Artificial Intelligence Lab-3



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# Problem 1

Three missionaries and three cannibals need to cross a river using a boat that can hold at most two people. The goal is to get everyone across the river without ever leaving more cannibals than missionaries on either side of the river.

## Code

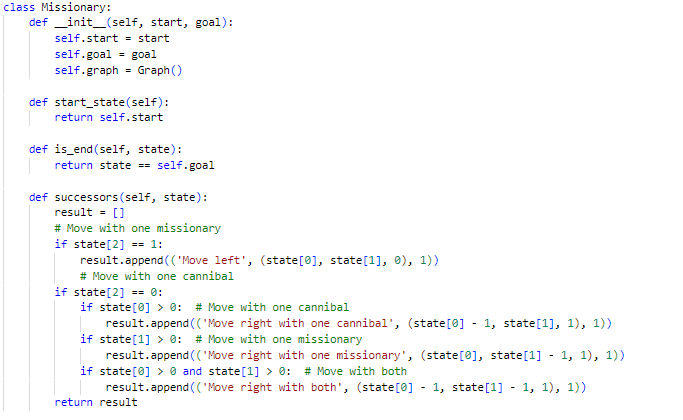


Figure Missionary

## Solution

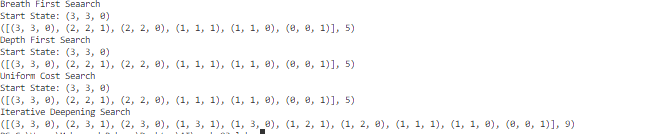


Figure Missionary Solution

# Problem 2

The 8-Puzzle is a sliding puzzle consisting of a 3x3 grid with 8 numbered tiles and one empty space. The goal is to arrange the tiles in numerical order by sliding them into the empty space.

## Code

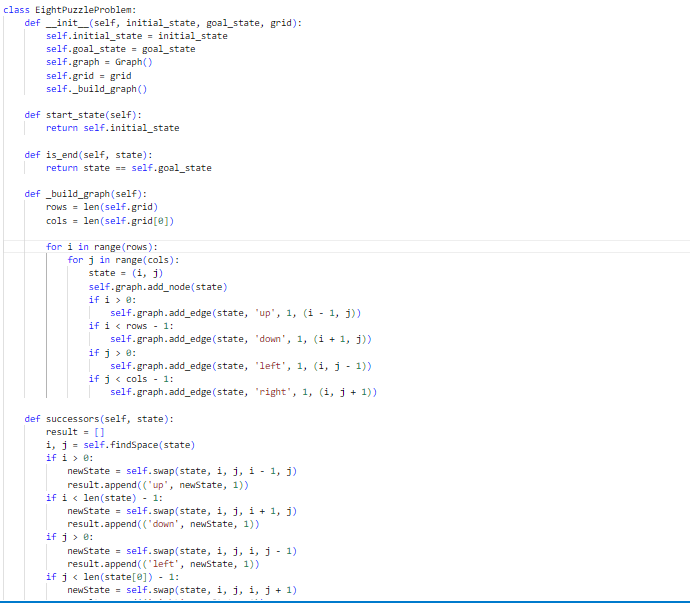


Figure 8 puzzle

## Solution

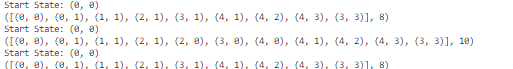


Figure 8 puzzleSolution

# Problem 3

Given a maze represented as a grid, where each cell is either open or blocked, find a path from the start cell to the goal cell.

## Code

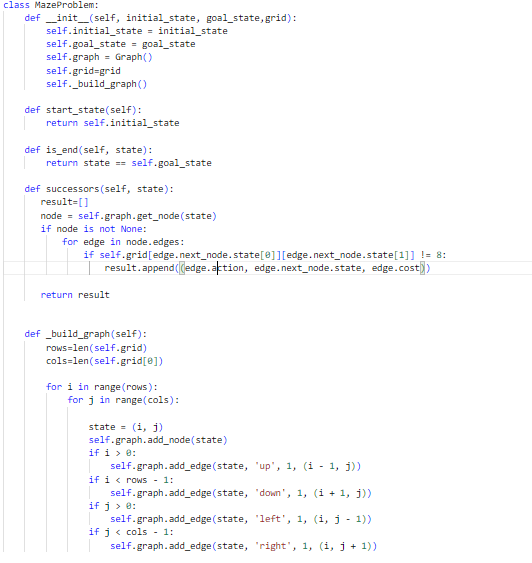


Figure Maze

## Solution

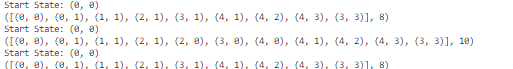


Figure Maze Solution

## Problem 4

You have two jugs with capacities of 4 gallons and 3 gallons, respectively. You need to measure exactly 2 gallons of water using these two jugs.

## Code

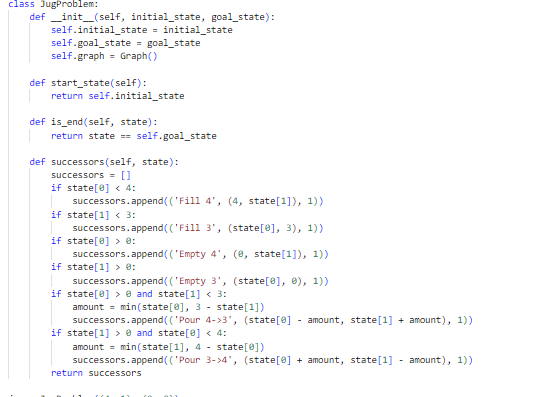


Figure Jug

## Solution

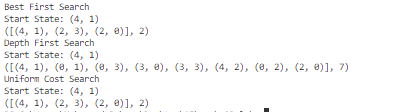


Figure Jug Solution

# Problem 5

A robot is placed in a grid where some cells are obstacles, and it needs to navigate from a start position to a goal position. The robot can move up, down, left, or right but cannot move diagonally or through obstacles.

## Code

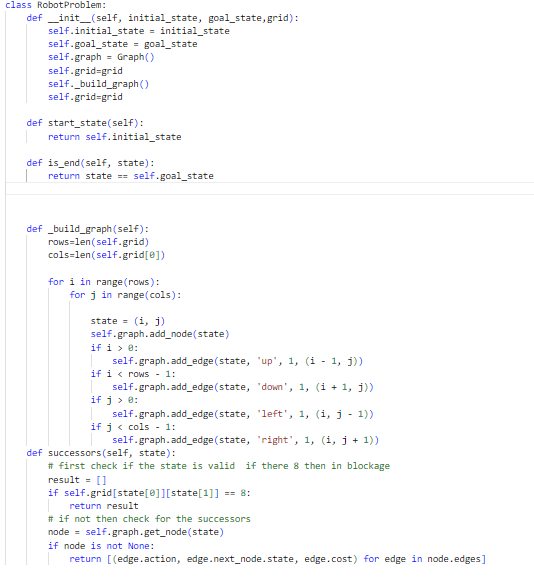


Figure Robot

## Solution

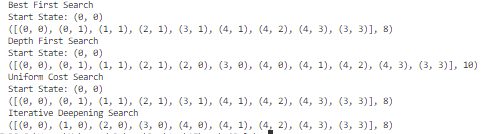


Figure Robot Solution