ECE 5960-023/6960-025 – Advanced Programming for Computer Design Problems

In-class Practice 6 (due 2020/02/20 in class)

1. Finish connectivity.cpp and implement the path compression technique we taught in the class in the function `findset`. Now, rewrite the path compression iteratively using only while loop. Report the difference in terms of assembly from compiler explorer at www.godbolt.org.

2. Finish the binary-search.cpp and think about the following: How to write a binary search function to find an element that meets a given criteria in a ***floating*** range? Paste your code below that implements a function that, for example, finds the minimum value greater than 5678.9912 in the range [10.0, 1000000.0]. Write down the value you see in the output. You probably knew Newton's method for finding the root of a polynomial. The algorithm leverages binary search techniques on floating numbers.

Keep in mind, in programming, there is no real "floating" number. Each floating number is represented in a discrete 32-bit space.

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