CSEE 5590 - Special Topics
Python – Lab 1

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Configuration:
IDE : pycharm
python : version 3

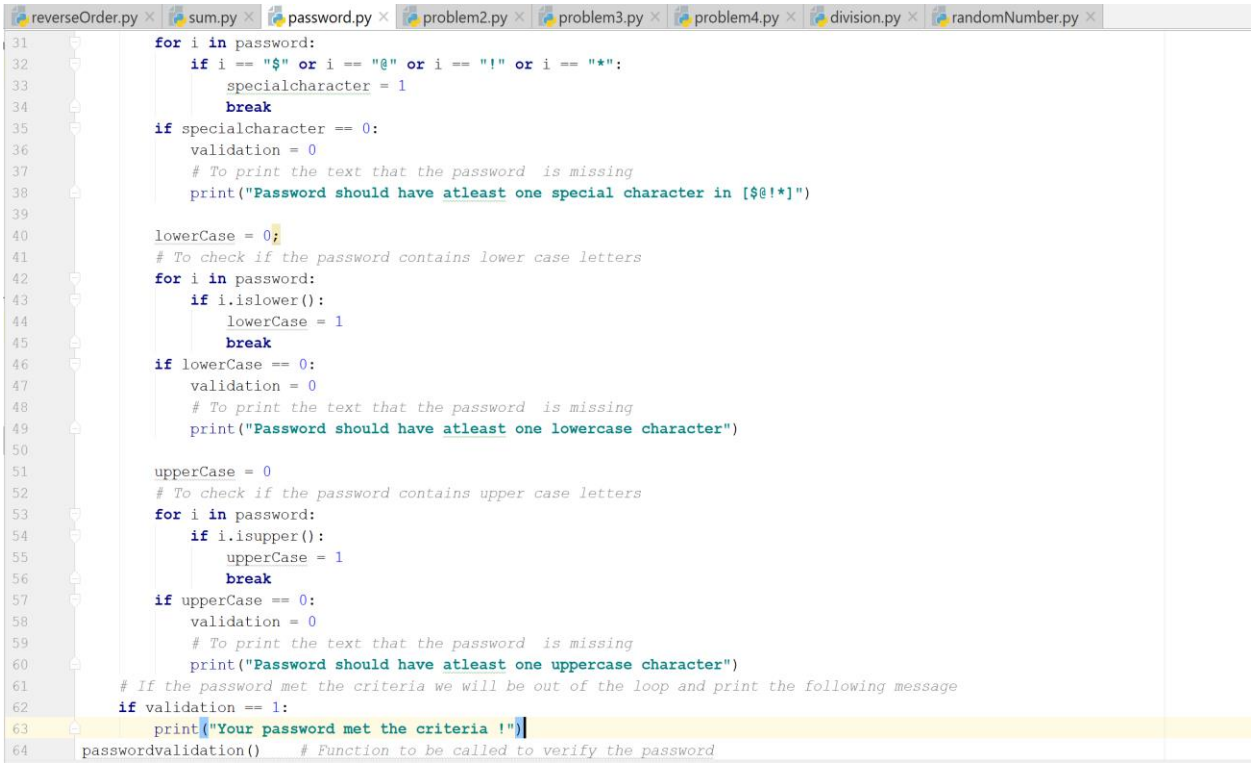
Objective 1: To write a program, to check if the password given by the user is following the given criteria by using loops.

Implementation:
The password is taken from the user and then the string is passed to the function. In the function we use a While loop to iterate through the set of cases and will find out if the password string has met the criteria.
By using the length property we will find out the length of the string and then compare it with the required criteria.
We will use the isNumeric() method to check if the password contains a digit.

