COMP11012: Coursework 1, Labyrinths

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Introduction

This is the group coursework for the first block. Submit 1 PDF document per group.

This first piece of coursework is *formative*. The results will not be included in your final assessment for the unit. The assessment gives you an opportunity to receive some feedback and understand what might be expected for later assessments.

Task 1

Describe a procedure that will solve the labyrinth shown in Figure 1.

The maze is solved by travelling through the maze starting at the entrance at the top, exiting at the bottom: you cannot pass through walls.

You can describe your algorithm in English, in a flowchart, in pseudocode, etc. We do not mind which form you choose but your description should be precise, understandable, and executable by your fellow students, even if they don't know any programming language and take your instructions quite literally; please do not hand in program code.

Task 2

Extend your algorithm so that it is able to solve more advanced mazes. Examples of advanced features could include:

- 3-D mazes: we can go up and down ladders to different levels;
- Mazes with holes in them that you fall through and ”lose”.
- Monsters that need to be avoided.
- Mazes with a non-orthogonal structure, e.g. hexagonal or circular mazes.

The choice is yours, but clearly state what the advanced features are and describe your algorithm using the methods above.

For marking, we will consider how precise and understandable your algorithms are, and the extent to which they solve the problems given.

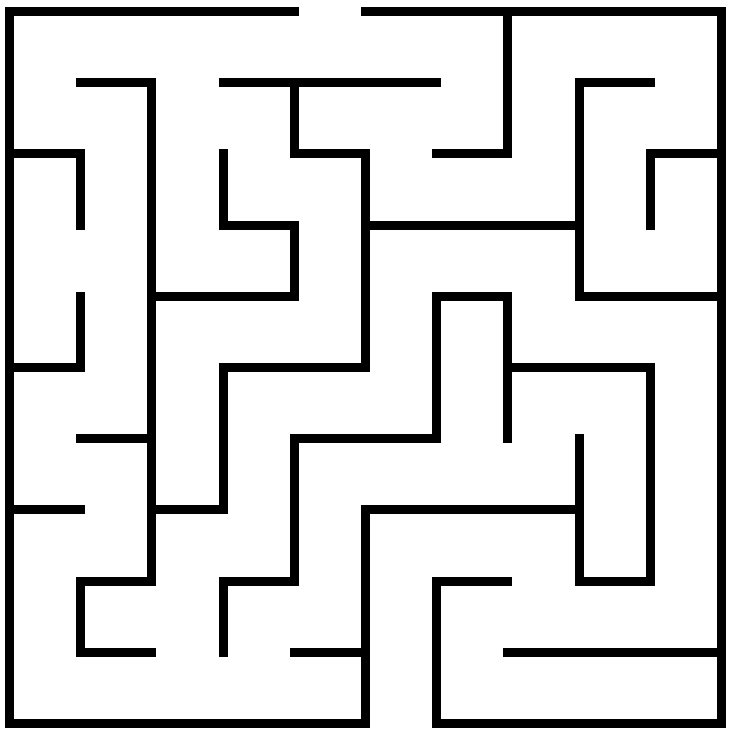

Figure 1: Maze 3 (Copyright 2021 JGB Service, `http://www.mazegenerator.net`)