

AQA Computer Science A-Level
4.3.1 Graph-traversal
Concise Notes



Specification:

4.3.1.1 Simple graph-traversal algorithms

Be able to trace breadth-first and depth-first search algorithms and describe typical applications of both. Breadth-first: shortest path for an unweighted graph. Depth-first: Navigating a maze.



Graph Traversals

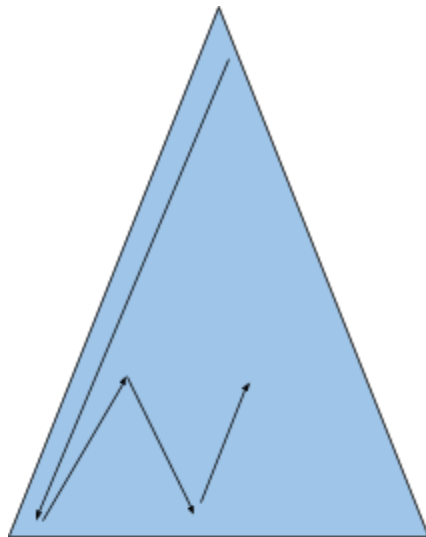
- Graph-traversal is the process of **visiting each vertex** in a **graph**.
- Can be performed on any **connected graph**

Depth First Search

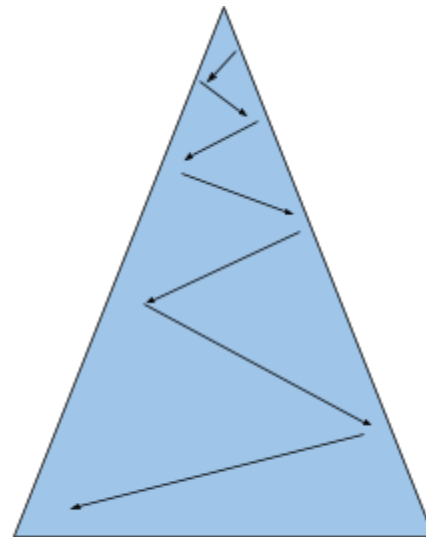
- A **branch** is **fully explored** before backtracking
- Uses a **stack**
- Used for **navigating a maze**

Breadth First Search

- A **node** is **fully explored** before venturing on to the next node
- Uses a **queue**
- Useful for determining the **shortest path on an unweighted graph**



Depth-First Traversal



Breadth-First Traversal

