Problem 1

For any web application login, the user password need to be validated against database rules. For My UMKC web application following are the criteria for valid password:

a) The password length should be in range 6-16 characters

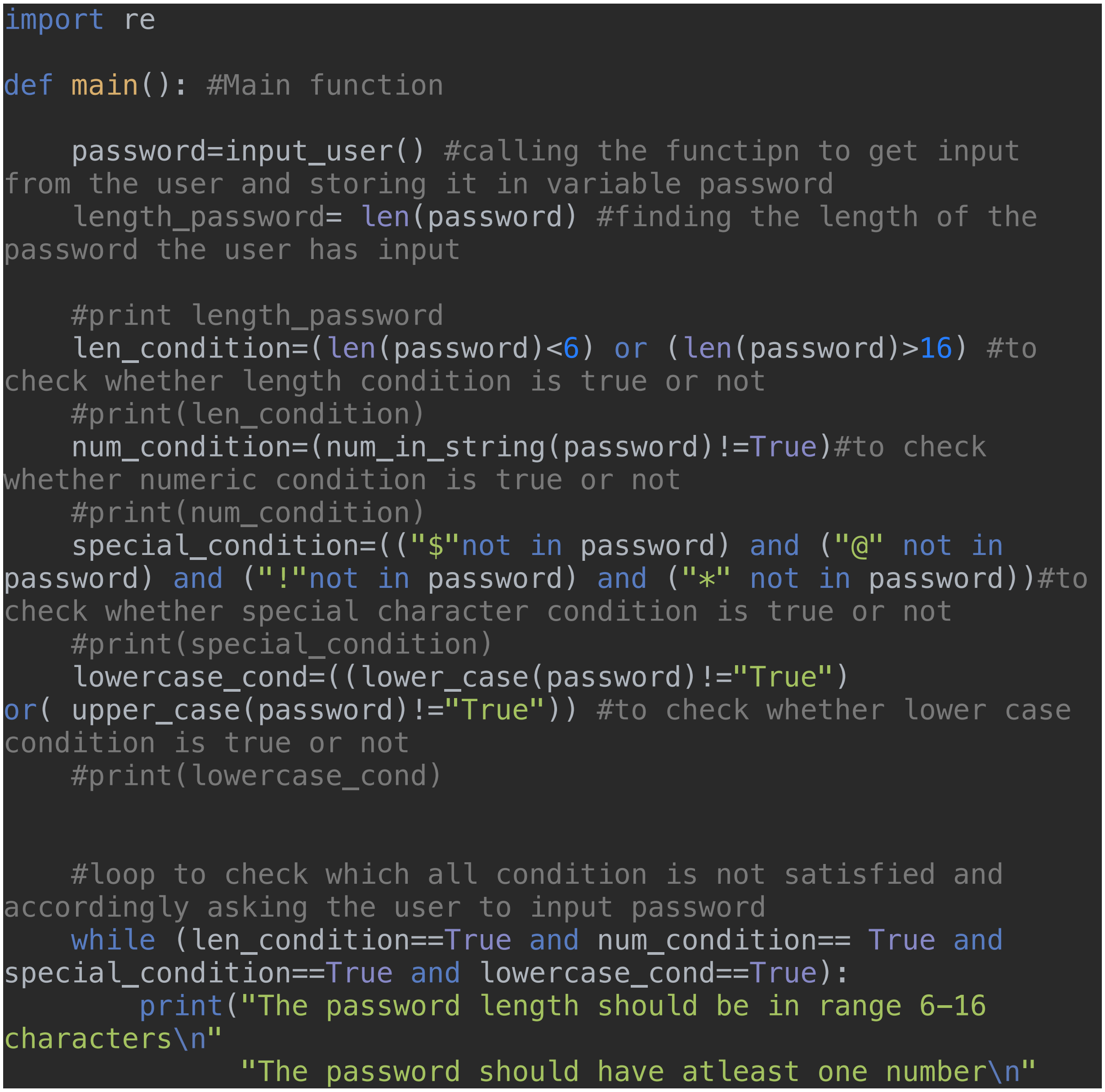
b) Should have atleast one number

c) Should have atleast one special character in [$@!*]

