Lab-02-03_List (ASSIGN02)

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1 Remember about lists

• ordered, mutable • can have duplicates • similar to arrays functions • append • insert • len • count • sort/sorted • reverse • copy • slicing (subsetting)

1.1 Example: accessing elements

[1]:
```
list1 = [1,2,3,4,5]
print(list1[-1])
print(list1[-3:-1])
print(list1[-1:-3])
print(list1[-3:-0])
```

```
5
[3, 4]
[]
[]
```

2 Exercise 1

Create & print a list with 10 elements, of which • at least one is int • string • float • at least two are duplicates

[2]:
```
list1 = [3,"water",3.4,"sky","sky",22,4.3,1,0,5]
print(list1)
```

```
[3, 'water', 3.4, 'sky', 'sky', 22, 4.3, 1, 0, 5]
```

3 Exercise 2

• print the value of the third element of the list • print the value of the last element • print the value of the second to last

[3]:
```
print(list1[2])
print(list1[-1])
print(list1[1:])
```

```
3.4
5
['water', 3.4, 'sky', 'sky', 22, 4.3, 1, 0, 5]
```

4 Exercise 3

Assign to a new list the fifth to eight elements of the first list.

[4]:
```
list2 = list1[4:8]
print(list2)
```

```
['sky', 22, 4.3, 1]
```

5 Exercise 4

Assign to a new list the elements from the fifth to the last element of the first list.

[5]:
```
list3 = list1[4:]
print(list3)
```

```
['sky', 22, 4.3, 1, 0, 5]
```

6 Exercise 5

Create a list of 4 colors. • add new color at the end (use method append) • add new color in the second position (use method insert) • print the fourth element • delete second element (use method del)

[6]:
```
colors =["green","red","blue","black"]
colors.append("brown")
print(colors)
colors.insert(1,"white")
print(colors)
print(colors[3])
del colors[1]
print(colors)
```

```
['green', 'red', 'blue', 'black', 'brown']
['green', 'white', 'red', 'blue', 'black', 'brown']
blue
['green', 'red', 'blue', 'black', 'brown']
```

Exercise 6 Sorting. Check out how functions sorted() and sort() work, using help() HINT. type help(sorted) to find out how to use sorted() Create this list l1 = [2,5,3,8,7,7,4,5,9,8] • create a new list l2 using the function sorted() • print l1 and l2 • create a new list l3 using the function sort() • print l1 and l2 • what do you observe?

[7]:
```
l1 = [2,5,3,8,7,7,4,5,9,8]
l2 = sorted(l1)
print(l1)
print(l2)
l3 = [1,5,6,3,8]
l3.sort()
print(l3)
print(l1)
print(l2)
print("both functions sort the elements but by sorted() returns the copy of␣
 ↪input list and when we use sort() doesnt return anything however  it is sort␣
 ↪the given list")
```

```
[2, 5, 3, 8, 7, 7, 4, 5, 9, 8]
[2, 3, 4, 5, 5, 7, 7, 8, 8, 9]
[1, 3, 5, 6, 8]
[2, 5, 3, 8, 7, 7, 4, 5, 9, 8]
[2, 3, 4, 5, 5, 7, 7, 8, 8, 9]
both functions sort the elements but by sorted() returns the copy of input list
and when we use sort() doesnt return anything however  it is sort the given list
```

7 Exercise 7

Look at different ways in which we can loop through a list:

[8]:
```
colors = ["red", "green", "blue", "purple"]
i = 0
while i < len(colors):
    print(colors[i])
    i += 1
```

```
red
green
blue
purple
```

[9]:
```
colors = ["red", "green", "blue", "purple"]
for i in range(len(colors)):
    print(colors[i])
```

```
red
green
blue
purple
```

[10]:
```
colors = ["red", "green", "blue", "purple"]
for color in colors:
```

```
    print(color)
```

```
red
green
blue
purple
```

8 Exercise 8 (a bit more challenging)

Given the list my_list = [2,5,7,3,8,9,5,7,4,6,2,3,6,8,7,6,9,7,4,5,6,3] Write the code that generates a list my_ind, which contains the indeces of the values from my_list that are bigger than 7 or smaller than 3

[11]:
```
my_list = [2,5,7,3,8,9,5,7,4,6,2,3,6,8,7,6,9,7,4,5,6,3]
i = 0
my_ind = []
for a in my_list:
    if(a>7 or a<3):
        my_ind.append(i)
    i +=1
print(my_ind)
```

```
[0, 4, 5, 10, 13, 16]
```

[ ]:
```

```