

Python Programming

LAB ASSIGNMENT 1

Namrata Dutta | Python | 16247052

OBJECTIVE

The objective of this assignment is to focus on the basics of Python like the syntax, data types, using arithmetic operators, use of functions and conditional statements. Also, about loops and conditional statements.

FEATURES

The task consists of 4 questions which checks our programs for all kinds of features like ability to test a password for a website or to use the arithmetic and binary operators by checking the middle and longest word in a sentence or how to create a list and extract information from that list.

CONFIGURATION

OS: Windows 10

Python version: 3.4

IDE used: PyCharm

INPUT AND OUTPUT

Question 1

To validate the password conditions of UMKC web application

Input- 280981997- all numbers

Output- error message

Input- nam123(numbers and letters)

Output- error message

Input- nam@123

Output- error message

Input- Nam@123

Output- Password is correct(as numbers, lower case letters, upper case letters all provided)

Question2

To get the middle words, longest word and reversed letters of a sentence

Input- my name is Namrata

Output- The middle word is : name is

The longest word is : namrata

Sentence with reversed words is : ym eman si atarman

Question 3

Finding triplets from a list of numbers which adds to 0

Input- A =[1, 1, 2, -2, 0, 9]

Output- Triplet is 1, 1, -2

Question 4

Finding the list of students from the list of students of 2 enrolled courses who have taken same courses and who have taken different courses

Input-

```
webapp = ['nam', 'puj', 'srav', 'sudhee']  
python = ['nam', 'puj', 'sak', 'srini', 'dev']
```

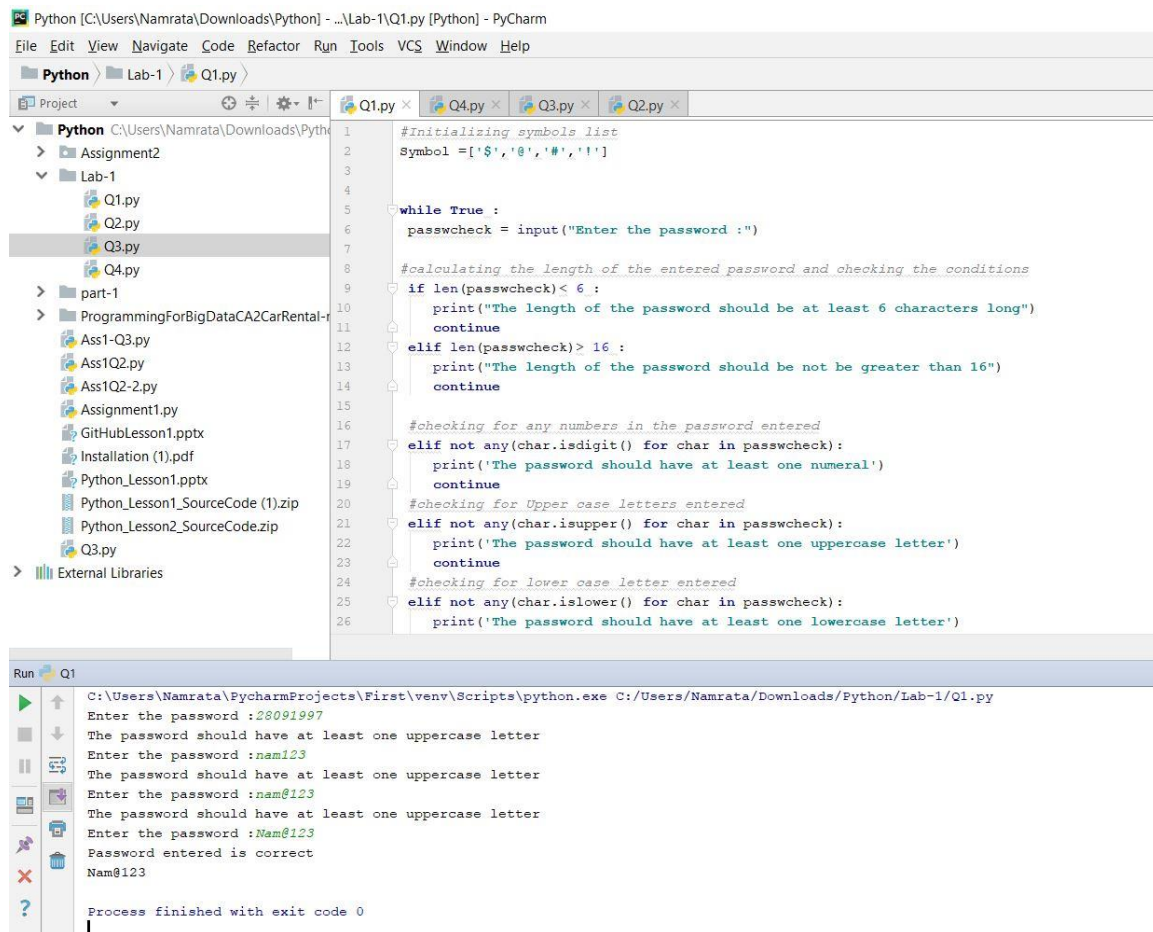
Output-

```
['nam', 'puj']
```

```
['srav', 'sudhee', 'sak', 'srini', 'dev']
```

