CE205 Data Structures Week-5

Graph Data Structure and Traversals

Author: Asst. Prof. Dr. Uğur CORUH

Contents

List of Figures

List of Tables

1 CE205 Data Structures

2 Week-5

2.0.1 Graph Data Structure and Traversals

Download DOC[1], SLIDE[2], PPTX[3]

2.0.2 Outline

- Introduction to Graphs
- Graph Representations

---

[1]ce205-week-5-graph-structures.md_doc.pdf
[2]ce205-week-5-graph-structures.md_slide.pdf
[3]ce205-week-5-graph-structures.md_slide.pptx

- Graph Traversal
- Water Jug Problem

2.0.3 Introduction to Graphs

- Vertex
- Edge

2.0.4 Introduction to Graphs

- Undirected Graph
- Directed Graph
- Mixed Graph

2.0.5 Introduction to Graphs

- End Vertices or Endpoints
- Origin
- Destination

2.0.6 Introduction to Graphs

- Adjacent
- Incident

2.0.7 Introduction to Graphs

- Outgoing Edge
- Incoming Edge

2.0.8 Introduction to Graphs

- Degree
- Indegree
- Outdegree

2.0.9 Introduction to Graphs

- Parallel edges or Multiple edges
- Self-loop
- Simple Graph
- Path

2.0.10 Introduction to Graphs

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

---

2.0.11 Graph Representations

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

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

---

2.0.12 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

---

2.0.13 Graph Traversal - BFS

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

---

2.0.14 Graph Traversal - DLS

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

2.0.15 Graph Traversal

- Uniform Cost Search
  - Geeks for Geeks
    * https://www.geeksforgeeks.org/uniform-cost-search-dijkstra-for-large-graphs/

2.0.16 Graph Traversal

- Bidirectional Search
  - Geeks for Geeks
    * https://www.geeksforgeeks.org/bidirectional-search/

2.0.17 Graph Traversal

- 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

$$End - Of - Week - 5$$