

# The O-Maze-ing Caml

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The *O-Maze-ing Caml* is an OCaml-based application that randomly generates mazes and computes the solutions to them. The program also has graphical capabilities for rendering generated mazes onto the user's screen. In designing this project, we intentionally employed recursive algorithms to take advantage of OCaml's functional paradigm. The code can be found at <https://github.com/al5250/the-o-maze-ing-caml>.

## 1 High-Level Overview

We begin with a high-level description of our project before delving into the specific details within the code files. Section 2 address the Maze Generation portion of our program, while Section 3 focuses on Maze Solving.

### 1.1 Code Structure

The code is divided into three files:

- `main.ml` - executes the program
- `cell.ml`
- `maze.ml`

### 1.2 Running the Program

## 2 Maze Generation

### 2.1 Recursive-Division Algorithm

### 2.2 Functions Explained

### 2.3 Rendering Graphics

## 3 Maze Solving

### 3.1 Recursive-Backtracking Algorithm

### 3.2 Functions Explained

### 3.3 Rendering Graphics