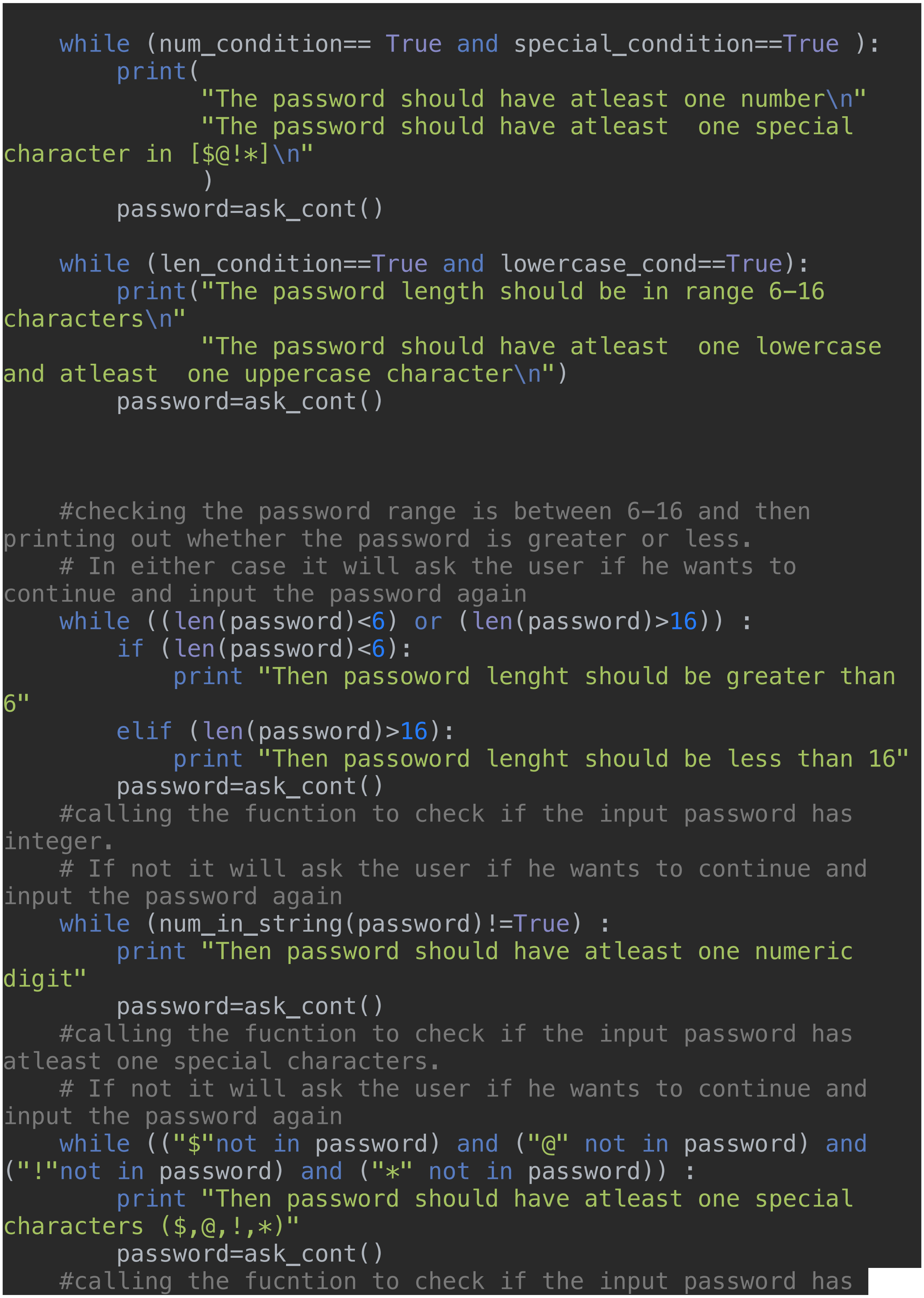
d) Should have atleast one lowercase and atleast one uppercase character

Use loops to write a python program for the above scenario.

