

## Collection types

- Very useful in data science because **datasets** are the collection of data
  - List
    - Ordered changeable, duplicates allowed
  - Dictionary
    - Ordered, changeable, duplicates not allowed
  - Set
    - Unordered, unchangeable\*, duplicates not allowed
  - Tuple
    - Unordered, unchangeable, duplicates allowed

## Representing Datasets with Code

- Column-oriented:
  - Grouping by features
- Row-oriented:
  - Grouping by a single observation

## Indexing

- In order to access values in a collection type, we need to index into it

| Type       | Indexing Pattern      |
|------------|-----------------------|
| List       | name[index]           |
| Dictionary | name[key]             |
| Set        | For Loop (next slide) |
| Tuple      | name[index]           |

## Iteration

- You can repeat processes with loops or recursion in python.
  - Python loops:
    - While loops
    - For loops

### Useful Methods

#### Dictionary:

- values()
- items()
- keys()

#### Lists:

- len()
- append()
- sort()

#### Other:

- range()
- print()
- split()
- type()
- int()
- str()