Project output

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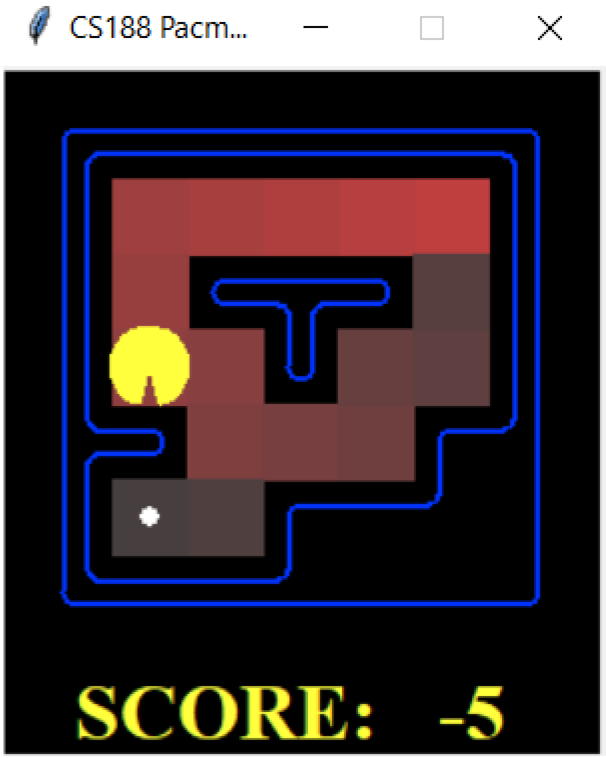
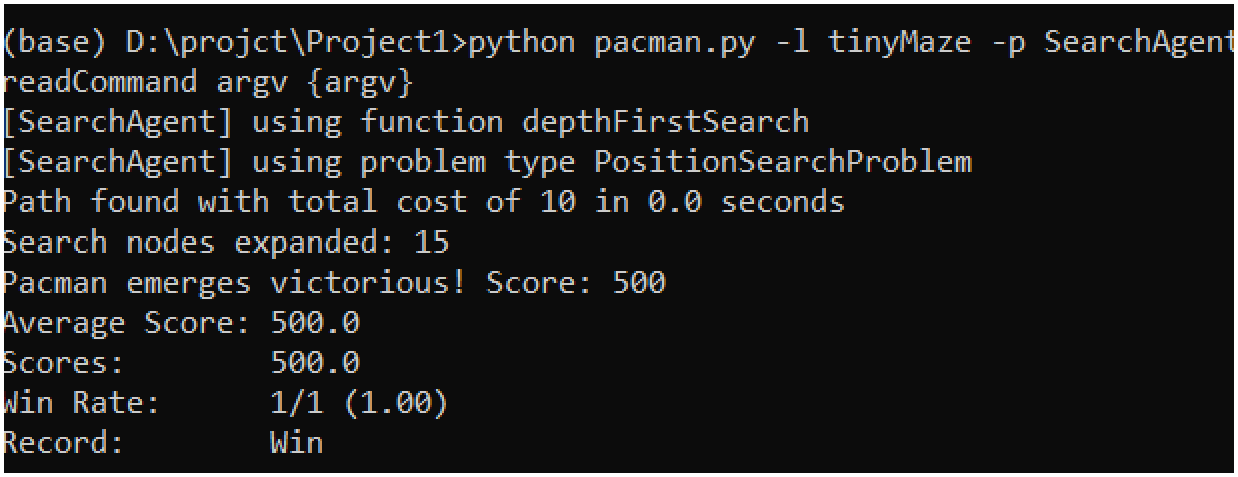
Question 1 : Finding a Fixed Food Dot using Depth First Search

```
python pacman.py -l tinyMaze -p SearchAgent
```

Output:

