ENGG1003 - Lab 3

Brenton Schulz

- arrays, indexing, sliding
- for loops
- boolean expressions / relational operators
- if statements
- while loops

Task 1: Array Reading

Read Section 2.3 of the textbook, stopping at 2.3.6. Execute examples as you go.

Direct link: `https://link.springer.com/chapter/10.1007/978-3-030-16877-3_2#Sec16`

You are welcome to read 2.3.6 (regarding 2D arrays) but that content will be covered later.

Task 2: Fibonacci Sequence - Naive Implementation

The Fibonacci sequence is a sequence of numbers, x_0, x_1, x_2, ... etc, with the following equation used to calculate x_n given x_{n-1} and x_{n-2}:

$$x_n = x_{n-1} + x_{n-2} \tag{1}$$

Write a Python script which, given $x_0 = 1$ and $x_1 = 1$, calculates and prints the next 8 values of the Fibonacci sequence.

To do this, create a NumPy array, `fib[]` containing 10 zeros, manually assign the above 1's to `fib[0]` and `fib[1]`, then write out the equation manually for the next 8 values, eg:

```
fib[2] = fib[1] + fib[0]
print(fib[2])
fib[3] = fig[2] + fib[1]
print(fib[3])
... etc
```

Note that there is a far more efficient method using *loops*. This will be explored later.