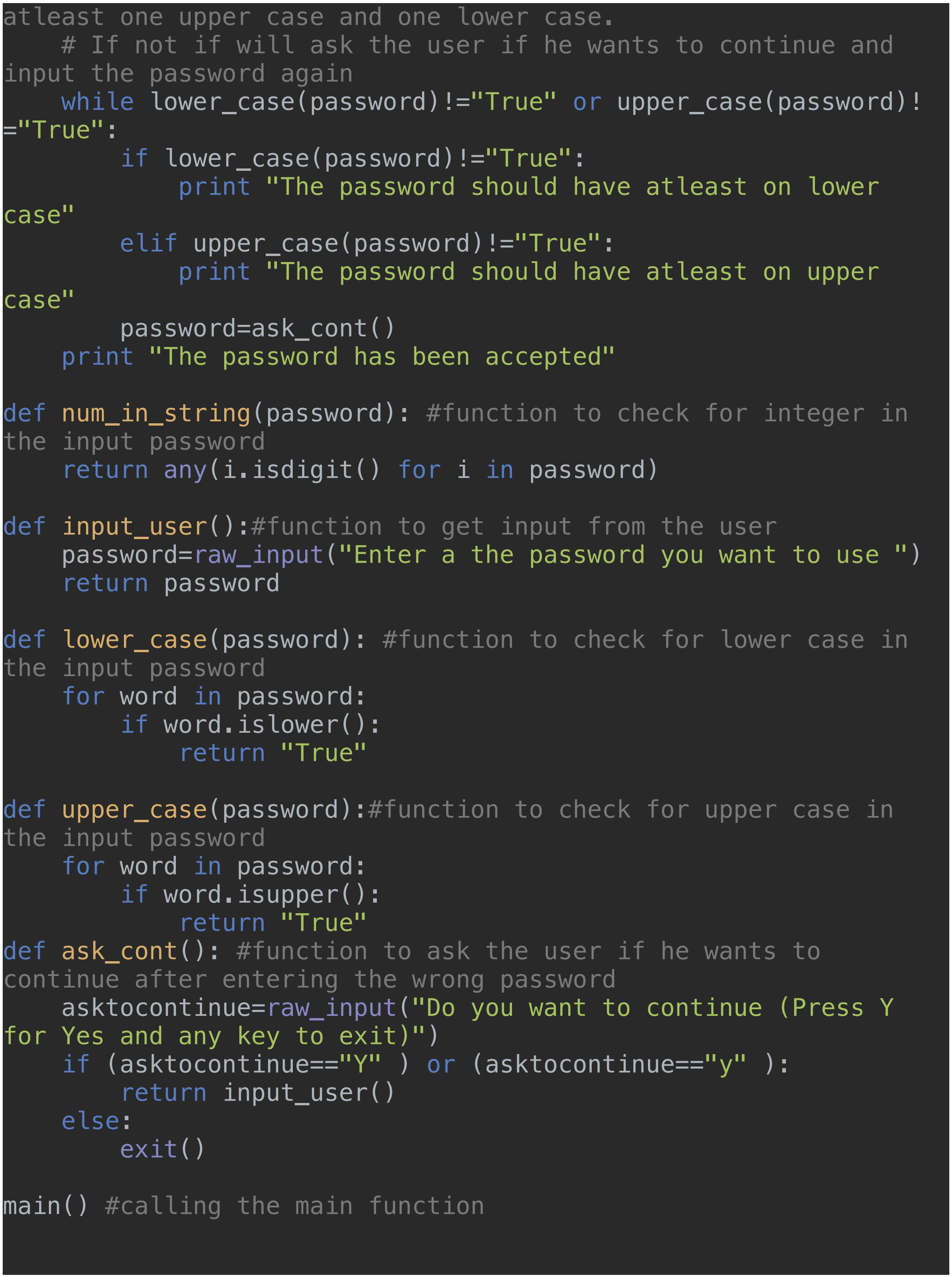
Code:



```
import re

def main(): #Main function

    password=input_user() #calling the functipn to get input
from the user and storing it in variable password
    length_password= len(password) #finding the length of the
password the user has input

    #print length_password
    len_condition=(len(password)<6) or (len(password)>16) #to
check whether length condition is true or not
    #print(len_condition)
    num_condition=(num_in_string(password)!=True)#to check
whether numeric condition is true or not
    #print(num_condition)
    special_condition=(("$"not in password) and ("@" not in
password) and ("!"not in password) and ("*" not in password))#to
check whether special character condition is true or not
    #print(special_condition)
    lowercase_cond=((lower_case(password)!="True")
or( upper_case(password)!="True")) #to check whether lower case
condition is true or not
    #print(lowercase_cond)


    #loop to check which all condition is not satisfied and
accordingly asking the user to input password
    while (len_condition==True and num_condition== True and
special_condition==True and lowercase_cond==True):
        print("The password length should be in range 6-16
characters\n"
              "The password should have atleast one number\n"
              "The password should have atleast  one special
character in [$@!*]\n"
              "The password should have atleast  one lowercase
and atleast  one uppercase character\n")
        password=ask_cont()

    while (num_condition== True and lowercase_cond==True):
        print(
              "The password should have atleast one number\n"
              "The password should have atleast  one lowercase
and atleast  one uppercase character\n")
        password=ask_cont()

    while (len_condition==True and num_condition== True and
special_condition==True ):
        print("The password length should be in range 6-16
characters\n"
              "The password should have atleast one number\n"
              "The password should have atleast  one special
character in [$@!*]\n")
        password= ask_cont()



    while (len_condition==True and num_condition== True) :
        print("The password length should be in range 6-16
characters\n"
              "The password should have atleast one number\n")
        password=ask_cont()

    while (num_condition== True and special_condition==True and
lowercase_cond==True):
        print(
              "The password should have atleast one number\n"
              "The password should have atleast  one special
character in [$@!*]\n"
              "The password should have atleast  one lowercase
and atleast  one uppercase character\n")
        password=ask_cont()

    while  (special_condition==True and lowercase_cond==True):
        print(
              "The password should have atleast  one special
character in [$@!*]\n"
              "The password should have atleast  one lowercase
and atleast  one uppercase character\n")
        password=ask_cont()
```