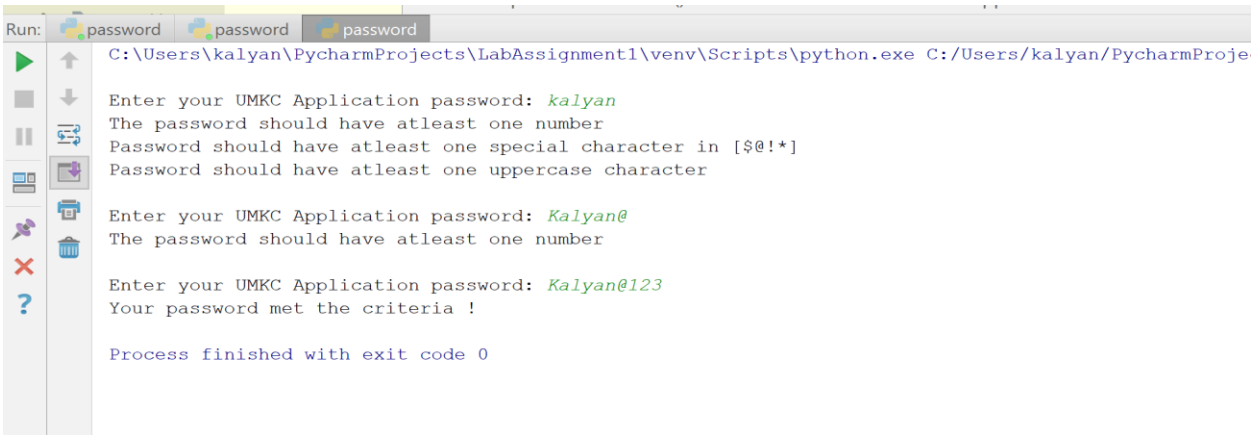
reverseOrder.py | sum.py | password.py | problem2.py | problem3.py | problem4.py | division.py | randomNumber.py

```
# Function to check for the criteria
def passwordvalidation():

    validation = 0  # Assigning the value to validation so that to check if no error at the end

    # while loop to iterate for entering the password if it does not met the criteria
    while validation == 0:
        password = input("\nEnter your UMKC Application password: ")
        password_length = len(password)    # To get the length

        validation = 1
        # Checking the length criteria of the password entered
        if password_length < 6 or password_length > 16:
            validation = 0
            # To print the text that the password  is missing
            print("The password length should be in range 6-16 characters")

        digit = 0
        # Checking if a digit is present in the password
        for i in password:
            if i.isnumeric():
                digit = 1
                break
        if digit == 0:
            validation = 0
            print("The password should have atleast one number")    # To print the text that the password  is missing

```

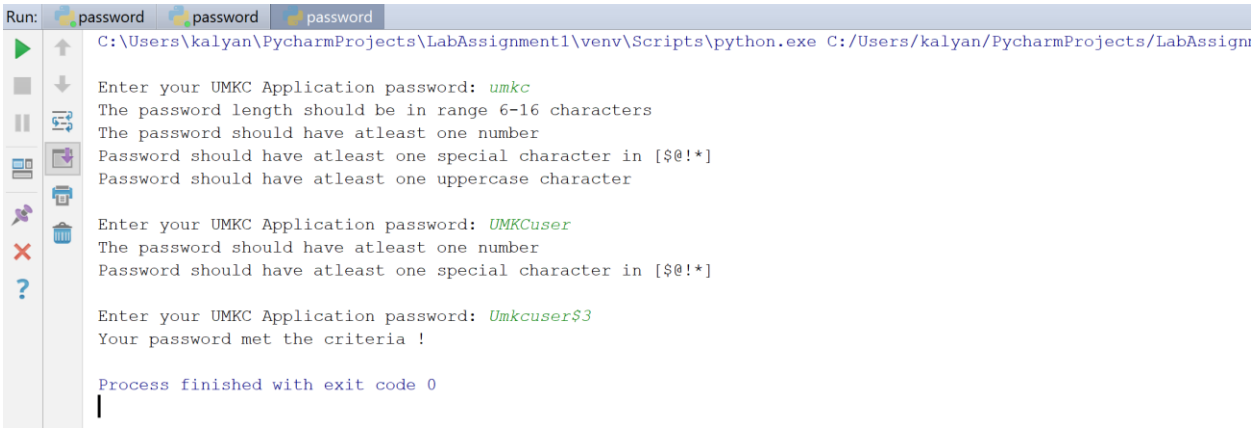
The special characters that can be used in the password are checked in the below code. And then we will check if the string contains at least one upper case and one lower case by using the string methods.
If the user entered password does not meet the criteria, the loop will ask for the user to enter the password again. If the password entered is correct which means if it satisfies all the conditions then it will display that the password is good.



Input/Output:



The screenshots for the various inputs given and the output displayed based on the input.



