List in python

List

- List are ordered collection of data items.
- They store multiple items in a single variable.
- List items are separated by commas and enclosed with square brackets [].
- List are changeable meaning we can change them after creation.

Example:

```
l=[2,3,5]
list2=["Red","Green","Blue","White"]
print(l)
print(list2)
print(type(l))
```

Example:

```
marks=[33,40,35,50]
print(marks[0])
print(marks[1])
print(marks[2])
print(marks[3])
```

Example:

```
marks=["Pass",40,"False",50]
print(marks[0])
print(marks[1])
print(marks[2])
print(marks[3])
```

List index

Each item \ element in a list has its own unique index. This index can be used to access any particular item from the list. The first item has in [0], second item has index [1], third has index [2] and so on.

Example:

```
colors=["Red","Green","Blue","Yellow"]
print(colors[0])
print(colors[1])
print(colors[2])
print(colors[3])
```

Accessing List Items

We can access list items by using index with the square bracket syntax []. For example color[0] will give Red colors[1] will give Green so on.

Example:

```
colors=["Red","Green","Blue","Yellow"]
print(colors[0])
print(colors[1])
print(colors[2])
print(colors[3])
```

Positive Indexing:

As we have seen that list items have index as such we can access items using these indexes.

Example:

```
colors=["Red","Green","Blue","Yellow"]
print(colors[0])
print(colors[1])
print(colors[2])
```

Negative Indexing:

Similar to positive indexing negative indexing is also used to access items, but from the end of the list. The list item has index [-1], second last index [-2], third last item has index [-3] and so on.

Example:

```
#negative index
print(colors[-1])
print(colors[-2])
print(colors[-3])
print(colors[-4])
print(len(colors)-2)
```

Checking whether an item in present in the list

Example:

```

names=["kamal","Munawar","Ali","Harry"]
if "Munawar" in names:
    print("Yes ")
else:
    print("No")
```

For string comparison

```
if "Mun" in "Munawar":
    print("Match")
```

Range of index:

We can print a range of list by specifying where you want to start, where do you want to end and if you want to skip elements in between the range.

Example:

```
colors=["Red","Green","Blue","Yellow"]
print(colors[0:4])
print(colors[0:4:2])
print(colors[1:4])
```

Jump indexing is optional.

Jump indexing for a particular range.

```
numbers=[2,4,True,8,10,False,12,14]
print(numbers[1:-1])
print(numbers[1:8:3])
```

For print a number index 1 to 8

```
#both below statement are true and python interpreter set correct order
print(numbers[1:])
print(numbers[:8])
```

List comprehension:

List comprehension are used for creating new lists from other iterables like lists, tuples, dictionary ,sets and even in arrays and strings.

Syntax:

List=[Expression(item)] for item in iterable in if condition]

Expression: It is the item which is being iterated.

Iterable: It can be list tuples, dictionary, set and even in array and strings.

Condition: condition checks if the item should be added to the new lit or not.

Example:

```
lists=[i for i in range(10)]
print(lists)
#for condition print event number in list
lists=[i for i in range(10)if i%2==0]
```

```
print(lists)
```

Source Code

```
# l=[2,3,5]
# list2=["Red","Green","Blue","White"]
# print(l)
# print(list2)
# print(type(l))

# marks=["Pass",40,"False",50]
# print(marks[0])
# print(marks[1])
# print(marks[2])
# print(marks[3])


colors=["Red","Green","Blue","Yellow"]
print(colors[0])
print(colors[1])
print(colors[2])
print(colors[3])

#negative index
print(colors[-1])
print(colors[-2])
print(colors[-3])
print(colors[-4])
print(len(colors)-2)

# names=["kamal","Munawar","Ali","Harry"]
# if "Munawar" in names:
#     print("Yes ")
# else:
#     print("No")

# if "Mun" in "Munawar":
#     print("Match")
# print(colors[0:4])
# print(colors[0:4:2])
# print(colors[1:4])
# numbers=[2,4,True,8,10,False,12,14]
# print(numbers[1:-1])
# print(numbers[1:8:3])
```

```python
# #both below statement are true and python interpreter set correct order
# print(numbers[1:])
# print(numbers[:8])
lists=[i for i in range(10)]
print(lists)
#for condition print event number in list
lists=[i for i in range(10)if i%2==0]
print(lists)
```

Thank You