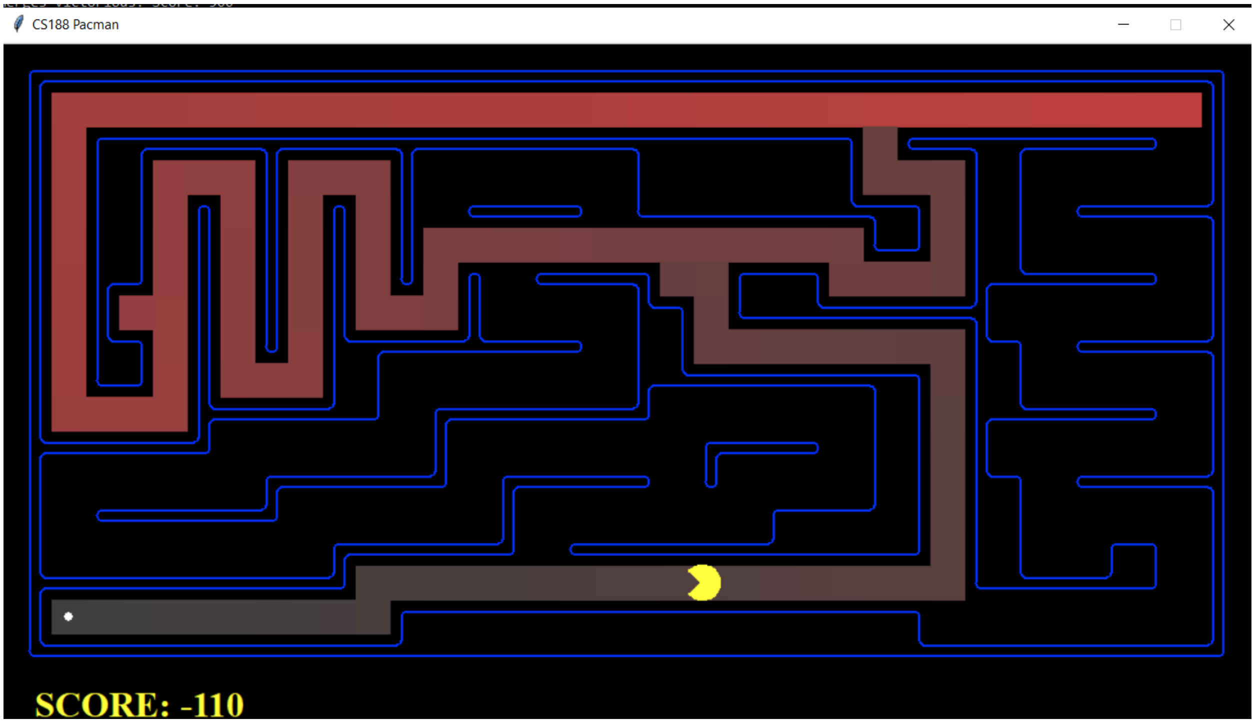


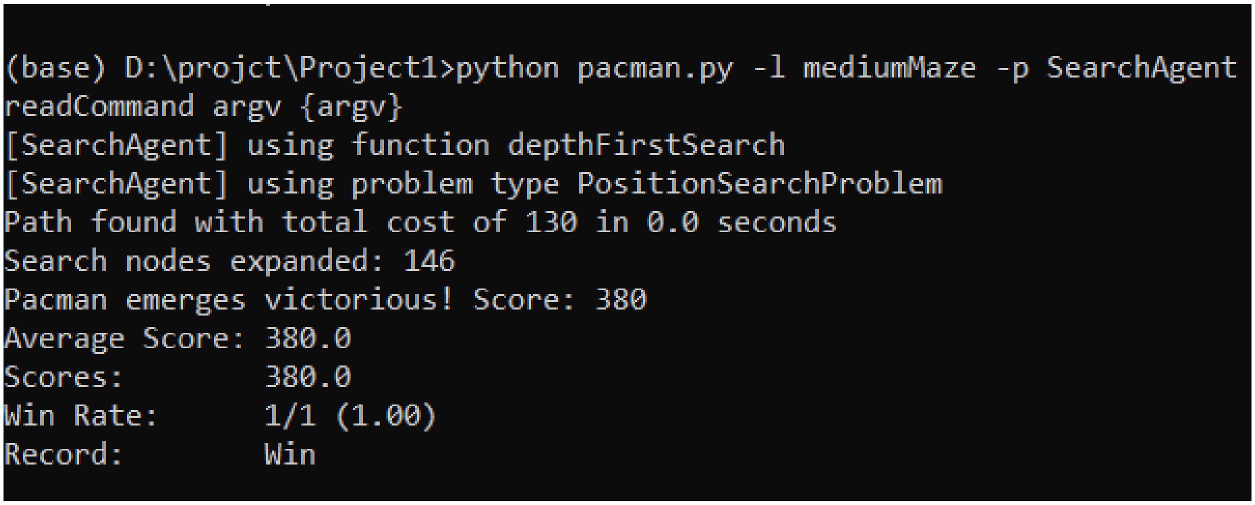


```
(base) D:\projct\Project1>python pacman.py -l tinyMaze -p SearchAgent
readCommand argv {argv}
[SearchAgent] using function depthFirstSearch
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 10 in 0.0 seconds
Search nodes expanded: 15
Pacman emerges victorious! Score: 500
Average Score: 500.0
Scores:        500.0
Win Rate:      1/1 (1.00)
Record:        Win
```

```
python pacman.py -l mediumMaze -p SearchAgent
```

Output:

