CSCI 3104 Spring 2023
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Midterm 1 Standard 2 - BFS/DFS

Due Date ..... March 10
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Quiz Code (enter in Canvas to get access to the LaTeX template) ..... **LLOLP**

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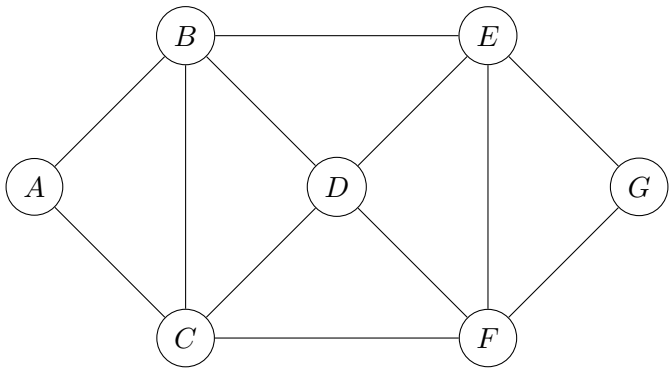
1 Instructions

- The solutions **should be typed**, using proper mathematical notation. We cannot accept hand-written solutions. Here's a short intro to LaTeX.
- You should submit your work through the **class Canvas page** only. Please submit one PDF file, compiled using this LaTeX template.
- You may not need a full page for your solutions; pagebreaks are there to help Gradescope automatically find where each problem is. Even if you do not attempt every problem, please submit this document with no fewer pages than the blank template (or Gradescope has issues with it).
- You **may not collaborate with other students**. **Copying from any source is an Honor Code violation. Furthermore, all submissions must be in your own words and reflect your understanding of the material.** If there is any confusion about this policy, it is your responsibility to clarify before the due date.
- Posting to **any** service including, but not limited to Chegg, Discord, Reddit, StackExchange, etc., for help on an assignment is a violation of the Honor Code.

2 Standard 2 - BFS/DFS

2.1 Problem 1

Problem 1. For the graph drawn below, give an ordering of nodes that will be explored by (1) BFS (2 points) and (2) DFS (2 points) when starting from node A.



Answer. BFS will explore the graph in the following order (assuming we are pushing onto queue in alphabetical order):
1.) A marked as visited
2.) B and C marked as visited
3.) D and E marked as visited
4.) F marked as visited
5.) G marked as visited
6.) BFS stops as all nodes visited now
DFS will explore the graph in the following order (also assuming alphabetical order to push onto stack):
1.) A marked as visited
2.) B marked as visited
3.) C marked as visited
4.) D marked as visited
5.) E marked as visited
6.) F marked as visited
7.) G marked as visited
8.) DFS stops as all nodes have been explored.

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