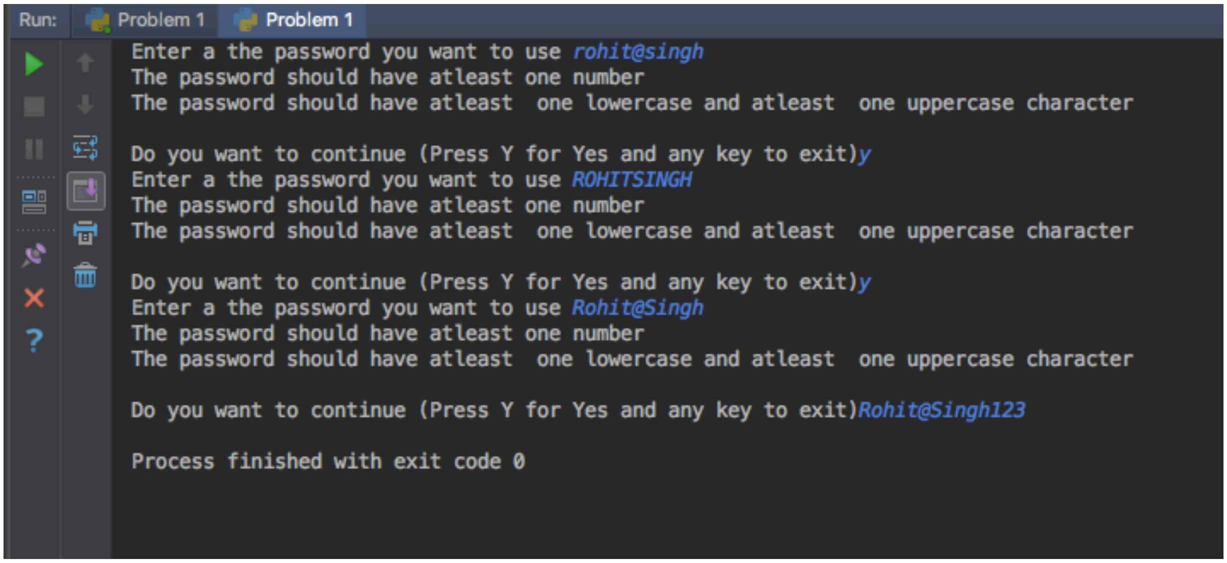


```
    while (num_condition== True and special_condition==True ):
        print(
              "The password should have atleast one number\n"
              "The password should have atleast  one special
character in [$@!*]\n"
              )
        password=ask_cont()

    while (len_condition==True and lowercase_cond==True):
        print("The password length should be in range 6-16
characters\n"
              "The password should have atleast  one lowercase
and atleast  one uppercase character\n")
        password=ask_cont()



    #checking the password range is between 6-16 and then
printing out whether the password is greater or less.
    # In either case it will ask the user if he wants to
continue and input the password again
    while ((len(password)<6) or (len(password)>16)) :
        if (len(password)<6):
            print "Then passoword lenght should be greater than
6"
        elif (len(password)>16):
            print "Then passoword lenght should be less than 16"
        password=ask_cont()
    #calling the fucntion to check if the input password has
integer.
    # If not it will ask the user if he wants to continue and
input the password again
    while (num_in_string(password)!=True) :
        print "Then password should have atleast one numeric
digit"
        password=ask_cont()
    #calling the fucntion to check if the input password has
atleast one special characters.
    # If not it will ask the user if he wants to continue and
input the password again
    while (("$"not in password) and ("@" not in password) and
("!"not in password) and ("*" not in password)) :
        print "Then password should have atleast one special
characters ($,@,!,*)"
        password=ask_cont()
    #calling the fucntion to check if the input password has
```



```
atleast one upper case and one lower case.
    # If not if will ask the user if he wants to continue and
input the password again
    while lower_case(password)!="True" or upper_case(password)!
="True":
        if lower_case(password)!="True":
            print "The password should have atleast on lower
case"
        elif upper_case(password)!="True":
            print "The password should have atleast on upper
case"
        password=ask_cont()
    print "The password has been accepted"

def num_in_string(password): #function to check for integer in
the input password
    return any(i.isdigit() for i in password)

def input_user():#function to get input from the user
    password=raw_input("Enter a the password you want to use ")
    return password

def lower_case(password): #function to check for lower case in
the input password
    for word in password:
        if word.islower():
            return "True"

def upper_case(password):#function to check for upper case in
the input password
    for word in password:
        if word.isupper():
            return "True"
def ask_cont(): #function to ask the user if he wants to
continue after entering the wrong password
    asktocontinue=raw_input("Do you want to continue (Press Y
for Yes and any key to exit)")
    if (asktocontinue=="Y" ) or (asktocontinue=="y" ):
        return input_user()
    else:
        exit()

main() #calling the main function
```

Output



```
Enter a the password you want to use rohit@singh
The password should have atleast one number
The password should have atleast  one lowercase and atleast  one uppercase character

Do you want to continue (Press Y for Yes and any key to exit)y
Enter a the password you want to use ROHITSINGH
The password should have atleast one number
The password should have atleast  one lowercase and atleast  one uppercase character

Do you want to continue (Press Y for Yes and any key to exit)y
Enter a the password you want to use Rohit@Singh
The password should have atleast one number
The password should have atleast  one lowercase and atleast  one uppercase character

Do you want to continue (Press Y for Yes and any key to exit)Rohit@Singh123

Process finished with exit code 0
```

