# Lists

# Unit Overview

- In this unit we will learn the basics of a very important data type; lists.  We will learn how to:
  - Define a list and access specific elements of a list.
  - Index a list properly.
  - Dynamically build lists.
  - Add elements to a list at the end of the list or at a specific position in the list.
  - Remove elements of a list based on name or position in the list.
  - Organize lists in reverse order
  - Sort lists of strings alphabetically and reverse alphabetically
  - Sort lists of integers or floats numerically or reverse numerically.
  - Import the datetime library to access information about the current date and time.

# Data Types

- Strings: A series of characters
- Integers: Whole numbers
- Floats:  Decimal numbers
- Lists: A mutable collection
- Tuples:  An immutable collection

# Control Structure

- None

# Operators

Assignment Operators

- = Assignment
- += Compound Assignment
- -= Compound Assignment
- + Concatenation (strings)

Algebraic Operators

- + Addition (ints and floats)
- - Subtraction
- * Multiplication
- / Division
- ** Exponentiation

# Built In Functions

- print()
- type()
- str()
- int()
- float()
- input()
- round()
- sorted()
- len()

# Methods

Strings:

- .upper()
- .lower()
- .title()
- .strip()
- .count()

Lists:

- .append()
- .insert()
- .pop()
- .remove()
- .sort()
- .reverse()

# External Libraries

- math
- datetime

# Challenge Problems

- Grade Sorter App
- Different Types of Lists Program
- Grocery List App
- Basketball Roster Program
- Favorite Teachers Program