Python Lists Cheatsheet

Context

For the purposes of this tutorial, we will imagine that 5 students took a test and we will use a list to store their marks.

Creating and displaying lists

Create an empty list:

```python
class_marks = []
```

Create a list of class marks:

```python
class_marks = [99, 68, 72, 50, 72]
```

Display the list of marks:

```python
print(class_marks)
# output:
[99, 68, 72, 50, 72]
```

> **Tip: You can make lists out of anything!**
> ```python
> stuff = [54.5, "hi", 64, True,
> [1, False]]
> ```

Accessing list items

Python lets us access specific items in a list by referring to their index position within the list, starting from 0.

Index	0	1	2	3	4
Grade	99	68	72	50	72

Access the second item in the list of marks:

```python
class_marks[1]
# output:
68
```

Change the second mark in the list:

```python
class_marks[1] = 67
```

Print the list of class_marks, and see the following output:

```python
print(class_marks)
# output:
[99, 67, 72, 50, 72]
```

You can also use a reversed index that works from right to left!

Index	-5	-4	-3	-2	-1
Grade	99	67	72	50	72

Access the last item in the list:

```python
class_marks[-1]
# output:
72
```

Accessing a slice of the list

Access a list slice from index position 1 up to 4:

```python
class_marks[1:4]
# output:
[67, 72, 50]
```

Access a slice from index position 2 to the end of the list:

```python
class_marks[2:]
# output:
[72, 50, 72]
```

Access a slice from the start of the list up to index position 3:

```python
class_marks[:3]
# output:
[99, 67, 72]
```

Access a slice from the end of the list up to index position -2:

```python
class_marks[-2:]
# output:
[50, 72]
```

Adding items to a list

Add a new item at the end of the list:

```python
class_marks.append(83)
```

Add multiple items at the end of the list:

```python
class_marks.extend([49, 55])
```

Use the insert() method to add a mark of 30 at index position 1:

```python
class_marks.insert([1, 30])
```

Removing items from the list

Remove the first occurrence of an item from a list:

```python
class_marks.remove(72)
```

Pop (remove and store as a variable) the item at index position 1:

```python
single_mark = class_marks.pop(1)
print(single_mark)
print(class_marks)
# output:
67
[30, 50, 72, 83, 49, 55]
```

Delete the item at a specified index position:

```python
del class_marks[0]
```

Sort list items in ascending order

```python
class_marks.sort()
# output:
[49, 50, 55, 72, 83]
```

Useful list operations

Get the lowest item:

```python
min(class_marks)
# output:
49
```

Get the highest item:

```python
max(class_marks)
# output:
83
```

Get the sum of all list items:

```python
sum(class_marks)
# output:
309
```

Get the length of the list (# items):

```python
len(class_marks)
# output:
5
```