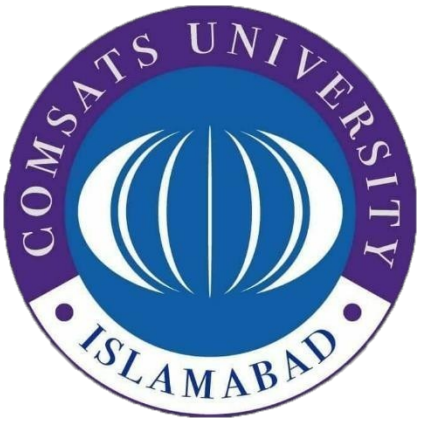


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**COURSE:**

**Artificial Intelligence**

**EEE 462**

# Lab Report 02

BS Electrical Engineering

# Lab 02: Implementation of Different Types of Sequences Including Lists, Tuples, Sets and Dictionaries

## Lab Tasks:

### Task 1:

```
myList = []
for i in range(5):
    val = input("Enter a value : ")
    myList.append(val)
print("The given list is : ")
print(myList)
```

### Output:

```
The given list is:
['4', '65', '6', '66', '6']
```

### Task 2:

```
myList = []
for i in range(5):
    val = input("Enter a value : ")
    n = int(val)
    myList.append(n)
sum = 0
for n in myList:
    sum = sum+n
```

```
print(" The sum of given values is : ", sum)
```

## Output:

The sum of given values is:  313

## Task 3:

```
myList = []
for i in range(5):
    val = input("Enter a value : ")
    n = int(val)
    myList.append(n)
myList.sort()
print(myList)
```

## Output:

[4, 5, 54, 555, 3335]

## Task 4:

```
myList1 = []
print("Enter Objects of 1st List : ")
for i in range(5):
    val = input("Enter Value : ")
    n = int(val)
    myList1.append(n)
```

```
myList2 = []
print("Enter Objects of 2nd List : ")
for i in range(5):
    val = input("Enter Value : ")
    n = int(val)
    myList2.append(n)
list3 = myList2+myList1
print(list3)
```

## Output:

Enter Objects of 1st List:

Enter Objects of 2nd List:

[44, 55, 55, 5532, 332, 67, 34, 32, 2, 1]

## Task 5:

```
myList = []
print("Enter object of First List : ")
for i in range(5):
    val = input("Enter Value : ")
    n = int(val)
    myList.append(n)
s = input("Enter a Value to find in the list : ")
print(myList)
n = int(s)
```

```
found = n in myList
if found == True:
   print("Found!")
else:
   print("Not found!")
```

## Output:

```
Enter object of First List:
[1, 3, 4, 4, 44]
Found!
```

## Task 6:

```
def say_hello(name):
   print("Hello! ", name)
say_hello("Saad")
say_hello("Ahmed")
say_hello("Soban")
```

## Output:

```
Hello!  Saad
Hello!  Ahmed
Hello!  Soban
```

## Task 7:

```
def isP(word):
    word = input("Enter a Word : ")
    temp = word[::-1]
    if temp.capitalize() == word.capitalize():
        return True
    else:
        return False
print(isP("dead"))
```

## Output:

True

## Task 8:

```
a = [[1, 0, 0], [0, 1, 0], [0, 0, 1]]
b = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]
c = []
for indrow in range(3):
    c.append([])
    for indcol in range(3):
        c[indrow].append(0)
        for indaux in range(3):
            c[indrow][indcol] += a[indrow][indaux] * b[indcol][indaux]

print(c)
```

## Output:

[[1, 4, 7], [2, 5, 8], [3, 6, 9]]

## Task 9:

```
def perimeter(listing):
    leng = len(listing)
    perimeter = 0
    for i in range(0, leng - 1):
        dist = (((listing[i][0]-listing[i+1][0])**2) + ((listing[i][1]-
listing[i+1][1])**2))**0.5
        perimeter = perimeter + dist
        perimeter = perimeter + (((listing[0][0]-listing[leng - 1][0])**2) +
((listing[0][1]-listing[leng-1][1])**2))**0.5
    return perimeter


L = [(1, 3), (2, 7), (3, 9), (-1, 8)]
print(perimeter(L))
```

## Output:

26.637773650138623

## Task 10:

```
def symmdiff(a,b):
    e = set()
    for i in a:
      if i not in b:
          e.add(i)
    for i in b:
          if i not in a:
           e.add(i)
    return e
set1 = {0,1,2,4,5}
set2 = {4,5,6,7,8}
print(symmdiff(set1,set2))
print(set1.symmetric_difference(set2))
print(set2.symmetric_difference(set1))
print(set1^set2)
print(set2^set1)
```

## Output:

```
{0, 1, 2, 6, 7, 8}
{0, 1, 2, 6, 7, 8}
{0, 1, 2, 6, 7, 8}
{0, 1, 2, 6, 7, 8}
{0, 1, 2, 6, 7, 8}
```

### Task 11:

```
sample = {("shoaib", "ali"): "03480058526",
        ("aib", "li"): "03319051913",
        ("sib", "ai"): "03119550093", }
firstName = input("Enter first name: ")
lastname = input("Enter last name: ")
searchTuple = (firstName, lastname)
if searchTuple in sample:
   print(sample[searchTuple])
else:
   print("name not found")
```

### Output:

```
03480058526
```

# Home Activities:

### Activity 1:

```
a=[]
c=[]
n1=int(input("Enter number of elements:"))
for i in range(1,n1+1):
   b=int(input("Enter element:"))
   a.append(b)
n2=int(input("Enter number of elements:"))
for i in range(1,n2+1):
```

```
    d=int(input("Enter element:"))
    c.append(d)
new=a+c
new.sort()
print("Sorted list is:",new)
```

## Activity 2:

```
a=[]
c=[]
n1=int(input("Enter number of elements:"))
for i in range(1,n1+1):
    b=int(input("Enter element:"))
    a.append(b)
n2=int(input("Enter number of elements:"))
for i in range(1,n2+1):
    d=int(input("Enter element:"))
    c.append(d)
new=a+c
new.sort()
print("Sorted list is:",new)
```

# Assignment:

## Solution:

```
from math import *
x = -pi
h = 0.001
while(x<=pi):
    ddx = (sin(x+h) - sin(x))/h
    y=cos(x)
    print(format(ddx,".4f"),"\t",format(y,".4f"))
    x=x+h
```

## Critical Analysis and Conclusion:

In this lab I learnt Implementation of Different Types of Sequences Including Lists, Tuples, Sets and Dictionaries. Sequences allow you to store multiple values in an organized and efficient fashion. There are seven sequence types: strings, bytes, lists, tuples, byte arrays, buffers, and range objects. Dictionaries and sets are containers for sequential data. Tuples are used to store multiple items in a single variable.Tuple is one of 4 built-in data types in Python used to store collections of data, the other 3 are List, Set, and Dictionary, all with different qualities and usage. A tuple is a collection which is ordered and unchangeable. Tuples are written with round brackets.