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Python Fundementals

Collection Types:

- Very useful in data science because datasets are the collection of data.
  - Python collection types:
    - 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

- Benefits differ between both types, you must choose depending on what you intend to do or accomplish with the data as there are trade offs
  - For example column oriented would be useful when trying to find an average of something

Indexing:

- In order to access values in a collection type, we have to index into it.
  - Remember that indexing starts at 0 and not 1
    - List: name[index]
    - Tuple: name[index]
    - Dictionary: name[key]
      - To access a specific value within a key you would do name[key][index]

Iteration:

- You can repeat processes with loops or recursion in Python:
    - While Loops
    - For Loops
        - More common/useful in data science specifically

- While Loops
    - While CONDITION:
        Statements

- For Loops
    - For THING in COLLECTION:
        Statements

Useful Methods:

- DICTIONARIES:
    - Values()
        - Returns the values in the dictionary
    - Items()
        - Returns the items in the dictionary
    - Keys()
        - Returns the keys in the dictionary

- LISTS:
    - len()
        - Returns the length of the list
    - append()
        - Adds given value to the end of the list

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