Lists

```
my_list = []
my_list = [1,2,3,4]
my_list = [[1,2],[3,4]]
my_list = [1,'a',[8,9]]

print(my_list)
```

```
    [1, 'a', [8, 9]]
```

```
print(len(my_list))
```

```
    3
```

```
my_list.append("1")
print(my_list)
```

```
    [1, 'a', [8, 9], '1', '1']
```

```
my_list.insert(1,'b')
print(my_list)
```

```
    [1, 'b', 'a', [8, 9], '1', '1']
```

```
my_list.remove(1) #remove the first occuring element
print(my_list)
```

```
    ['b', 'a', [8, 9], '1', '1']
```

```
new_list = my_list + [0,10,20,30]
print(new_list)
```

```
    ['b', 'a', [8, 9], '1', '1', 0, 10, 20, 30]
```

```
print(new_list.pop(2))
print(new_list)
```

```
    [8, 9]
    ['b', 'a', '1', '1', 0, 10, 20, 30]
```

```
print('1' in new_list)
print('1' not in new_list)
```

```
    True
    False
```

```
new_list.reverse()
```

```python
print(new_list)
```

```
[30, 20, 10, 0, '1', '1', 'a', 'b']
```

```python
num = [0,6,4,3,8,1,2,9,10]
num.sort()
print(num)
```

```
[0, 1, 2, 3, 4, 6, 8, 9, 10]
```

```python
num1 = [1,2,3,4,5,6,7,8,9,10]
num2 = num1 #pass by reference
num2[0] = 11
print(num1)
```

```
[11, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

```python
print(num[0])
print(num[-1])
print(num[0:5])
print(num[0:5:2])
print(num[::2])
```

```
0
10
[0, 1, 2, 3, 4]
[0, 2, 4]
[0, 2, 4, 8, 10]
```

```python
print(num.count(10)) #count the number of occurrences
```

```
1
```

```python
for n in num:
  print(n*2)
```

```
0
2
4
6
8
12
16
18
20
```

▾ List Comprehension

```python
num = [0, 1, 2, 3, 4, 6, 7, 8, 9, 10]
```

```
num_squared = [i**2 for i in num]
print(num_squared)
```

```
[0, 1, 4, 9, 16, 36, 49, 64, 81, 100]
```

```
num_odd_squared = [i**2 for i in num if i%2==1]
print(num_odd_squared)
```

```
[1, 9, 49, 81]
```

```
matrix = [[1,2,3,4],[5,6,7,8],[9,10,11,12]]
#transpose
transpose = []
for i in range(len(matrix[0])):
  lst = []
  for row in matrix:
    lst.append(row[i])
  transpose.append(lst)
print(transpose)
```

```
[[1, 5, 9], [2, 6, 10], [3, 7, 11], [4, 8, 12]]
```

```
transpose = [[row[i] for row in matrix] for i in range(len(matrix[0]))]
print(transpose)
```

```
[[1, 5, 9], [2, 6, 10], [3, 7, 11], [4, 8, 12]]
```

✓ 0s   completed at 7:24 PM