BRAC University (Department of Computer Science and Engineering)
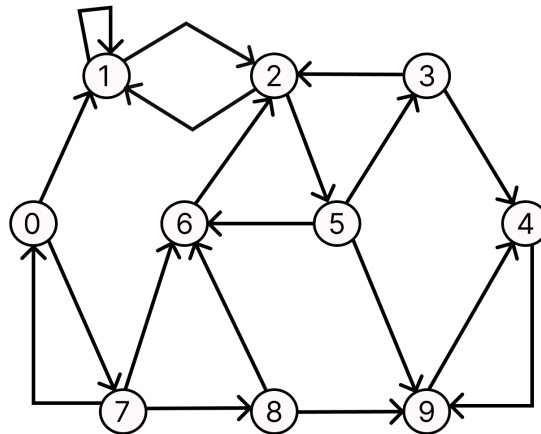
CSE 221 (Algorithms) for Summer 2025 Semester

Assignment 01   Full Marks: 20

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1. Using Kosaraju's Algorithm, find the Strongly Connected Components and the condensation graph for the following graph: **(8)**

2. Explain briefly why the Transpose/Complement Graph is necessary to get the SCCs **(4)**
3. Explain the difference between the terms 'Maximal' and 'Maximum' with an example **(2)**
4. For the following problems, draw the given input graph in the problem statement and then briefly explain how finding SCCs will solve the problem **(6)**
   - https://cses.fi/problemset/task/1683
   - https://cses.fi/problemset/task/1682
   - https://cses.fi/problemset/task/1686

Instructions:
- You may submit either a handwritten document (scanned and saved as PDF) or a digital copy in DOCX or PDF format.
- You can use Online tools for drawing graphs (One such site is Figma). However, it is not mandatory.

Submission Deadline: 11:50 pm | 28 August, 2025

Submission Format: Rename the file (PDF or Docx) with your Student ID.

Submission Link:
https://forms.gle/PWE6vEPZeDg5TNoa6