

# OCS 25 - Data Structures and Algorithms

## Assignment 1

**Question 1. No program required**

Find a path between the two points. Make a copy of page and draw the path on the picture.

Discuss how we could go about designing a computer algorithm to solve the path problem. Don't worry about an exact algorithm. At this point, we only want to think about what issues need to be addressed and what problems we foresee with our algorithm. We will cover these topics during the course later this academic year.



We could try implementing a modified breadth-first or depth-first search, in which we explore paths from the start point and gradually move in the direction of the second point. However, such an algorithm may be slow, especially for larger networks or scenarios in which an optimal path involves zig-zagging up and down to reach the final destination.

1.
  - a. My implementation for 1.1.19 can be found in Fibonacci.java.
  - b. My implementation for 1.1.39 is slow, but can be found in RandomMatch.java.
    - i. I was not sure how to make it run faster
2. My implementation for questions 2 - 4 can be found in PersonTester.java
3. My implementation for question 5 can be found in Thermostat.java. I did not fully understand how to use inheritance with exceptions.