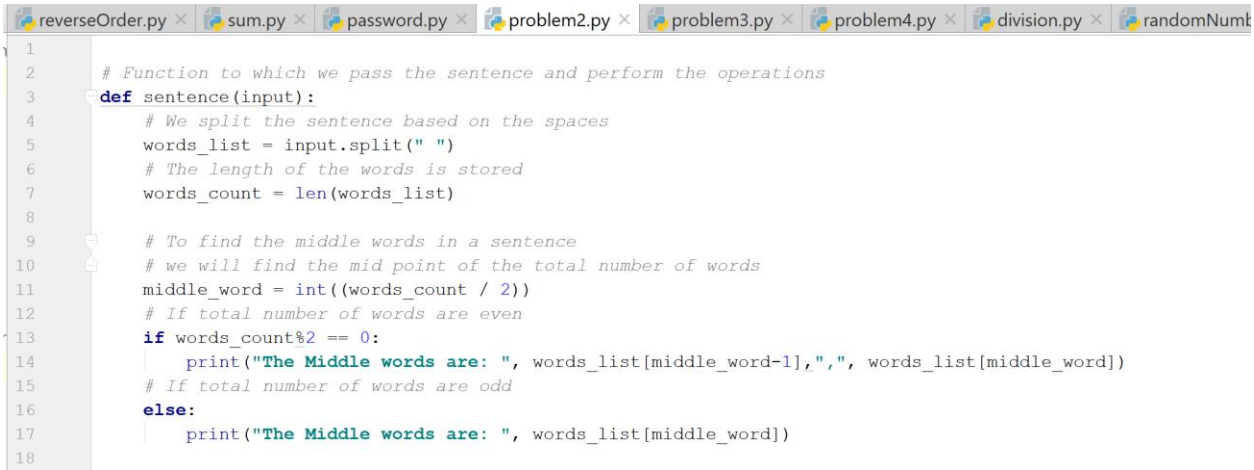
Objective 2: Program that accepts a sequence of words(sentence) from the user and then displaying the Middle word, Longest word and the sentence with the words in reverse order.

Implementation:

The given input by the user is split by using space and then we store the values of words in the sentence in a list and the length of each word in a separate list.

If the sentence has even number of words we will be having two mid values so based on that the code is written and we will display the two middle values.

If the total number of words are odd then there will be only one middle word and that will be the output for the middle word.



Now to get the longest word we will sort the words based on the length of each word. If we find two or more words with same length then by using the for loop we will print all of them. The sentence with words In reverse is displayed by using the for loop.

```
    # To get the longest word from the given input sentence
    words_sorted = sorted(words_list, key=len)  # We sort the words list
    length_word = len(words_sorted[-1])
    print("The Longest words in the sentence are: ", end=" ")
    # If there are more words with the same length
    for word in words_sorted:
        if len(word) == length_word:
            print(word,",", end=" ")

    # To reverse each word of a sentence and print it
    print("\nThe sentence with each word in the reverse is: ", end=" ")
    for i in range(0,words_count):
        reverse_words = words_list[i]
        print(reverse_words[::-1],end=" ")

# User will give the input from the console
sentenceOfWords = input("Enter the sentence: ")
sentence(sentenceOfWords)    # Calling the function by passing the sentence
```

Input/Output:

For the given input we will get the output as shown below in the screenshot

```
Run: password | password | problem2
C:\Users\kalyan\PycharmProjects\LabAssignment1\venv\Scripts\python.exe C:/Users/kalyan/PycharmProjects/LabAssi
Enter the sentence: My name is Jacqueline Fernandez Dsouza
The Middle words are:  is Jacqueline
The Longest words in the sentence are:  Jacqueline
The sentence with each word in the reverse is:  yM eman si enileuqcaJ zednanreF azuosD
Process finished with exit code 0
```

