

Parallel Function Programming Fall 2022

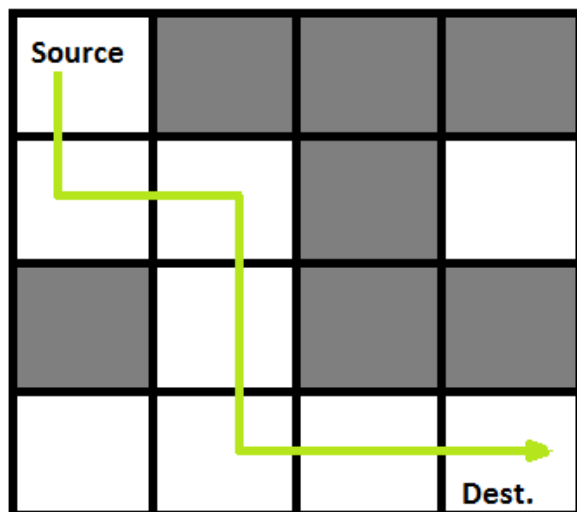
Final Project Proposal

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Topic: Maze Solver

Inspiration was drawn from two projects completed last year

General Idea: The general idea for my project will be to create a parallel implementation of a maze solver in haskell. A maze solver is an algorithm that when presented with a maze, a start point, and a goal, will find a route through the maze from the start point to the goal. The starting point of the maze will always be the top left corner and the goal will always be in the bottom right hand corner. The aim is to reach the goal by only moving up, down, left, or right. There will be walls that must be navigated around.



Maze Implementation: The maze will be represented as a two dimensional array composed of rows of 0's and 1's. 1's represent passable terrain and 0's represent walls that cannot be crossed. Additionally, 2 will represent the start and 3 will represent the goal.

The Maze depicted above would be represented as follows:

```
[[2,0,0,0],  
 [1,1,0,1],  
 [0,1,0,0],  
 [1,1,1,3]]
```

Algorithm: The program will use an parallel A* search (Or possibly another algorithm if it is preferable) to determine the optimal solution to the maze. The goal is to utilize parallel programming to reach a quick and efficient solution to the maze.