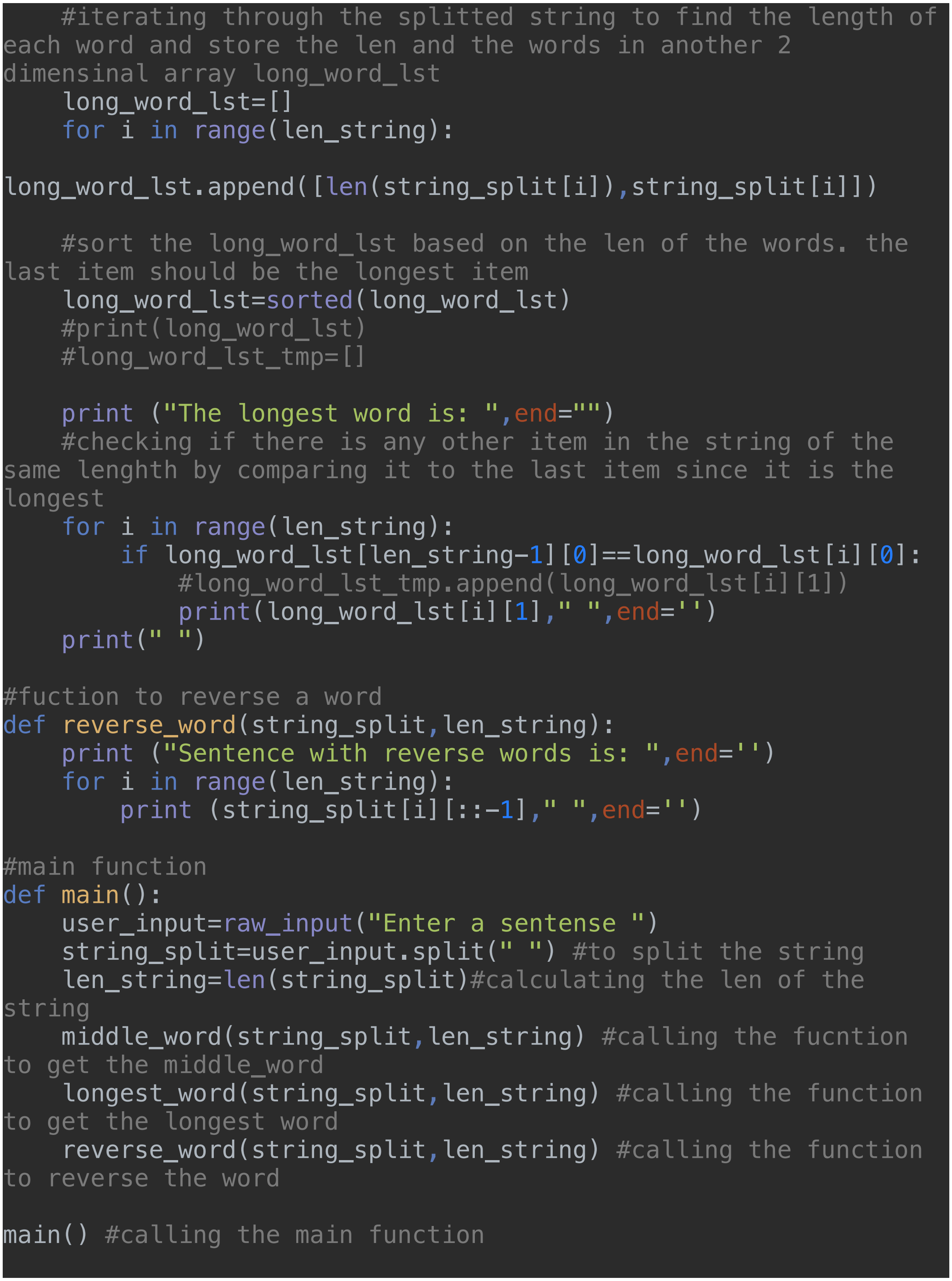
Problem 2

Write a Python function that accepts a sentence of words from user and display the following:

a) Middle word
b) Longest word in the sentence
c) Reverse all the words in sentence