IMPLEMENTATION

1. Task 1



The screenshot displays the PyCharm IDE interface. The top toolbar shows the 'Run' button (a green play icon). The left sidebar contains a project tree with folders like 'Python', 'Lab-1', and 'part-1'. The main editor window shows a Python script named 'Q1.py' with the following code:

```
1 #Initializing symbols list  
2 Symbol = ['$','%','@','#','!']  
3  
4  
5 while True :  
6     passwcheck = input("Enter the password :")  
7  
8     #calculating the length of the entered password and checking the conditions  
9     if len(passwcheck) < 6 :  
10        print("The length of the password should be at least 6 characters long")  
11        continue  
12     elif len(passwcheck) > 16 :  
13        print("The length of the password should be not be greater than 16")  
14        continue  
15  
16     #checking for any numbers in the password entered  
17     elif not any(char.isdigit() for char in passwcheck):  
18        print('The password should have at least one numeral')  
19        continue  
20     #checking for Upper case letters entered  
21     elif not any(char.isupper() for char in passwcheck):  
22        print('The password should have at least one uppercase letter')  
23        continue  
24     #checking for lower case letter entered  
25     elif not any(char.islower() for char in passwcheck):  
26        print('The password should have at least one lowercase letter')
```

Below the editor, the 'Run' console shows the execution output for 'Q1':

```
C:\Users\Namrata\PycharmProjects\First\venv\Scripts\python.exe C:/Users/Namrata/Downloads/Python/Lab-1/Q1.py  
Enter the password :28091997  
The password should have at least one uppercase letter  
Enter the password :nam123  
The password should have at least one uppercase letter  
Enter the password :nam@123  
The password should have at least one uppercase letter  
Enter the password :Nam@123  
Password entered is correct  
Nam@123  
  
Process finished with exit code 0
```

2. Task 2

Python [C:\Users\Namrata\Downloads\Python] - ...Lab-1\Q2.py [Python] - PyCharm

File Edit View Navigate Code Refactor Run Tools VCS Window Help

Python > Lab-1 > Q2.py

Project

- Python C:\Users\Namrata\Downloads\Python
 - Assignment2
 - Lab-1
 - Q1.py
 - Q2.py
 - Q3.py
 - Q4.py
 - part-1
 - ProgrammingForBigDataCA2CarRental-r
 - Ass1-Q3.py
 - Ass1Q2.py
 - Ass1Q2-2.py
 - Assignment1.py
 - GitHubLesson1.pptx
 - Installation (1).pdf
 - Python_Lesson1.pptx
 - Python_Lesson1_SourceCode (1).zip
 - Python_Lesson2_SourceCode.zip
 - Q3.py
 - External Libraries

```
1 #User enters the sentence
2 s = input("Enter the sentence")
3 #splitting the sentence
4 mid=s.split()
5
6 #calculating the length of the words after the split
7 a=len(mid)
8 #if the length of the word is even then it will print 2 words in the middle
9 if a%2==0:
10     x=a/2
11     y=int(x-1)
12
13     print("The middle word is :", (mid[y]+" "+mid[y+1]))
14 else:
15     x=int(a/2)
16     print(mid[x])
17 #checking each word with other and which one has more characters
18 longest = 0
19 for word in s.split():
20     if len(word) > longest:
21         longest = len(word)
22         longest_word = word
23
24 print("The longest word is : %s" % longest_word)
25 #each letter goes to the front of the word and joined to get reversed words
26 def reversed_words(sequence):
27
28     return ' '.join(word[::-1] for word in sequence.split())
29 print("Sentence with reversed words is : ", reversed_words(s))
```

