

Homework 7 Differential Testing

Initially when I testing my code against Jordan Higginson's there was something like 5000 errors. This was mostly due to some errors I had with my make file and testing. His GitHub link is https://github.com/jhiggi44/quadrilateral_classifier_testing. Once I bounced through my bugs with my bash scripts and everything we got a lot of different answers. 2,500 of the tests failed but the majority if not all of them were because of a discrepancy with our error 3 tests. Turns out I was wrong and my error 3 wouldn't trigger in certain situations. This took me quite a bit of time to get right but finally I was able to clear out the error 3's that were differing.

After I fixed the biggest bug one remained. I ran the output many times and still got trapezoids where Jordan's code was getting a quadrilateral. I realized once again that I was wrong and that I was calculating the slope somewhat incorrectly. I assigned a 0 value to the slope if it was a vertical or horizontal line. So if there was one opposite pair of lines where one was vertical and one was horizontal it would output trapezoid.

Ben Trueman tested his code against mine. Luckily because of Jordan's code I was able to tell him about some bugs he and I shared. Because initially we were getting the same output for the tests. Ben also found some memory errors in my code when he ran the address sanitizer. Most of that was due to some error checking I busily added. So once he fixed his bugs and I fixed mine we finally matched up.

This differential testing was incredibly useful. For the previous assignment there was nothing good to compare randomly generated numbers to. This was able to find edge cases I clearly didn't think about. I could probably spiff up the way in which the errors were printed and counted the specific error that was happening. I was just printing out the number of errors and then finding them. Clearly this is a powerful tool for testing.

Originally I was assigned Rongmin Jin but his code available on GitHub wasn't able to compile and the assignment appeared to be unfinished. He was not in class on Tuesday and Wednesday classes were cancelled. I tried to reach out to him but I didn't get a message back. Here is his repository <https://github.com/rongminjin/cs6015>.