5. IntroduCing Lists

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what Is a list?

A list is a collection of items in a particular order.


```
bicycles = ['trek', 'cannondale', 'redline', 'specialized']
print(bicycles)
```


Accessing Elements in a List

Lists are ordered collections, so you can access any element in a list by

telling Python the position, or index, of the item desired.

```
print(bicycles[0])
```


```
motorcycles = ['honda', 'yamaha', 'suzuki']
print(motorcycles)
motorcycles[0] = 'ducati'
print(motorcycles)
```


```
motorcycles = []
motorcycles.append('honda')
motorcycles.append('yamaha')
motorcycles.append('suzuki')
print(motorcycles)
```


```
motorcycles = ['honda', 'yamaha', 'suzuki']
motorcycles.insert(0, 'ducati')
print(motorcycles)
```


removing an Item Using the del Statement

If you know the position of the item you want to remove from a list, you can use the del statement.

```
motorcycles = ['honda', 'yamaha', 'suzuki']
print(motorcycles)
del motorcycles[0]
print(motorcycles)
```

```
motorcycles = ['honda', 'yamaha', 'suzuki']
print(motorcycles)
popped_motorcycle = motorcycles.pop()
print(motorcycles)
print(popped_motorcycle)
```

removing an Item by Value

Sometimes you won't know the position of the value you want to remove from a list. If you only know the value of the item you want to remove, you can use the remove() method.

For example, let's say we want to remove the value 'ducati' from the list of motorcycles.

```
motorcycles = ['honda', 'yamaha', 'suzuki', 'ducati']
print(motorcycles)
motorcycles.remove('ducati')
print(motorcycles)
```

Sorting a List Permanently with the sort() Method

```
cars = ['bmw', 'audi', 'toyota', 'subaru']
cars.sort()
print(cars)
```

```
cars = ['bmw', 'audi', 'toyota', 'subaru']

cars.sort(reverse=True)

print(cars)
```

Sorting a List Temporarily with the sorted() Function

```
print("\nHere is the sorted list:")

print(sorted(cars))
```

Printing a List in Reverse Order

```
cars = ['bmw', 'audi', 'toyota', 'subaru']

print(cars)

cars.reverse()

print(cars)
```

Finding the Length of a List

You can quickly find the length of a list by using the len() function. The list

in this example has four items, so its length is 4:

```
>>> cars = ['bmw', 'audi', 'toyota', 'subaru']

>>> len(cars)
```

```
motorcycles = ['honda', 'yamaha', 'suzuki']

print(motorcycles[-1])
```