [20]:

```
items=[x for x in input('Enter space sepeated words ').split(' ')]
print(' '.join(sorted(list(set(items)))))
```

```
Enter space sepeated words hello world and practice makes perfect and hello w
orld again
again and hello makes perfect practice world
```

Question 5:

Write a program that accepts a sentence and calculate the number of letters and digits.

Suppose the following input is supplied to the program:

hello world! 123

Then, the output should be:

LETTERS 10

DIGITS 3

In [7]:

```
s = input("Input a string : ")
digits=letters=0
for c in s:
    if c.isdigit():
        digits += 1
    elif c.isalpha():
        letters += 1
    else:
        pass
print("Letters", letters)
print("Digits", digits)
```

```
Input a string : akashdeep364
Letters 9
Digits 3
```

Question 6:

A website requires the users to input username and password to register. Write a program to check the validity of password input by users.

Following are the criteria for checking the password:

1. At least 1 letter between [a-z]

2. At least 1 number between [0-9]

1. At least 1 letter between [A-Z]

3. At least 1 character from [$#@]

4. Minimum length of transaction password: 6

5. Maximum length of transaction password: 12

Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma.

Example

If the following passwords are given as input to the program:

ABd1234@1,a F1#,2w3E*,2We3345

Then, the output of the program should be:

ABd1234@1

In [8]:

```
import re
password= input("Enter your password : ")
x = True
while x:
    if (len(password) < 6 or len(password) > 12):
        break
    elif not re.search("[a-z]",password):
        break
    elif not re.search("[0-9]",password):
        break
    elif not re.search("[A-Z]",password):
        break
    elif not re.search("[$#@]",password):
        break
    elif re.search("\s",password):
        break
    else:
        print("Valid Password")
        x=False
        break

if x:
    print("Not a Valid Password")
```

```
Enter your password : 123#dldjj
Not a Valid Password
```