CE205 Data Structures Week-5

Graph Data Structure and Traversals

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2.0.2 Outline

- Introduction to Graphs
- Graph Representations
- Graph Traversal
- Water Jug Problem

2.0.3 Introduction to Graphs

- Vertex

- Edge

- Undirected Graph

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[1] pandoc_ce205-week-5-graph-structures.tr_doc.pdf
[2] pandoc_ce205-week-5-graph-structures.tr_word.docx
[3] ce205-week-5-graph-structures.tr_slide.pdf
[4] ce205-week-5-graph-structures.tr_slide.pptx

- Directed Graph

- Mixed Graph

- End Vertices or Endpoints

- Origin

- Destination

- Adjacent

- Incident

- Outgoing Edge

- Incoming Edge

- Degree

- Indegree

- Outdegree

- Parallel edges or Multiple edges

- Self-loop

- Simple Graph

- Path

- Btech Smart Class

  - http://www.btechsmartclass.com/data_structures/introduction-to-graphs.html

2.0.4 Graph Representations

1. Adjacency Matrix
2. Incidence Matrix
3. Adjacency List

- Btech Smart Class
  - http://www.btechsmartclass.com/data_structures/graph-representations.html

2.0.5 Graph Traversal - DFS

1. Depth-First Search (DFS)
2. Iterative Deepening Search(IDS) or Iterative Deepening Depth First Search(IDDFS)

- Btech Smart Class
  - http://www.btechsmartclass.com/data_structures/graph-traversal-dfs.html

2.0.6 Graph Traversal - BFS

- Breadth-First Search (BFS)
  - Btech Smart Class
    * http://www.btechsmartclass.com/data_structures/graph-traversal-bfs.html

2.0.7 Graph Traversal - DLS

- Depth-limited Search
  - Educba
    * https://www.educba.com/depth-limited-search/

2.0.8 Graph Traversal

- Uniform Cost Search
  - Geeks for Geeks
    * https://www.geeksforgeeks.org/uniform-cost-search-dijkstra-for-large-graphs/
- Bidirectional Search
  - Geeks for Geeks
    * https://www.geeksforgeeks.org/bidirectional-search/
- Water Jug Problem
  - Geeks for Geeks
    * https://www.geeksforgeeks.org/water-jug-problem-using-bfs/
  - Tamu Edu
    * https://www.math.tamu.edu/~dallen/hollywood/diehard/diehard.htm
  - Udel Edu
    * https://www.eecis.udel.edu/~mccoy/courses/cisc4-681.10f/lec-materials/handouts/search-water-jug-handout.pdf

$$End - Of - Week - 5$$