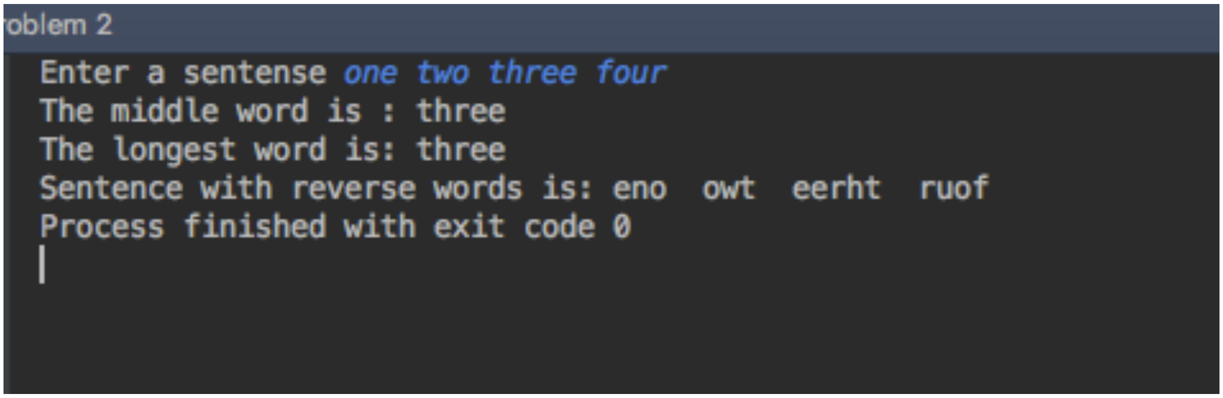
Code:

```
from __future__ import print_function

#function to abstract the middle word
def middle_word(string_split,len_string):
    if len_string==2: #if the string has lenght 2 then both will
be considered as middle words
        print ("The middle word is : %s %s" %
(string_split[0],string_split[1]))

    elif len_string % 2 ==0: #check if the len is divisible by
2, if yes then there should be 2 middle words
        print ("The middle words are : %s %s"%
(string_split[(len_string/2)-1],string_split[(len_string/2)]))
    else:
        print ("The middle word is : %s"
%string_split[(len_string/2)])

#fucntion to get the longest word
def longest_word(string_split,len_string):
```



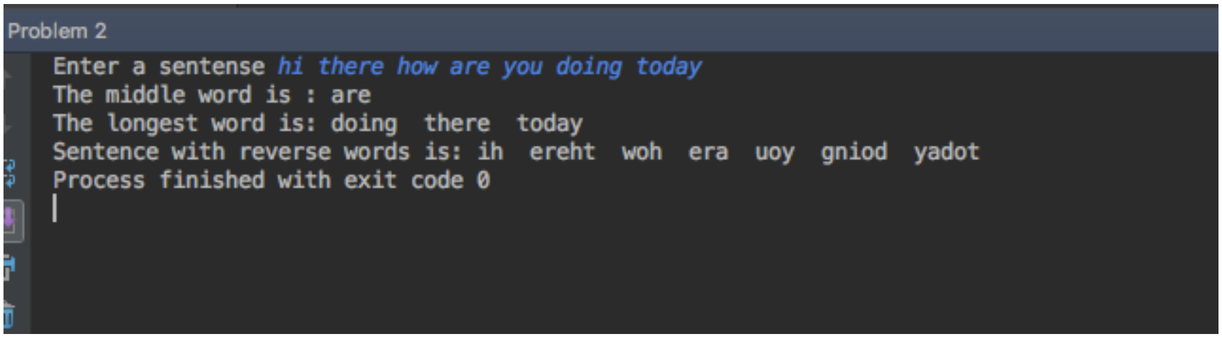
```
    #iterating through the splitted string to find the length of
each word and store the len and the words in another 2
dimensinal array long_word_lst
    long_word_lst=[]
    for i in range(len_string):

long_word_lst.append([len(string_split[i]),string_split[i]])

    #sort the long_word_lst based on the len of the words. the
last item should be the longest item
    long_word_lst=sorted(long_word_lst)
    #print(long_word_lst)
    #long_word_lst_tmp=[]

    print ("The longest word is: ",end="")
    #checking if there is any other item in the string of the
same lenghth by comparing it to the last item since it is the
longest
    for i in range(len_string):
        if long_word_lst[len_string-1][0]==long_word_lst[i][0]:
            #long_word_lst_tmp.append(long_word_lst[i][1])
            print(long_word_lst[i][1]," ",end='')
    print(" ")

#fuction to reverse a word
def reverse_word(string_split,len_string):
    print ("Sentence with reverse words is: ",end='')
    for i in range(len_string):
        print (string_split[i][::-1]," ",end='')

#main function
def main():
    user_input=raw_input("Enter a sentense ")
    string_split=user_input.split(" ") #to split the string
    len_string=len(string_split)#calculating the len of the
string
    middle_word(string_split,len_string) #calling the fucntion
to get the middle_word
    longest_word(string_split,len_string) #calling the function
to get the longest word
    reverse_word(string_split,len_string) #calling the function
to reverse the word

main() #calling the main function
```

output



oblem 2

```
Enter a sentense one two three four
The middle word is : three
The longest word is: three
Sentence with reverse words is: eno  owt  eerht  ruof
Process finished with exit code 0
```



