

# Depth-first search

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**Goal.** Systematically traverse a graph.

**Idea.** Mimic maze exploration.  function-call stack acts as ball of string

**DFS** (to visit a vertex  $v$ )

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Mark  $v$  as visited.

Recursively visit all unmarked  
vertices  $w$  adjacent to  $v$ .

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**Typical applications.**

- Find all vertices connected to a given source vertex.
- Find a path between two vertices.

**Design challenge.** How to implement?