# Review

Functions & Data Structures

# What to expect

1. True/False
2. Multiple choice
3. Short answer

- Know how to write/call a function
- Know how to create/delete/use a list/set/tuple/dictionary
  - Also methods and their use
- How to manipulate strings

# Functions

- A block of code that only runs when called
- Syntax:

```
def NAME( PARAMETERS ):

    STATEMENTS
```

- Built-in functions, libraries
- Unit testing
- Terms:
  - function, parameters, statements, arguments, function call, execution, import statement, local variable, global variable, return statement, unit testing

Links: 1, 2, 3, 4, 5, 6, 7

# Built-in functions & libraries

- Basic python built-in functions
- Libraries:
  - Standard library

# Main function

- A function is a piece of reusable code
- A main functions purpose is to act as the skeleton of the program
- It’s where the program begins and ends
    - All other functions are being called from the main function
- Purpose is for ease of use and readability for others

Links: 1, 2, 3

# Unit test

- Purpose is to test the smallest possible parts of a program
  - E.g. to make sure function calls perform as expected

Links: 1, 2, 3, 4

# Data structures

- Four collection data types
  - List
  - Tuple
  - Set
  - Dictionary
- Strings
- Python docs

# Data structures: List

- Collection which is ordered and changeable
- Allows duplicates, mutable
- Syntax:

```
ps = [10, 20, 30, 40]

qs = ["spam", "bungee", "swallow"]
```

- Methods:
  - len, del, max, min, list, cmp, append, count, extend, index, insert, pop, remove, reverse, sort (link)
- Terms:
  - Elements, sequence, collection, nested, mutable, immutable, index, item, list, array, traversal, modifier, nested list

Links: 1, 2, 3, 4, 5

# Data structures: String

- Syntax:

```
ss = "Hello, World!"
```

- Methods:
  - List of string methods
- Terms:
  - character, immutable, index, mutable, slice, traverse

Links: 1, 2, 3, 4, 5, 6

# Data structures: Tuple

- Collection which is ordered and unchangeable
- Allows duplicates, immutable
- Syntax:

```
year_born = ("Paris Hilton", 1981)
```

- Methods:
  - count, index (link)
- Terms:
  - Data structure, immutable, mutable, tuple

Links: 1, 2, 3, 4, 5, 6

# Data structures: Set

- Collection which is unordered and unindexed
- No duplicate members, immutable
- Syntax:

```
ps = {10, 20, 30, 40}
```

- Methods:
  - List of set methods
- Terms:
  - Data structure, immutable, mutable, set

Links: 1, 2, 3, 4

# Data structures: Dictionary

- Collection which is unordered, changeable and indexed
- No duplicate members, mutable
- Syntax:

```
eng2sp = {"one": "uno", "two": "dos", "three": "tres
```

- Methods:
  - List of dictionary methods
- Terms:
  - Key-value pair, key, mutable, immutable data value

Links: 1, 2, 3, 4, 5