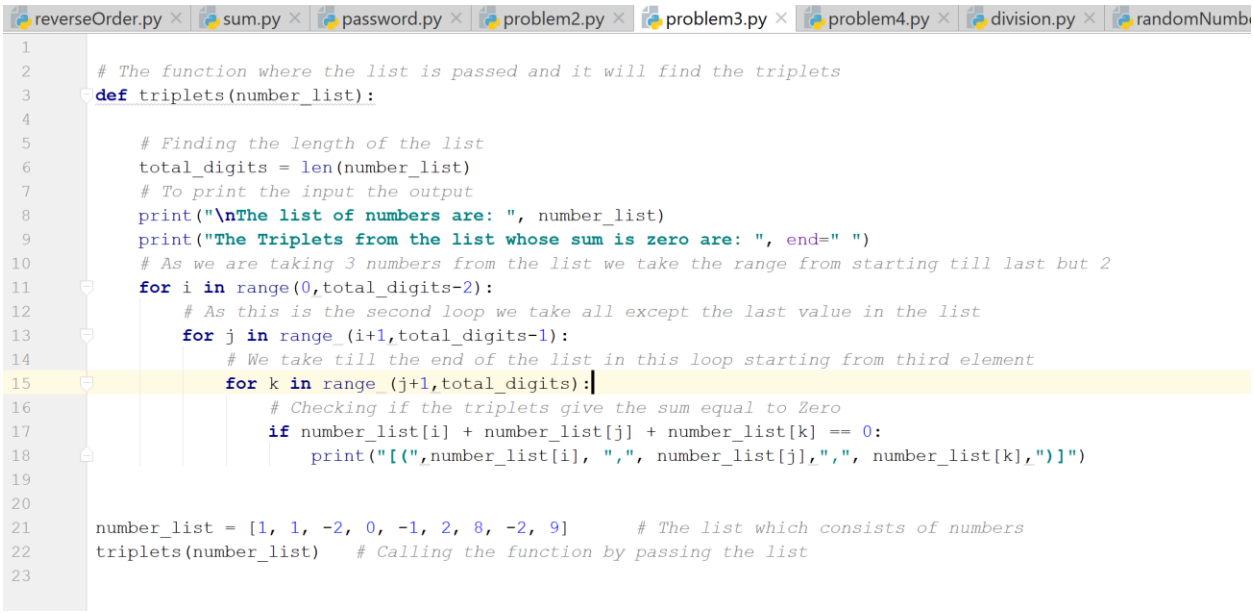
For the longest word, there can be more than one word with the same length. Here we are displaying all the words that are long in the given sentence.

```
Run: password | password | problem2
C:\Users\kalyan\PycharmProjects\LabAssignment1\venv\Scripts\python.exe C:/Users/kalyan/PycharmProjects/LabAssignment
Enter the sentence: my name is kalyan kilaru
The Middle words are:  is
The Longest words in the sentence are:  kalyan , kilaru ,
The sentence with each word in the reverse is:  ym eman si naylak uralik
Process finished with exit code 0
```

Objective 3: For a given list of numbers we need find the triplets whose sum will be equal be zero(0).

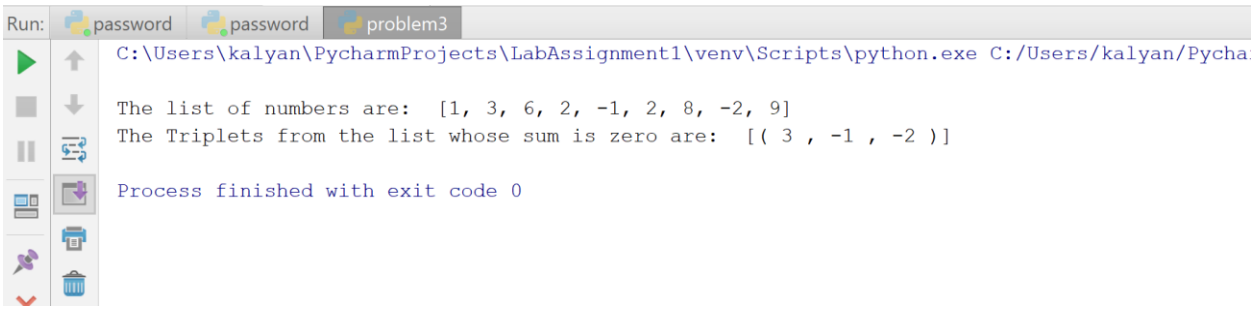
Implementation:

The list is passed to the function where we find the length of the list and then we write three for loops in order to get three digits and we will then find the sum of these numbers. If they are equal to zero then all the triplets will be displayed.

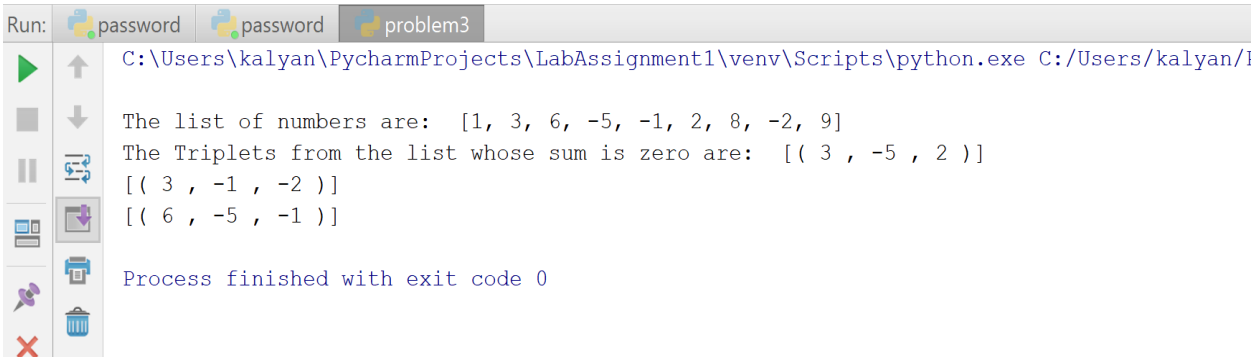


Input/Output:

