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CS 6015

Assignment 6

For my test oracles I chose:

- **Address sanitizer.** The address sanitizer is used to detect memory-related errors, like buffer overflows and use-after-free errors. The address sanitizer ensures that no unexpected memory issues occur, despite all of the random test cases input into the program.
- **Tests against expected output (heuristic oracle)**. A heuristic oracle verifies results for a set of test inputs. In this case, I generated all possible squares and rectangle coordinates within the 100 x 100 grid, as well as 97 parallelograms. Rather than simply confirming that these test inputs don't cause the program to crash, I compare the outputs for each shape to a file of expected outputs, ensuring my program meets expectations. This type of oracle works best when you have a simple patter to work from, so I think the simplicity of basic shapes like squares and rectangles fit this requirement (more info on heuristic oracles here).
- **Assertions**. I added a few assertions to ensure that the number and range of the vertices never exceeds what I expect it to be. If there are any unknown issues with my prior error checking, the assertion statements will catch the error before the quadrilateral can be incorrectly classified.