**CITS2200 Data Structures & Algorithms Project**

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This report will detail the process the students Jake Lyell (22704832) and Jordan Lee (22705507) took to complete the CITS2200 Project.

Your report must for each problem:

Explain why your chosen algorithm will give the correct answer (that is, a logical

argument for why it is correct)

Provide an analysis explaining the time complexity of your implementation (and memory

complexity if relevant) //REMOVE LATER

**Task 1: allDevicesConnected**

For allDevicesConnected, we decided to utilise a modified Depth First Search to solve the problem. From each node, it adds the nodes it can transmit data to, given they aren’t already visited or in the stack waiting to be checked. For every node that is connected, the counter “discovered” Is incremented, After all the nodes in the stack have been searched, the value of discovered is compared with the number of nodes in the graph. If the values are the same, all of the nodes are connected, and true is returned. if the values are different, then the nodes are not all connected and false is returned.

**Task 2: numPaths**

**Task 3: closestInSubnet**

**Task 4: maxDownloadSpeed**