Sequences

A sequence in python is a linear ordered set of elements accessed by an index number.

Following three are the different type of sequences present in Python:

1. List
2. Tuple
3. String

1. List

List is a Linear Data Structure, that is elements of a list have a line ordering and can be identified with index values.

List follows zero-based indexing, that is Index value of the first element will be 0.

List is Mutable, that is the value of list elements can be altered.

1.1 List are denoted by comma-separated list of elements within square brackets.

```
num = (1,2,3)
print(num)
```

```
(1, 2, 3)
```

```
['abc' , 'def' , 'hij']
```

```
['abc', 'def', 'hij']
```

1.2 List can contain elements with dissimilar data type.

Note it is different than arrays in C language in which we can store data of similar datatype.

```
['abs' , 40 , True]
```

```
['abs', 40, True]
```

1.3 Empty List is denoted by empty pairs of bracket without space.

```
num = []
print(num)
```

```
[]
```

1.4 Nested Sequences (Multidimensional Lists):

It is not necessary to have same number of elements in each row.

```
a1=[[1,[3,[1 , 2, 3],5]] , [2, 3], 5]
a1
```

```
[[1, [3, [1, 2, 3], 5]], [2, 3], 5]
```

```
# Returns element of first row
print(a1[0])
```

```
[1, 2]
```

```
# Returns element of second row
```

```
print(a1[1])
```

```
[2, 3]
```

```
# Returns element of second row
print(a1[2])
```

```
5
```

```
# returns element at 1st row and 2nd column
print(a1[0][1][0][1])
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-16-67052d1b560a> in <module>()
      1 # returns element at 1st row and 2nd column
----> 2 print(a1[0][1][0][1])

TypeError: 'int' object is not subscriptable
```

SEARCH STACK OVERFLOW

```
# Returns element at 3rd row
print(a1[2][0])
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-10-c3010e964e27> in <module>()
      1 # Returns element at 3rd row
----> 2 print(a1[2][0])

TypeError: 'int' object is not subscriptable
```

SEARCH STACK OVERFLOW

2 Operations on Lists

2.1 List can be accessed by using an index value within square brackets.

[ ] ↳ *43 cells hidden*

3. Assigning and Copying Lists

3.1 Copying using function list()

[ ] ↳ *13 cells hidden*

4. List Comprehensions

List comprehensions in Python provide a concise means of generating a more varied set of sequences than those that can be generated by the range function.

[ ] ↳ *2 cells hidden*

Assignment:

1. Write a Python program which accepts the user's first and last name and print them in reverse order with a space between them.
2. Write a Python program to display the first and last colors from the following list.

color_list = ["Red","Green","White" ,"Black"].