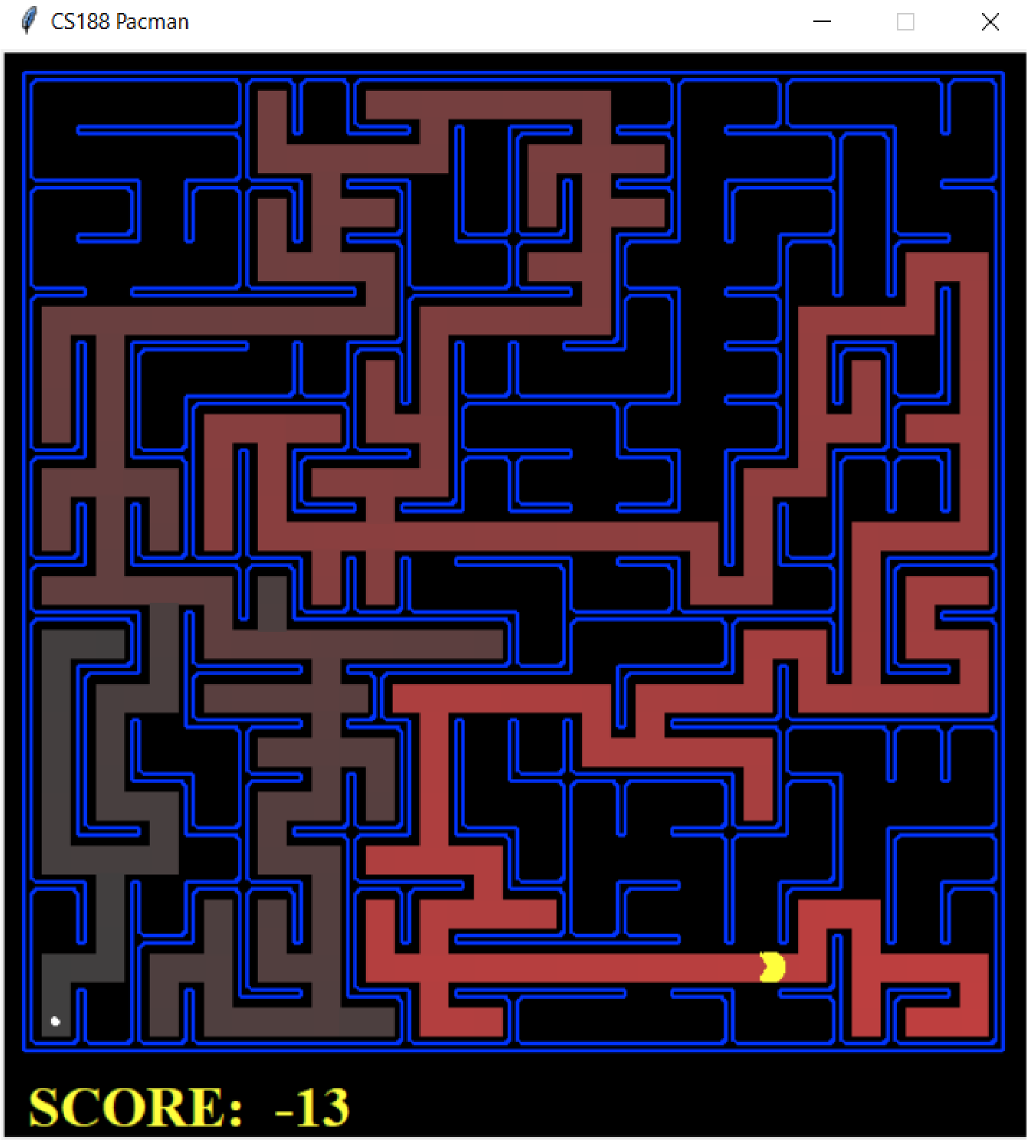


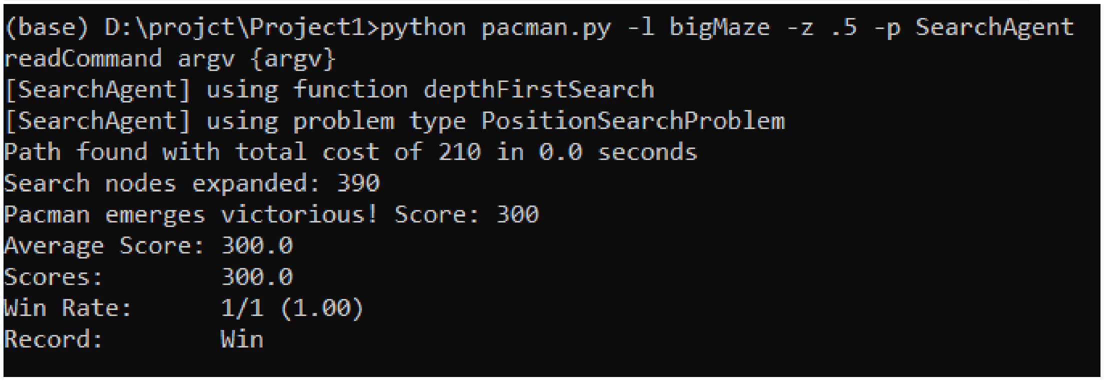


```
(base) D:\projct\Project1>python pacman.py -l mediumMaze -p SearchAgent
readCommand argv {argv}
[SearchAgent] using function depthFirstSearch
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 130 in 0.0 seconds
Search nodes expanded: 146
Pacman emerges victorious! Score: 380
Average Score: 380.0
Scores:        380.0
Win Rate:      1/1 (1.00)
Record:        Win
```

```
python pacman.py -l bigMaze -z .5 -p SearchAgent
```

Output:



