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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

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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]] |
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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

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: |
|  |

again and hello makes perfect practice world

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

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

**Solution: 1**

import math

C = 50

H = 30

D = list(map(int, input("Enter numbers in comma seperated sequence ").split(",")))

res = []

for i in D:

r = (100\*i)/30

res.append(int(math.sqrt(r)))

print(res)

**Solution: 2**

import numpy as np

rows, cols =list(map(int, input("Enter the number ").split(" ")))

ar = [[i\*j for j in range(cols)] for i in range(rows) ]

input\_array = np.array(ar)

input\_array

**Solution: 3**

word\_Sequence = input("Enter the sequence").split(",")

sorted(word\_Sequence)

**Solution: 4**

word\_sequence = input("Enter the word sequence ").split(" ")

a = sorted(set(word\_sequence))

" ".join(a)

**Solution: 5**

text = "hello world! 123"

c1 = 0

c2 = 0

for i in text:

if(i.isdigit()):

c1 = c1+1

if(i.isalpha()):

c2 = c2+1

print("LETTERS ", c2)

print("DIGITS ", c1)

**Solution: 6**

import re

def validate\_password(psswrd):

while True:

if len(psswrd)<6 or len(psswrd)>12:

break

elif re.search('[a-z]', psswrd) is None:

break

elif re.search('[A-Z]', psswrd) is None:

break

elif re.search('[0-9]', psswrd) is None:

break

elif re.search('[$#@]', psswrd) is None:

break

else:

return psswrd

password\_sequence = input("Enter a sequence of passwords ").split(",")

for i in password\_sequence:

print(validate\_password(i))