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| Question 1: |
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| Write a program that calculates and prints the value according to the given formula: |
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| Q = Square root of [(2 \* C \* D)/H] |
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| Following are the fixed values of C and H: |
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| C is 50. H is 30. |
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| D is the variable whose values should be input to your program in a comma-separated sequence. |
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| Example |
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| Let us assume the following comma separated input sequence is given to the program: |
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| 100,150,180 |
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| The output of the program should be: |
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18,22,24

**Ans:**

string= input("enter value of D:")

splt= string.split(",")

output=""

C=50

H=30

for D in splt:

result=int(((2\*C\*int(D)/H))\*\*0.5)

if output=="":

output=output+str(result)

else:

output=output+","+str(result)

print(output)

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| 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. | |
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| Note: i=0,1.., X-1; j=0,1,¡­Y-1. |
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| Example |
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| Suppose the following inputs are given to the program: |
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| 3,5 |
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| Then, the output of the program should be: |
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| [[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]] |
| **Ans:**  string= input("enter dimension in form X,Y:")  splt= string.split(",")  X=int(splt[0])  Y=int(splt[1])  output=[]  for i in range(0,X):  l=[]  for j in range(0,Y):  l.append(i\*j)  output.append(l)  print(output) |
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Question 3:

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| 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. |
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| Suppose the following input is supplied to the program: |
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| without,hello,bag,world |
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| Then, the output should be: |
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bag,hello,without,world

**Ans:**

string= input("enter comma seperated sequence of words:")

splt= string.split(",")

splt.sort()

print(",".join(splt))

Question 4:

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| 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. |
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| Suppose the following input is supplied to the program: |
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| hello world and practice makes perfect and hello world again |
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| Then, the output should be: |
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again and hello makes perfect practice world

**Ans:**

string= input("enter whitespace seperated sequence of words:")

splt= string.split(" ")

l=[]

for s in splt:

if s not in l:

l.append(s)

l.sort()

print(" ".join(l))

Question 5:

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| Write a program that accepts a sentence and calculate the number of letters and digits. |
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| Suppose the following input is supplied to the program: |
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| hello world! 123 |
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| Then, the output should be: |
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| --- |
| LETTERS 10 |
|  |

DIGITS 3

**Ans:**

string= input("enter sentence:")

letters=0

digits=0

for s in string:

if s.isdigit():

digits+=1

if s.isalpha():

letters+=1

print("LETTERS "+str(letters))

print("DIGITS "+str(digits))

Question 6:

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| A website requires the users to input username and password to register. Write a program to check the validity of password input by users. |
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| Following are the criteria for checking the password: |
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| 1. At least 1 letter between [a-z] |
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| 2. At least 1 number between [0-9] |
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| --- |
| 1. At least 1 letter between [A-Z] |
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| --- |
| 3. At least 1 character from [$#@] |
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| 4. Minimum length of transaction password: 6 |
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| 5. Maximum length of transaction password: 12 |
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| 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. |
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| Example |
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| If the following passwords are given as input to the program: |
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| ABd1234@1,a F1#,2w3E\*,2We3345 |
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| Then, the output of the program should be: |
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ABd1234@1

**Ans:**

string= input("enter comma seperated passwords:")

lower=['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p','q','r','s','t','u','v','w','x','y','z']

upper=['A','B','C','D','E','F','G','H','I','J','K','L','M','N','O','P','Q','R','S','T','U','V','W','X','Y','Z']

digs=['0','1','2','3','4','5','6','7','8','9']

chars=['$','#','@']

passwords=string.split(",")

for password in passwords:

u=0

l=0

d=0

c=0

for s in password:

if s in lower:

l+=1

if s in upper:

u+=1

if s in digs:

d+=1

if s in chars:

c+=1

if u>0 and l>0 and d>0 and c>0 and len(password)>=6 and len(password)<=12:

print(password)