1 Python Programming Basic Assignment 13

1.0.1 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 [2]:
```
import math
c=50
h=30
value = []
items=[x for x in input().split(',')]
for d in items:
    value.append(str(int(round(math.sqrt(2*c*float(d)/h)))))

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

```
100,150,180
18,22,24
```

1.0.2 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.

In [5]:
```
row_num = int(input("Input number of rows: "))
col_num = int(input("Input number of columns: "))
multi_list = [[0 for col in range(col_num)] for row in range(row_num)]

for row in range(row_num):
    for col in range(col_num):
        multi_list[row][col]= row*col

print(multi_list)

```

```
Input number of rows: 3
Input number of columns: 4
[[0, 0, 0, 0], [0, 1, 2, 3], [0, 2, 4, 6]]
```

1.0.3 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.

In [7]:
```
phrase = input("Input words: ")

phrase_list = phrase.split(",")
phrase_list.sort()
print((', ').join(phrase_list))
```

```
Input words: order , hello , would , test
 hello ,  test,  would , order
```

1.0.4 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.

In [9]:
```
phrase = input("Type in: ")
phrase_splited = phrase.split(' ')

word_list = []
for i in phrase_splited:
    if i not in word_list:
        word_list.append(i)
    else:
        continue
word_list.sort()
print((' ').join(word_list))
```

```
Type in: Welcome to the world of metaverse
Welcome metaverse of the to world
```

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

In [10]:
```
s = input("Input a string")
d=l=0
for c in s:
    if c.isdigit():
        d=d+1
    elif c.isalpha():
        l=l+1
    else:
        pass
print("Letters", l)
print("Digits", d)

```

```
Input a stringWelcome to the world of metaverse
Letters 28
Digits 0
```

1.0.6 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.

In [16]:
```
import re
p= input("Input your password")
x = True
while x:
    if (len(p)<6 or len(p)>12):
        break
    elif not re.search("[a-z]",p):
        break
    elif not re.search("[0-9]",p):
        break
    elif not re.search("[A-Z]",p):
        break
    elif not re.search("[$#@]",p):
        break
    elif re.search("\s",p):
        break
    else:
        print("Valid Password")
        x=False
        break

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

```

```
Input your passwordW3r@100a
Valid Password
```

In [ ]:
```

```