Problem 2

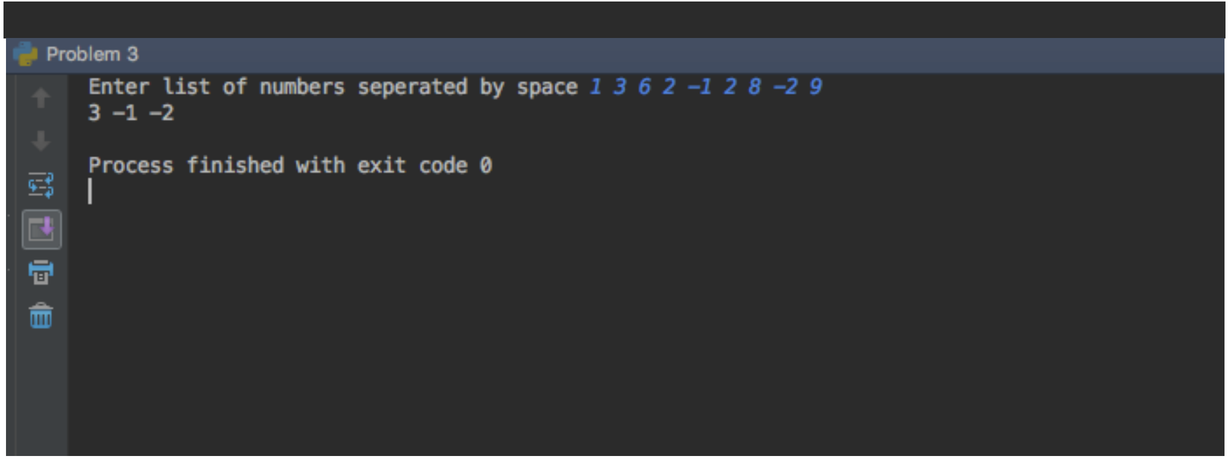
```
Enter a sentense hi there how are you doing today
The middle word is : are
The longest word is: doing  there  today
Sentence with reverse words is: ih  ereht  woh  era  uoy  gniod  yadot
Process finished with exit code 0
```

<u>Problem 3</u>

Given a list of n number, write a Python program to find triplets in the list which gives the sum of zero.

```
def triplets(user_input):#fucntion to find the triplet
    string_split=user_input.split(" ") #splitting the input
string
    string_list=[]
    #we will iterate through the string and check if he sum of
triplets will be zero. Since we have triplets so we will be
using 3 lops.
    #the loop varies in all three loops as we dont want to
repeat combination
    for i in range(0,len(string_split)-2):
        for j in range(i+1,len(string_split)-1):
            for k in range(j+1,len(string_split)):
                if int(string_split[i]) +int(string_split[j])
+int(string_split[k])==0:
                    print string_split[i] , string_split[j] ,
string_split[k]

user_input= raw_input("Enter list of numbers seperated by space
") #Assuming the input will be given by user
triplets(user_input)#calling the main function
```

Output



```
Enter list of numbers seperated by space 1 3 6 2 -1 2 8 -2 9
3 -1 -2

Process finished with exit code 0
```

