Codio Activity - Exploring Python tools and features

Part 1:

When attempting to run enter a string with greater than 10 characters, I received the following:

**** stack smashing detected ***: <unknown> terminated*

Aborted (core dumped)

The reason for this result is the data I attempted to input (>10 characters) exceeded the capacity limit for the buffer. If the programme were to accept this input and overwrite data beyond its designated capacity it could overwrite other data which could cause security risks or errors. In order to protect from these risks, the program detected the buffer overflow and terminated it.

Part 2:

In this second example, we use python instead of C. Python is also susceptable to buffer overflow. When I ran the program I received the following error:

IndexError: list assignment index out of range

The reason for this error was that we have an allocated capacity of 10, however the program attempts to iterate the instruction 15 times, thereby causing an error.

After installing and running pylint on this script, I received the following:

************* Module Overflow*

Overflow.py:4:0: C0303: Trailing whitespace (trailing-whitespace)

Overflow.py:5:0: C0304: Final newline missing (missing-final-newline)

Overflow.py:1:0: C0103: Module name "Overflow" doesn't conform to snake_case naming style (invalid-name)

Overflow.py:1:0: C0114: Missing module docstring (missing-module-docstring)

While pylint did detect a range of issues such as naming conventions and missing docstrings, it did not detect the buffer overflow issue. In order to fix this, we can either increase the allocation or reduce the range.