DFS

```
def depthFirstSearch(problem):
    start = problem.getStartState()
    c = problem.getStartState()
    exploredState = []
    exploredState.append(start)
    states = util.Stack()
    stateTuple = (start, [])
    states.push(stateTuple)
    while not states.isEmpty() and not problem.isGoalState(c):
        state, actions = states.pop()
        exploredState.append(state)
        successor = problem.getSuccessors(state)
        for i in successor:
            coordinates = i[0]
            if not coordinates in exploredState:
                c = i[0]
                direction = i[1]
                states.push((coordinates, actions + [direction]))
    return actions + [direction]
    util.raiseNotDefined()
```

BFS

```
def breadthFirstSearch(problem):
    start = problem.getStartState()
    exploredState = []
    exploredState.append(start)
    states = util.Queue()
    stateTuple = (start, [])
    states.push(stateTuple)
    while not states.isEmpty():
        state, action = states.pop()
        if problem.isGoalState(state):
            return action
        successor = problem.getSuccessors(state)
        for i in successor:
            coordinates = i[0]
            if not coordinates in exploredState:
                direction = i[1]
                exploredState.append(coordinates)
                states.push((coordinates, action + [direction]))
    return action
```

	DFS			BFS		
	#node explored	Solution length	is it optimal?	#node explored	Solution length	is it optimal?
tinyMaze	15	10	yes	15	8	yes
mediumMaze	146	130	yes	269	68	yes
bigMaze	390	210	yes	620	210	yes

001 นายธีรภัทร ศรีคิรินทร์
013 รัชนาถ ต่อมณี
019 ชนิสรา ใจเย็น
019 ชนิสรา ใจเย็น