Week 1 Notes

Friday, January 13, 2023 9:04 AM

What Background knowledge is necessary

- Basic knowledge of at least on programing language
- Basic knowledge of discrete mathematics

Maximum Pairwise Product

- Take an array that multiply 2 largest number from the array

    Sample 1:
    3 <- size of list
    1 2 3
    Output = 6x

Stress Testing

- A program that generates random test in a infinite loop, with each test providing alternative solutions on the same test

What to do if your solution doesn't work?

The verdict is usually one the following

1. Wrong answer
2. Time/memory limit exceeded
3. Failed (runtime error)

- Check if you didn't forget some corner case
- Design some general test
- If you got time limit exceeded error measure how long your program works for the larger inputs

If you got a runtime error (usually the message is Unknown signal ...) then it is good news

- You access a location in memory that doesn't belong to your program
- You make an arithmetic error: division by zero, overflow of a floating-point number

The 'wrong answer' verdict is probably the most challenging, there are many things that can lead to this verdict

- Find an alternative solution that may not be correct in terms of efficiency
- Make your program crush if something is inconsistent

How to generate tests?

The simplest way to generate test is to write a program that prints a test to a text

file

Generating random tests and running your program on them

1. Test generator that accepts a seed as a command line parameter
2. An alternative solution
3. A script that repeatedly generates a test with the generator

Summery:

We first went over the course material and how everything ill be submitted through Coursera. We took a look at the first project which was a simple add A to B.
We looked over the Max Pairwise project and went into stress testing. We talked about how stress testing is important in order to not only get the right answer but to see if we can get wrong answers as well.
We worked on implementing test into the project and used random number generation to produce these test.