



# CITY UNIVERSITY

COMPUTER SCIENCE AND ENGINEERING  
ARTIFICIAL INTELLIGENT LABORATORY  
CSE 418

---

## LAB ASSIGNMENT 2

---

*STUDENT ID :*  
153402342

February 12, 2019

**Contents**

<b>1</b>	<b>MISSIONARIES AND CANNIBALS PROBLEM</b>	<b>2</b>
1.1	STATE SPACE DIAGRAM . . . . .	3
<b>2</b>	<b>LION,LAMB AND GRASS PROBLEM</b>	<b>4</b>
2.1	STATE SPACE DIAGRAM . . . . .	5

## 1 MISSIONARIES AND CANNIBALS PROBLEM

**INITIAL STATE:** IT IS THE STATE WHEN CANNIBALS AND MISSIONARIES ARE ON THE LEFT BANK OF THE RIVER WITH BOAT. I STATED THIS STATE WITH (MMM/CCC>R)

**FINAL STATE:** FINAL STATE IS THEY ALL CROSS THE RIVER AND GO TO THE OTHER SIDE. WHICH I STATED AS (0>MMM/CCC)

1.1 STATE SPACE DIAGRAM

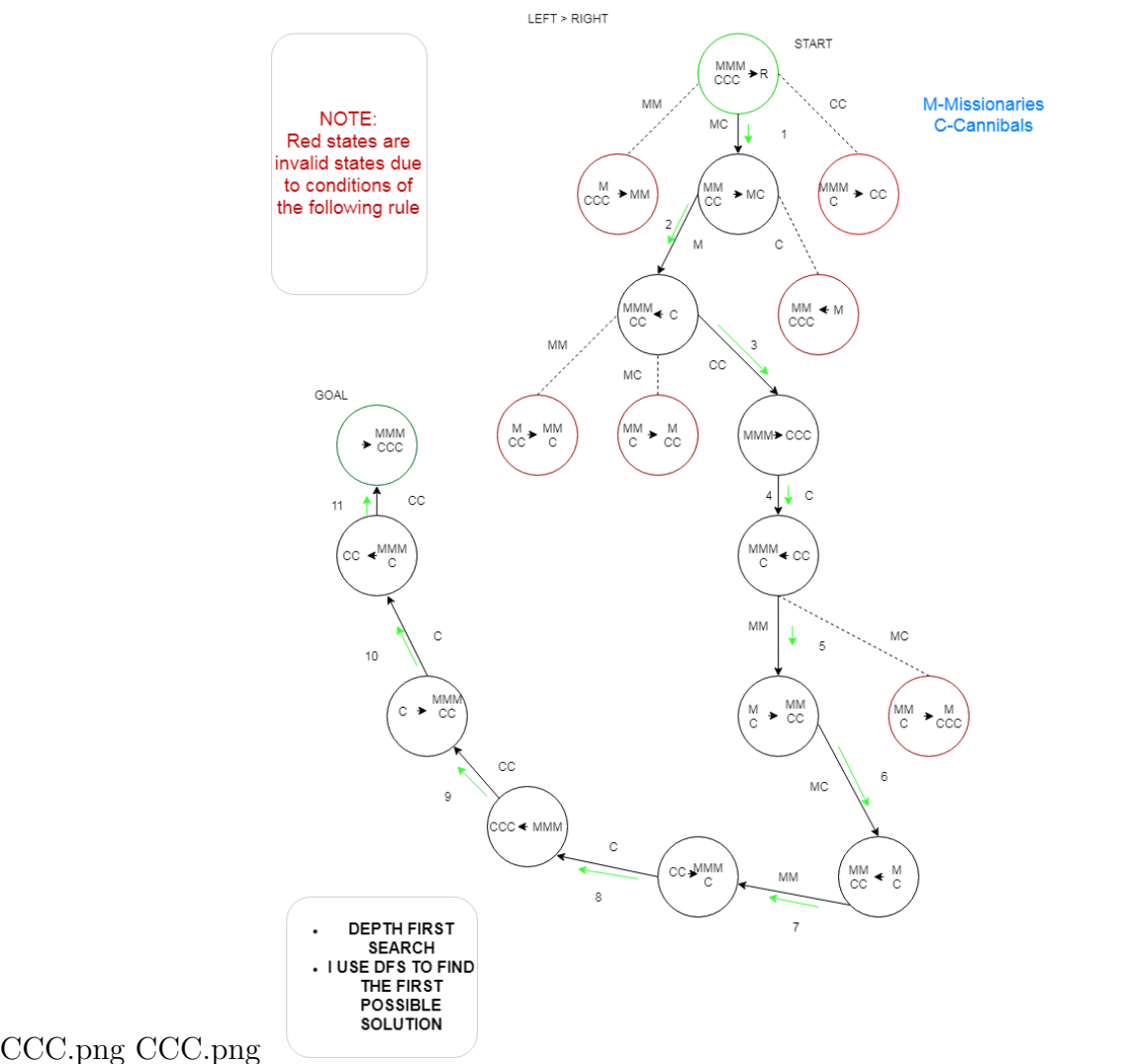


Figure 1: STATE SPACE DIAGRAM

TO SLOVE THIS PROBLEM, I USED DFS BECAUSE IT WILL TAKE LESS STEPS THAN BFS.