Run Q2 (1)

C:\Users\Namrata\PycharmProjects\First\venv\Scripts\python.exe C:/Users/Namrata/Downloads/Python/Lab-1/Q2.py

Enter the sentence my name is namrata

The middle word is : name is

The longest word is : namrata

Sentence with reversed words is : ym eman si atarman

Process finished with exit code 0

3. Task 3

Python [C:\Users\Namrata\Downloads\Python] - ...Lab-1\Q3.py [Python] - PyCharm

File Edit View Navigate Code Refactor Run Tools VCS Window Help

Python > Lab-1 > Q3.py

Project Python C:\Users\Namrata\Downloads\Python

- Assignment2
- Lab-1
 - Q1.py
 - Q2.py
 - Q3.py
 - Q4.py
- part-1
- ProgrammingForBigDataCA2CarRental-r
 - Ass1-Q3.py
 - Ass1Q2.py
 - Ass1Q2-2.py
 - Assignment1.py
 - GitHubLesson1.pptx
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 - Python_Lesson2_SourceCode.zip
 - Q3.py
- External Libraries

```
1 #defining a function with 3 parameters
2 def Numbers(A, arr_size, sum):
3     # Fix the first element as A[i]
4     for i in range(0, arr_size - 2):
5
6         # Fix the second element as A[j]
7         for j in range(i + 1, arr_size - 1):
8
9             # Now look for the third number
10            for k in range(j + 1, arr_size):
11                if A[i] + A[j] + A[k] == sum:
12                    print("Triplet is", A[i],
13                        ", ", A[j], ", ", A[k])
14                    return True
15
16            return False
17
18 #declaring a predefined list
19 A = [1, 1, 2, -2, 0, 9]
20 #the condition
21 sum = 0
22 arr_size = len(A)
23 Numbers(A, arr_size, sum)
24
```

