FIT2004: Lab questions for week 9

Objectives: This prac provides a platform for you to practise the formal concepts introduced during the lectures in weeks 7 & 8. Primarily, these concepts include pattern matching on strings and shortest-path algorithms on graphs.

1. Write a program implementing the Breadth-First Search (BFS) to find the single-source shortest paths in an **unweighted and undirected** graph. Your program should accept $|V|$ (the number of vertices) as a command line argument. Constrain this value to the range $1000 \leq |V| \leq 5000$. Generate a random (unweighted and undirected) graph with $|V|$ vertices – think carefully about how such a random graph must be generated. Assume the first vertex in this random graph is the source vertex. Run the BFS algorithm on this random graph instance and print out to a file (1) the path lengths to other vertices from the source, and (2) their corresponding paths.

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-=o0o=-
  END
-=o0o=-
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