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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

import math

C = 50

H = 30

D = int(input('Enter D: '))

int(math.sqrt((2 \* C \* D)//H))

Or

import math

C = 50

H = 30

D = [100,150,180]

NewD =[]

for i in D:

NewD.append(int(math.sqrt((2 \* C \* i)//H)))

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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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rows, cols = (input("Enter values for row and column number: ").split(','))

rows = int(rows)

cols = int(cols)

grid = []

for x in range(rows):

row = []

for y in range(cols):

row.append(x \* y)

grid.append(row)

print(row)

print(grid)

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

ss = ['without','hello','bag','world']

sorted(ss)

OR

ss = ['without','hello','bag','world']

sorted(ss)

ss2 = sorted(ss)

ss3 =""

for i in ss2:

ss3 = ss3 + ',' + i

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

st = "hello world and practice makes perfect and hello world again"

st\_set = set(sorted(st.split()))

new\_st = ""

for i in sorted(st\_set):

new\_st = new\_st + " " + i

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

letter = digits =0

for s in sample:

if s.isalpha():

letter += 1

if s.isdigit():

digits+=1

print(letter, 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] |
|  |

|  |
| --- |
| 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

import re

password = "R@m@\_f0rtu9e$"

flag = 0

while True:

if (len(password)<12 and len(password) >6):

flag = -1

break

elif not re.search("[a-z]", password):

flag = -1

break

elif not re.search("[A-Z]", password):

flag = -1

break

elif not re.search("[0-9]", password):

flag = -1

break

elif not re.search("[#@$]", password):

flag = -1

break

else:

flag = 0

print("Valid Password")

print(password.split(',')[0])

break

if flag ==-1:

print("Not a Valid Password")