Experiment No.2#e

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Aim: To study advanced Data types and functions in Python.

i) Accept two strings from the user.
ii) Display common letters in two input strings (set intersection).
iii) Display letters which are in the first string but not in the second string (set difference).
iv) Display set of all letters from both the strings (set union).
v) Display set of letters which are in two strings but not common (Symmetric Difference).

Theory:

There are four different types in Python:

1. int(plain integers): this one is pretty standard -plain integers are just positive or negative whole numbers.
2. long (long integers): long integers are integers of infinite size. They look like plain integers except they're followed by letter "L".
3. float (floating point real values): floats represent real numbers, but are written with decimal points(for scientific notation) to divide the whole number into fractional parts.
4. complex(complex numbers): Represented by the formula a+bj where a and b are floats,and j is the square root of -1 (the result of which is an imaginary number). Complex numbers are used sparingly in Python.
5. A tuple is a collection type data structure which is immutable by design and holds a sequence of heterogeneous elements.
6. Tuples store a fixed set of elements and don't allow changes whereas the list has the provision to update its content.

7. Python Set Data Structure: Python Set represents a group of unique elements. If you wish to describe a group of unique items into a single entity, then you can go with Python Set. The Set doesn't allow duplicate elements. It doesn't preserve the insertion order. We can store the heterogeneous elements in a Set. Set objects are mutable.

Algorithms:

1. Begin
2. Start a menu driven program
3. Enter the i/p choice
4. If choice == 1
    a. Str1 = Enter str input *both i/p of set type
    b. Str2 =Enter str input
5. If choice == 2
    a. Perform set intersection using & operation on set str1 & str2
6. If choice == 3
    a. Z = str.difference(str2)
7. If choice == 4
    a. Set union operation
    b. uno = set(str1).union(str2)
8. If choice == 5
    a. Set union operation
    b. sym = str1.symmetric_difference(str2)
9. If choice == 6
    a. Break
10. Exit

Codes:

```
while True:
    print("Menu Driven Program")
    print("1. Enter string: ")
    print("2. Common letters String: ")
    print("3. Set diffrence in String: ")
    print("4. Set Union in String: ")
    print("5. Symmetric Diffrence: ")
    print("6. Exit")
    choice = int(input("Enter your choice: "))
```

```
if choice == 1:
    str1 = set(input("Enter string 1: "))
    str2 = set(input("Enter string 2: "))

elif choice == 2:
    a = list(set(str1)&(set(str2)))
    print("The common letters are: ")
    for i in a:
        print(i)

elif choice == 3:
   z = str1.difference(str2)
   print("Set diffrence: ",z)

elif choice == 4:
    uno = set(str1).union(str2)
    print("set union: ",uno)

elif choice == 5:
    sym = str1.symmetric_difference(str2)
    print("symmetric diffrence: ",sym)

if choice == 6:
    break
```

Output:

```
In [8]: runcell(0, 'C:/Users/jkfra/Desktop/Py-Labs/untitled0.py')
Menu Driven Program
1. Enter string:
2. Common letters String:
3. Set diffrence in String:
4. Set Union in String:
5. Symmetric Diffrence:
6. Exit

Enter your choice: 1

Enter string 1: hello are you

Enter string 2: you not
Menu Driven Program
1. Enter string:
2. Common letters String:
3. Set diffrence in String:
4. Set Union in String:
5. Symmetric Diffrence:
6. Exit

Enter your choice: 5
symmetric diffrence:  {'n', 't', 'r', 'h', 'e', 'a', 'l'}
Menu Driven Program
1. Enter string:
2. Common letters String:
3. Set diffrence in String:
4. Set Union in String:
5. Symmetric Diffrence:
6. Exit
```

```
Enter your choice: 4
set union:  {'h', 'u', 'n', 't', 'r', 'e', 'a', 'y', 'o', ' ', 'l'}
Menu Driven Program
1. Enter string:
2. Common letters String:
3. Set diffrence in String:
4. Set Union in String:
5. Symmetric Diffrence:
6. Exit

Enter your choice: 3
Set diffrence:  {'h', 'r', 'e', 'a', 'l'}
Menu Driven Program
1. Enter string:
2. Common letters String:
3. Set diffrence in String:
4. Set Union in String:
5. Symmetric Diffrence:
6. Exit

Enter your choice: 2
The common letters are:
u
y
o

Menu Driven Program
1. Enter string:
2. Common letters String:
3. Set diffrence in String:
4. Set Union in String:
5. Symmetric Diffrence:
6. Exit

Enter your choice: 6
```

Conclusion:

In this experiment we have successfully implemented set data structure and used different types of methodology to extract the given information.