## 2 LION,LAMB AND GRASS PROBLEM

**INITIAL STATE:** IT IS THE STATE WHEN LION,LAMBS AND GRASS ARE ON THE LEFT BANK OF THE RIVER WITH BOAT.(P<sub>LLG</sub>>R

**FINAL STATE:** FINAL STATE IS THEY ALL CROSS THE RIVER AND GO TO THE OTHER SIDE.WHICH I STATED AS (0>P<sub>LLG</sub>)

2.1 STATE SPACE DIAGRAM

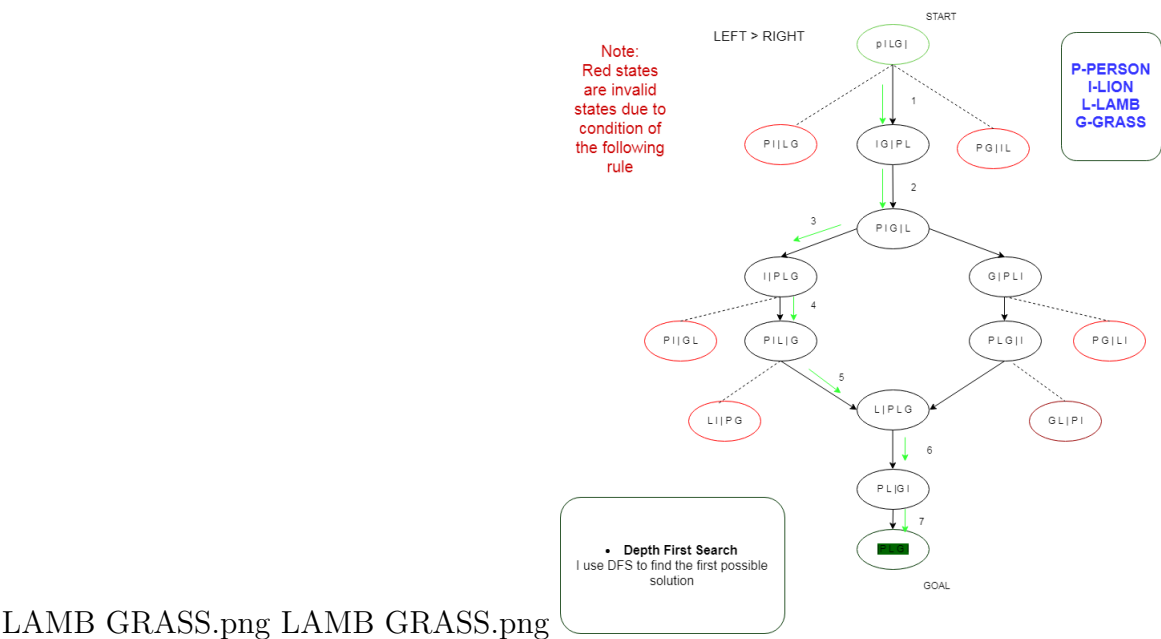


Figure 2: STATE SPACE DIAGRAM

LAB ASSIGNMENT 2

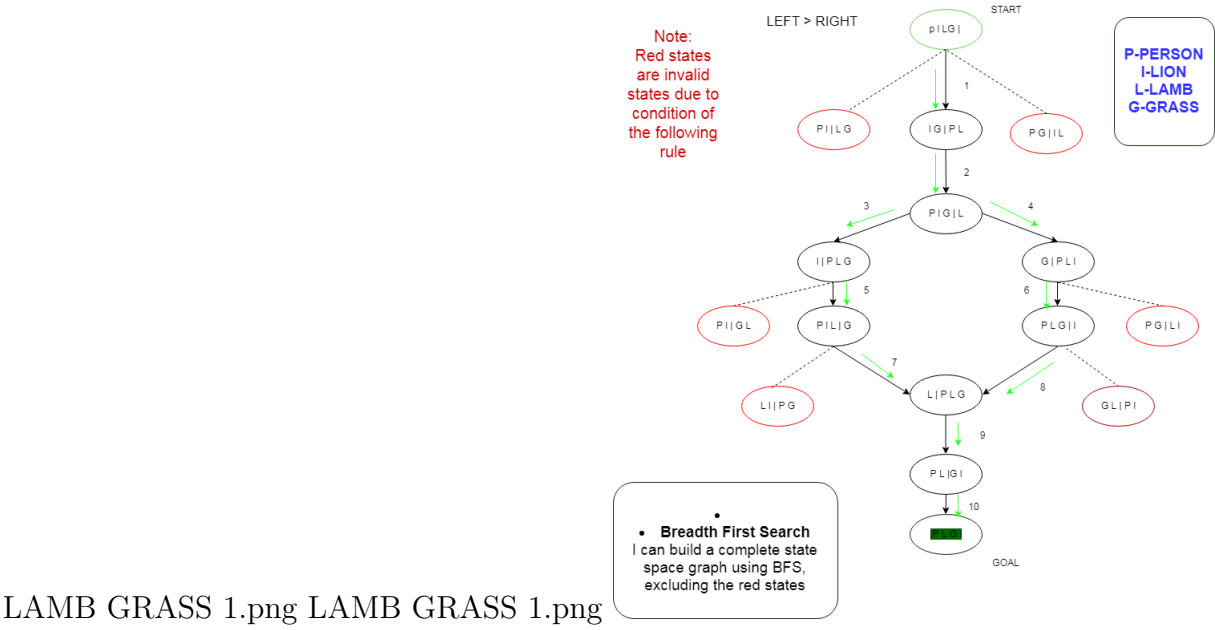


Figure 3: STATE SPACE DIAGRAM

TO SLOVE THIS PROBLEM, I USED DFS BECAUSE IT IS OPTIMAL SOLUTION.