**CS50 – AL with python**

Chap0 – Search

Examples:

* 15-puzzle problem
* maze – inital to final stage
* driving directions on a map

Terminology:

agent

state

inital state\*

actions(set of states)\*

transition model\*

result(current state, action)

state space

goal test\*

path cost function\*

Data Structure:

**Node**

- current state

- parent node

- action

- path cost

Approach:

1. start frontier(queue/stack) with inital state

2. Repeat

* if frontier empty, then no solution
* remove node from frontier
* if node == goal, solution found
* else expand node, and add resulting nodes to frontier

eg: find path from A -> E

Revised Approach:

1. start frontier(queue/stack) with inital state

2. start explored(set)

3. Repeat

* if frontier empty, then no solution
* remove node from frontier
* if node == goal, solution found
* else expand node, and add resulting nodes to frontier if not in explored and frontier

Algorithms:

1. Deapth First Search – stack

2. Breadth First Search – queue

(explain using maze problem)