Day - 8

List in python

Creating a list

```
In [1]: mylist = ["apple", "banana", "cherry"]
        print(mylist)
        print(type(mylist))
```

```
['apple', 'banana', 'cherry']
<class 'list'>
```

Allow Duplicates

```
In [2]: mylist = ["cherry","apple", "banana","apple" ,"banana,","cherry"]
        print(mylist)
        print(type(mylist))
```

```
['cherry', 'apple', 'banana', 'apple', 'banana,', 'cherry']
<class 'list'>
```

List Items - Data Types

```
In [3]: list1 = ["apple", "banana", "cherry"]
        list2 = [1, 5, 7, 9, 3]
        list3 = [True, False, False]
        list4 = [1.2,5.6,8.9]
        print(list1)
        print(list2)
        print(list3)
        print(list4)
```

```
['apple', 'banana', 'cherry']
[1, 5, 7, 9, 3]
[True, False, False]
[1.2, 5.6, 8.9]
```

```
In [5]: a = [12,26,2.36,"books", "fruits", 2.36,78,-96,-2, True, False]
        print(a)
        print(type(a))
```

```
[12, 26, 2.36, 'books', 'fruits', 2.36, 78, -96, -2, True, False]
<class 'list'>
```

List Length

```
In [6]: list = [12,26,2.36,"books", "fruits", 2.36,78,-96,-2, True, False]
        print(list)
```

```
[12, 26, 2.36, 'books', 'fruits', 2.36, 78, -96, -2, True, False]
```

Access Items

```
In [15]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[1])
```

```
15
```

```
In [16]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[8])
```

```
52
```

```
In [17]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[-1])
```

```
5
```

```
In [18]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[-5])
```

```
142
```

Slicing of list

```
In [19]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[0:6])
```

```
[12, 15, 26, 78, 14, 25]
```

```
In [20]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[0:])
```

```
[12, 15, 26, 78, 14, 25, 96, 142, 52, 22, 6, 5]
```

```
In [21]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[3:9])
```

```
[78, 14, 25, 96, 142, 52]
```

```
In [22]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[0:11:2])
```

```
[12, 26, 14, 96, 52, 6]
```

```
In [23]: thislist = [12,15,26,78,14,25,96,142,52,22,6,5]
         print(thislist[0:11:3])
```

```
[12, 78, 96, 22]
```

Change List Items

```
In [25]: thislist = ["apple", "banana", "cherry"]
         thislist[1] = "strawberry"
         print(thislist)
```

```
['apple', 'strawberry', 'cherry']
```

```
In [27]: a = [12,14,15,16,8,9,-5,-3,41,-9]
         a[2] = "students"
         print(a)
```

```
[12, 14, 'students', 16, 8, 9, -5, -3, 41, -9]
```

Change a Range of Item Values

```
In [28]: a = [12,14,15,16,8,9,-5,-3,41,-9]
         a[2:4] = ["books","pen","copy"]
         print(a)
```

```
[12, 14, 'books', 'pen', 'copy', 8, 9, -5, -3, 41, -9]
```

Add List Items

Append Items

```
In [30]: thislist = ["apple", "banana", "cherry"]
         thislist.append("orange")
         print(thislist)
```

```
['apple', 'banana', 'cherry', 'orange']
```

```
In [32]: m = [12,23,45,69,23,47,8,5]
         m.append(-20)
         print(m)
```

```
[12, 23, 45, 69, 23, 47, 8, 5, -20]
```

Remove List Items

```
In [33]: thislist = ["apple", "banana", "cherry"]
         thislist.remove("banana")
         print(thislist)
```

```
['apple', 'cherry']
```

Join List

```
In [34]: list1 = ["a", "b", "c"]
         list2 = [1, 2, 3]

         list3 = list1 + list2
         print(list3)
```

```
['a', 'b', 'c', 1, 2, 3]
```

Check if a list contains an element

```
In [35]: li = [1,2,3,'a','b','c']
         'a' in li
```

Out[35]: True

```
In [36]: li = [1,2,3,'a','b','c']
         5 in li
```

Out[36]: False

Reversing a List

```
In [37]: mylist = [1, 2, 3, 4, 5, 'IHH', 'Python']
         mylist.reverse()
         print(mylist)
```

```
['Python', 'IHH', 5, 4, 3, 2, 1]
```

Python program to interchange first and last elements in a list

```python
In [44]: a = [2,15,78,42,56,89,32,14,25,68,25,14,30]
         print(a)
         print(len(a))
         b = a[0]
         a[0]=a[12]
         a[12]=b
         print("now the new list is",a)
```

```
[2, 15, 78, 42, 56, 89, 32, 14, 25, 68, 25, 14, 30]
13
now the new list is [30, 15, 78, 42, 56, 89, 32, 14, 25, 68, 25, 14, 2]
```

```python
In [ ]: find the largest number in the list
        l = [14,15,12,78,-9,23,-8,52,74,89,25,102,8]
        find the sum of all the elements in the list
```

```python
In [51]: l = [14,15,12,78,-9,23,-8,52,74,89,25,102,8]
         print(len(l))
         a=0
         for i in range (13):
             a = a + l[i]
             i = i+1
         print("the sum of list is", a)
```

```
13
the sum of list is 475
```

Python | Multiply all numbers in the list

```python
In [52]: a = [1,2,3,4,5,6,7,8,9,10]
         n = 1
         for i in range(10):
             n = n*a[i]
             i = i+1
         print(n)
```

```
3628800
```

```
In [ ]:
```