For the given input numbers we will display the triplets whose sum is equal to 0



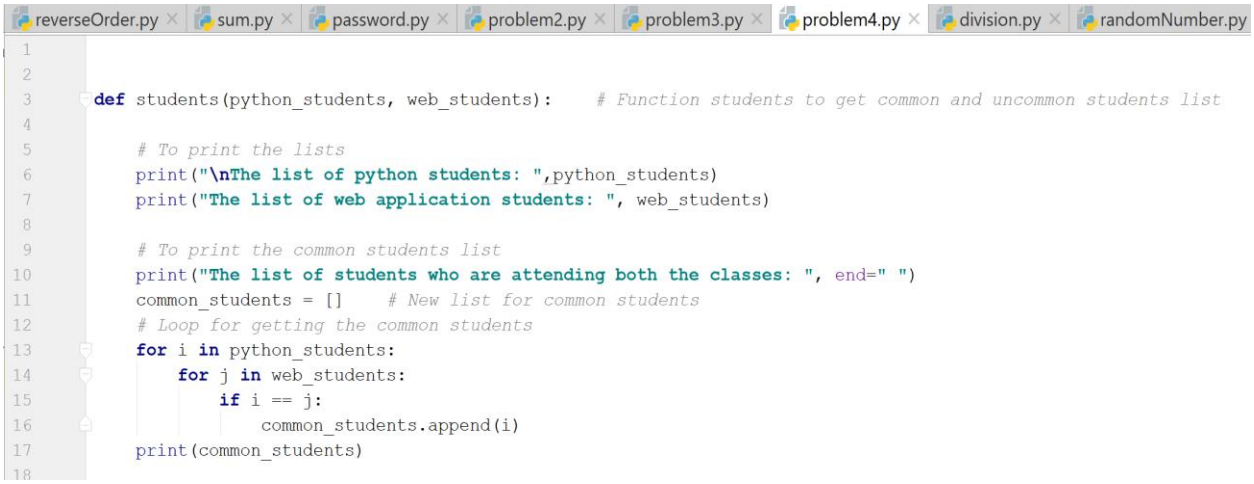
Even if there are many triplets all of them will be displayed excluding the duplicates.



Objective 4: To find the common students who are in both python and web application courses and to find the un common students in both of them.

Implementation:

we will be using two for loops one with python students list and the other with web application students list, if the student is in both the lists then the student is appended to a list that is created earlier as Common students list.



Similarly, we take a new list for uncommon students, we will remove the common students from both the python and web application list of students so that we get the un common students list.

```
    # creating a new list as python students and then removing the common students
    uncommon_students = python_students
    for i in common_students:
        uncommon_students.remove(i)
    # Creating a new list and then removing the common students from it
    uncommon_students_web = web_students
    for j in common_students:
        uncommon_students_web.remove(j)
    # The list of students who are not common in both
    uncommon_students.extend(uncommon_students_web)
    print("The list of students who are not common in both the classes:", end=" ")
    print(uncommon_students)

python_students_list = ["kalyan", "chaitanya", "mahesh"]    # Python students list
web_students_list = ["kalyan", "chaitanya", "mahesh"]    # Web application students list
students(python_students_list,web_students_list)    # Calling the function by passing the lists
```

Input/Output:

For the two-lists given we can get the common items among them and also the uncommon items among them.

```
Run: password | password | problem4
C:\Users\kalyan\PycharmProjects\LabAssignment1\venv\Scripts\python.exe C:/Users/kalyan/PycharmProject

The list of python students:  ['kalyan', 'chaitanya', 'nikhil', 'vinod']
The list of web application students:  ['kalyan', 'chaitanya', 'mahesh']
The list of students who are attending both the classes:  ['kalyan', 'chaitanya']
The list of students who are not common in both the classes: ['nikhil', 'vinod', 'mahesh']

Process finished with exit code 0
```

If there are no items as uncommon then the empty list will be displayed.

```
Run: password | password | problem4
C:\Users\kalyan\PycharmProjects\LabAssignment1\venv\Scripts\python.exe C:/Users/kalyan/PycharmPr

The list of python students:  ['kalyan', 'chaitanya', 'mahesh']
The list of web application students:  ['kalyan', 'chaitanya', 'mahesh']
The list of students who are attending both the classes:  ['kalyan', 'chaitanya', 'mahesh']
The list of students who are not common in both the classes: []

Process finished with exit code 0
```

References:

https://www.digitalocean.com/community/tutorials/how-to-construct-for-loops-in-python-3

https://www.learnpython.org/en/Loops