**Graph Algorithms**

**Document Id 38**

**Concepts**

* Graphs concepts
* Depth-first search algorithm
* Breadth-first search algorithm
* Topological sorting algorithm

**Graphs**

Learning Objectives

* Euler's Formula
* Depth-first search
* Path Search

**Guided Learning Tasks**

Implement a Graph as a Abstract Data Type (ADT)

Implement a Depth-first search

Lab 1 Practical Path Search with dfs

Lab 1 Solution

**Searching Graphs**

Learning Objectives

* Breadth-first search
* Directed Acyclic Graph (DAG)
* Shortest path

**Guided Learning Tasks**

Implement a Directed Graph as a Abstract Data Type (ADT)

Implement a Breadth-first search

Lab 2 Practical Find Minimum Path

Lab 2 Solution

**Directed Graphs**

Learning Objectives

* Topological sort
* Directed cycle
* Shortest directed cycle

Implement a Topological sort

Lab 3 Practical Shortest Path Optimisation

Lab 3 Solution