

# Depth-first search: Java implementation

---

```
public class DepthFirstPaths
{
```

```
    private boolean[] marked;
    private int[] edgeTo;
    private int s;
```

marked[v] = true  
if v connected to s

edgeTo[v] = previous  
vertex on path from s to v

```
    public DepthFirstPaths(Graph G, int s)
    {
        ...
        dfs(G, s);
    }
```

initialize data structures

find vertices connected to s

```
    private void dfs(Graph G, int v)
    {
        marked[v] = true;
        for (int w : G.adj(v))
            if (!marked[w])
            {
                dfs(G, w);
                edgeTo[w] = v;
            }
    }
}
```

recursive DFS does the work