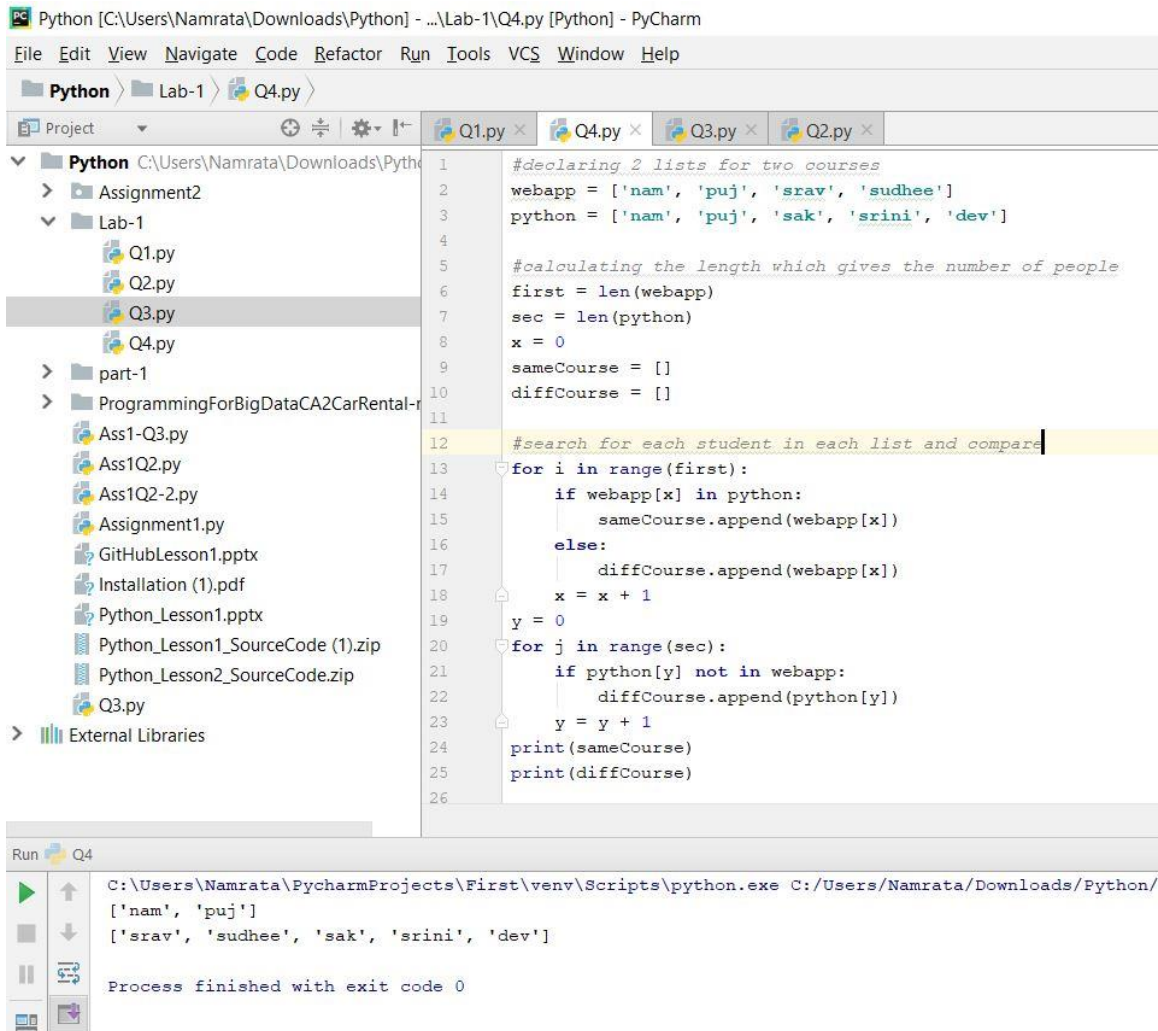
Numbers() > for i in range(0, arr_size - 2) > for j in range(i + 1, arr_size - 1) > for k

Run Q3 (1)

C:\Users\Namrata\PycharmProjects\First\venv\Scripts\python.exe C:/Users/Namrata/Downloads/Python/L...
Triplet is 1 , 1 , -2

Process finished with exit code 0

4. Task 4



The screenshot displays the PyCharm IDE interface. The top menu bar includes File, Edit, View, Navigate, Code, Refactor, Run, Tools, VCS, Window, and Help. The left sidebar shows a project tree with folders 'Python' and 'Lab-1', and files 'Q1.py', 'Q2.py', 'Q3.py', and 'Q4.py'. The main editor window shows the code for 'Q4.py'. The code declares two lists, 'webapp' and 'python', calculates their lengths, and then iterates through them to compare elements. The bottom panel shows the execution output, indicating that the process finished with exit code 0.

```
1 #declaring 2 lists for two courses
2 webapp = ['nam', 'puj', 'srav', 'sudhee']
3 python = ['nam', 'puj', 'sak', 'srini', 'dev']
4
5 #calculating the length which gives the number of people
6 first = len(webapp)
7 sec = len(python)
8 x = 0
9 sameCourse = []
10 diffCourse = []
11
12 #search for each student in each list and compare
13 for i in range(first):
14     if webapp[x] in python:
15         sameCourse.append(webapp[x])
16     else:
17         diffCourse.append(webapp[x])
18     x = x + 1
19 y = 0
20 for j in range(sec):
21     if python[y] not in webapp:
22         diffCourse.append(python[y])
23     y = y + 1
24 print(sameCourse)
25 print(diffCourse)
26
```

Run Q4

```
C:\Users\Namrata\PycharmProjects\First\venv\Scripts\python.exe C:/Users/Namrata/Downloads/Python/
['nam', 'puj']
['srav', 'sudhee', 'sak', 'srini', 'dev']

Process finished with exit code 0
```

DEPLOYMENT

Implemented the program in python language and use PyCharm IDE for executing it.

LIMITATION

no limitations

REFERENCES

<https://www.tutorialspoint.com/>

<https://stackoverflow.com>