CSE 160 Section 8
Programming Practice and Design Exercise

Design a module for basic statistical analysis of files in UWFORMAT with the following capabilities:

- Create an S-T plot: the salinity plotted against the temperature.

- Compute the minimum o2 in a file.

UWFORMAT:

```
line 0: site temp salt o2
line N: <string> <float> <float> <float>
```

To get you started we have written some function headers and doc strings. You can implement these or change them however you see fit.

```python
import matplotlib.pyplot as plt


def read_measurements(filename):
    """
    Returns a list of 4-tuples, where each tuple represents a line in the given file
    and is of the form (site, temp, salt, oxygen).
    """
```

```python
def STplot(measurements):
    """
    Given a list of 4-tuples, generates a scatter plot comparing salinity and temperature.
    """
```

```python
def minimumO2(measurements):
    """
    Given a list of 4-tuples, returns the minimum value of the oxygen measurement.
    """
```

Discussion: Division of Labor

Working on a programming project with a group of people introduces some interesting challenges. Everyone who continues to code will eventually work with someone on a project. For those working with a partner on the final project, consider the work plan that you will need to submit next week. Some factors you should consider are:

- How will you share your source code? How will changes you make be passed to your partner?

- Who will work on what parts of the program?

- Who will write tests for each function?

- Who will validate the results?

- What happens if you find a bug in your partner's code? Do you wait for them to fix it, or fix it yourself?

- As you work, your program design will likely change. How will these changes be communicated?

- What are two advantages and two disadvantages of writing software in a group?