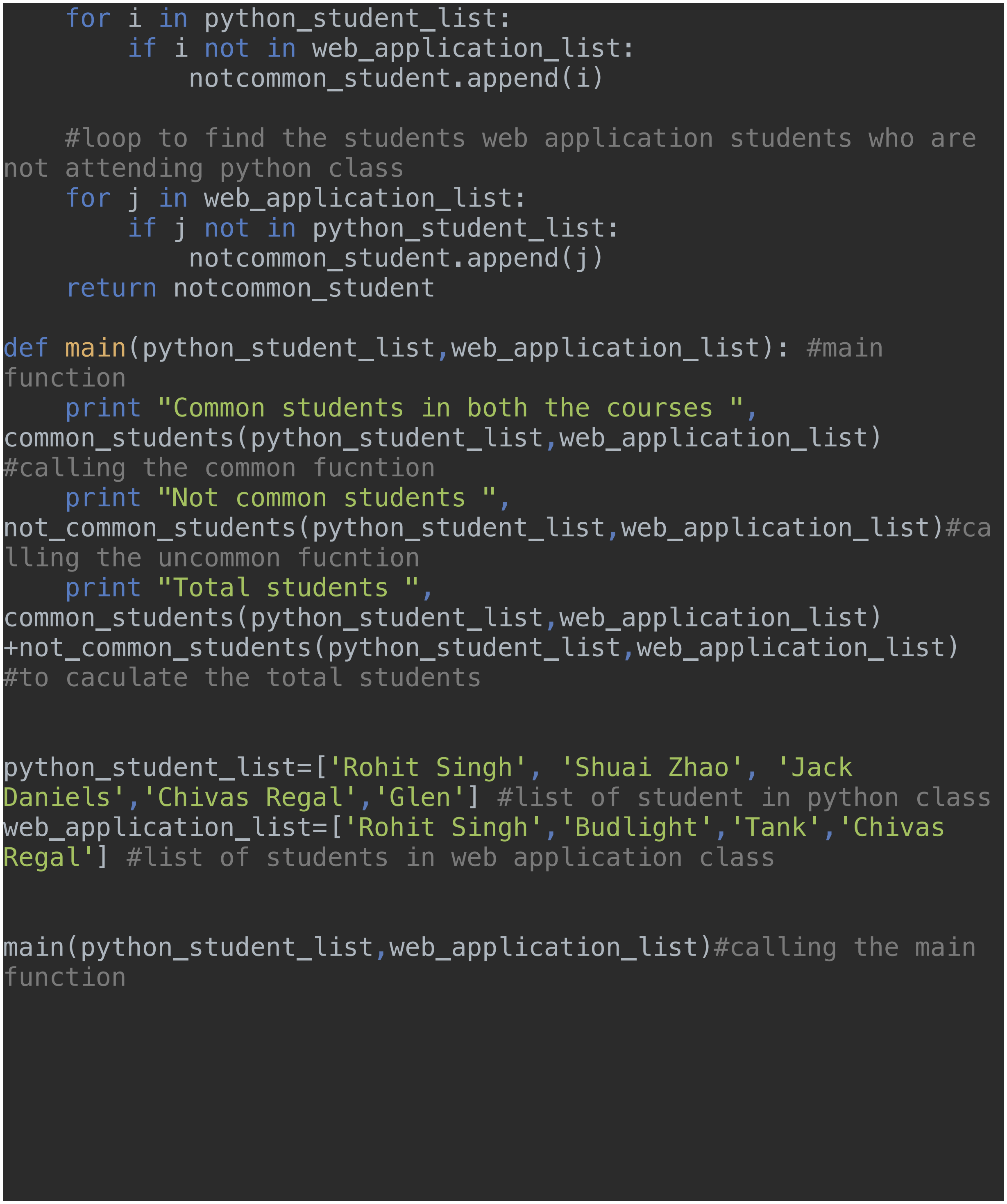
Problem 4

Consider the following scenario. You have a list of students who are attending class “Python” and another list of students who are attending class “Web Application”.

Find the list of students who are attending both the classes. Also find the list of students who are not common in both the classes. Print it.

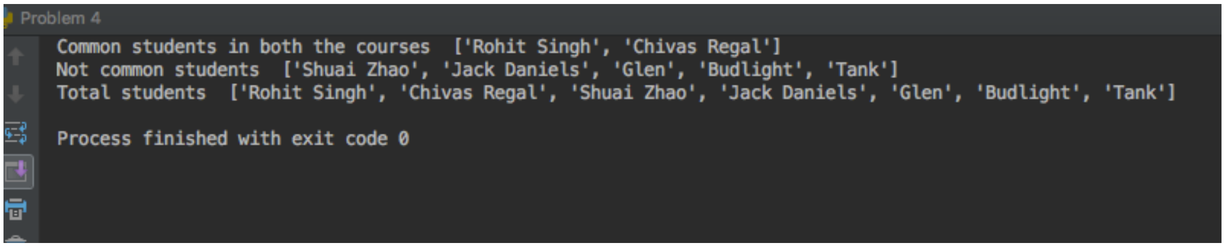
code:

```
def common_students(python_student_list,web_application_list):
#function to calculate the common students
    common_student=[] #list of common students

    total_student=[] #list of total students

    #loop to find the common students
    for names_python in python_student_list:
        for names_web in web_application_list:
            if names_python== names_web:
                common_student.append(names_web)
    return common_student
def
not_common_students(python_student_list,web_application_list):#f
unction to calculate the uncommon students
    notcommon_student=[] #list of uncommon students
    #loop to find the students python students who are not
attending web application class
```



```
    for i in python_student_list:
        if i not in web_application_list:
            notcommon_student.append(i)

    #loop to find the students web application students who are
not attending python class
    for j in web_application_list:
        if j not in python_student_list:
            notcommon_student.append(j)
    return notcommon_student

def main(python_student_list,web_application_list): #main
function
    print "Common students in both the courses ",
common_students(python_student_list,web_application_list)
#calling the common fucntion
    print "Not common students ",
not_common_students(python_student_list,web_application_list)#ca
lling the uncommon fucntion
    print "Total students ",
common_students(python_student_list,web_application_list)
+not_common_students(python_student_list,web_application_list)
#to caculate the total students


python_student_list=['Rohit Singh', 'Shuai Zhao', 'Jack
Daniels','Chivas Regal','Glen'] #list of student in python class
web_application_list=['Rohit Singh','Budlight','Tank','Chivas
Regal'] #list of students in web application class


main(python_student_list,web_application_list)#calling the main
function
```

Output



```
Common students in both the courses  ['Rohit Singh', 'Chivas Regal']
Not common students  ['Shuai Zhao', 'Jack Daniels', 'Glen', 'Budlight', 'Tank']
Total students  ['Rohit Singh', 'Chivas Regal', 'Shuai Zhao', 'Jack Daniels', 'Glen', 'Budlight', 'Tank']

Process finished with exit code 0
```