BIL103E Python Programming Topic Headings

Note:

If you don't understand what something in these notes means, it is your job to find out.

Python/Programming Basics:

- Definition of algorithm.
- Difference between programs and algorithms.
- Expressions:
    - Writing literals of the following types:
        - `str, float, int`.
    - Expressions involving numbers.
        ```
        +    *    -    /    //    **
        ```
    - Expressions involving strings.
        ```
        +       *
        ```
    - Expressions involving multiple operators and parentheses.
    - Expressions with basic functions:
        ```
        abs, min, max, type
        ```
    - Converting values between types.
    - "Evaluation", "Value", "Expression".
- Statements:
    - Assignment statement.
        - Difference between assignment and equality.
        - Result of multiple assignments.
    - Import statement.
    - Global statement.
- Non-primitive types:
    - `datetime`.
    - Getting the current `datetime`.
    - Getting a `datetime` for a particular day.
    - Getting the difference between two different `datetime`s.

Functions:

- Defining a function.
- Defining parameters to a function.
- Returning values from a function.
- Using a function that you have defined with:
    - No parameters.
    - One parameter.

- ◦ Two or more parameters.
- Functions with more than one statement.
- Writing a function to convert a string with HTML tags into a string containing a fully formed HTML 5 document.
- Using global variables.

Errors:

- Meaning and typical cause of:
  - ◦ `SyntaxError.`
  - ◦ `TypeError.`
  - ◦ `NameError.`

Flow control:

- `if` statement:
  - ◦ Use an `if` statement to decide whether to do something.
  - ◦ Use an `if` and `else` statement to choose between two outcomes.
  - ◦ Truth tables.
- `while` loop:
  - ◦ Create a `while` loop that does not terminate.
  - ◦ Create a `while` loop that does terminate.
- Lists:
  - ◦ Create a list of numbers.
  - ◦ Create a list of strings.
  - ◦ Access an item from a list.
  - ◦ Delete an item from a list.
- Use a `while` loop to do something for each item of a list.

Web Programming:

- Forms:
  - ◦ HTML: Textboxes, radio buttons, submit button.
  - ◦ Action: GET vs. POST.
- URL query string.
- Bottle:
  - ◦ Define a function to deal with incoming web requests to a particular resource.
  - ◦ Start a web application listening to requests on a particular port.
  - ◦ Process GET and POST queries.