

# Day 15: Lists

- There are 4 built-in data types in Python used to store collections of data:

1. List
2. Tuple
3. Set
4. Dictionary

all with different qualities and usage.

- Lists are used to store multiple items in a single variable.
- Lists are created using square brackets.

```
lst = ['apple', 'banana', 'cherry']  
print(lst)
```

- List items are ordered, changeable, and allow duplicate values.
- List items are indexed, the first item has index `[0]`, the second item has index `[1]` etc.
- Lists are ordered, it means that the items have a defined order, and that order will not change.
- If you add new items to a list, the new items will be placed at the end of the list.
- The list is changeable, meaning that we can change, add, and remove items in a list after it has been created.
- List allow to store duplicates.

```
lst= ['apple', 'banana', 'cherry', 'apple', 'cherry']  
print(lst)
```

## List Length

- To determine how many items a list has, use the `len()` function.

```
lst = ["apple", "banana", "cherry"]  
print(len(lst))
```

## List Item - Data Types

- List items can be of any data type.
- A list can contain different data types.

```
list1 = ["apple", "banana", "cherry"]  
list2 = [1, 5, 7, 9, 3]  
list3 = [True, False, False]
```

```
# Different Data Types  
list4 = ["abc", 34, True, 40, "male"]
```

## Type()

- From Python's perspective, lists are defined as objects with the data type `list`

```
list1 = ["apple", "banana", "cherry"]  
  
print(type(list1)) # <class 'list'>
```

## The list() Constructor

- It is also possible to use the `list()` constructor when creating a new list.

```
lst = list(("apple", "banana", "cherry")) # note the double round-brackets
print(lst)
print(type(lst))
```

## Python Collections (Arrays)

There are four collection data types in the Python programming language:

- **List** is a collection which is ordered and changeable. Allows duplicate members.
- **Tuple** is a collection which is ordered and unchangeable. Allows duplicate members.
- **Set** is a collection which is unordered, unchangeable, and unindexed. No duplicate members.
- **Dictionary** is a collection which is ordered and changeable. No duplicate members.