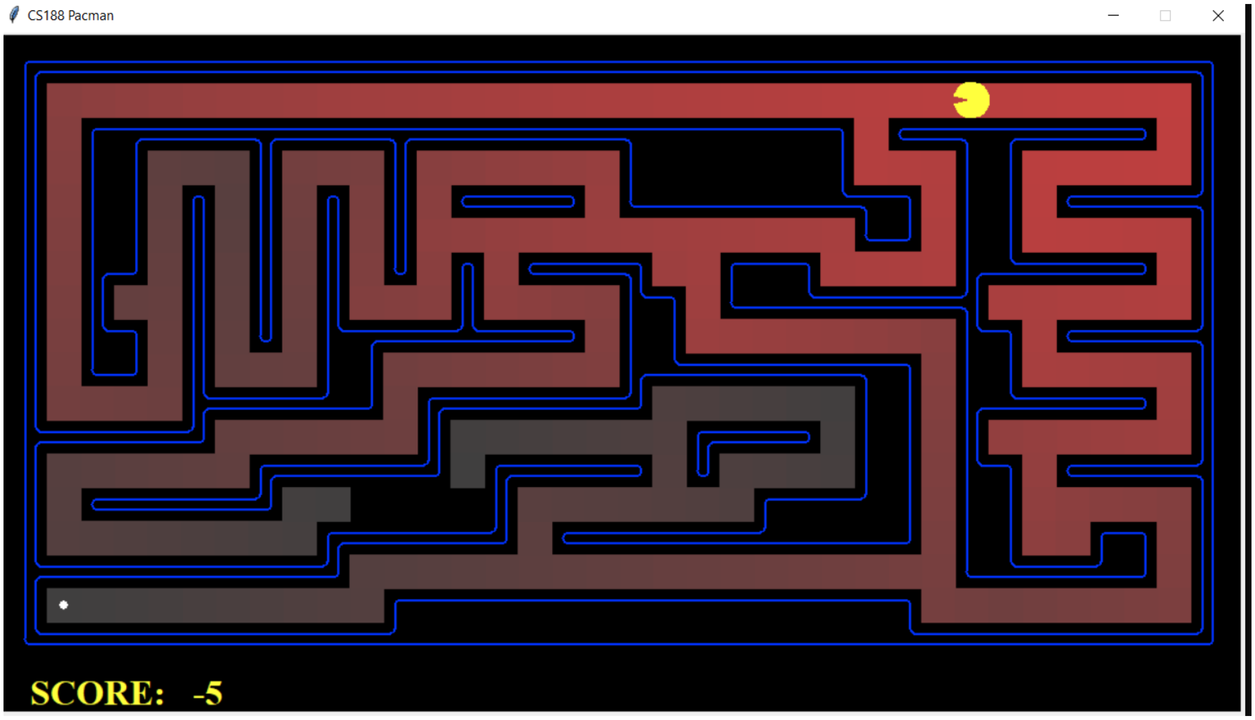


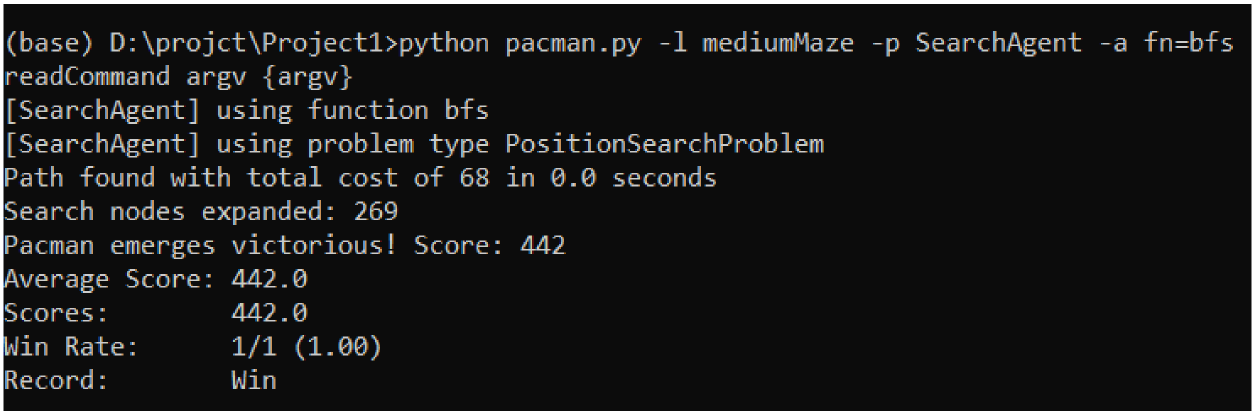
```
(base) D:\projct\Project1>python pacman.py -l bigMaze -z .5 -p SearchAgent
readCommand argv {argv}
[SearchAgent] using function depthFirstSearch
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 210 in 0.0 seconds
Search nodes expanded: 390
Pacman emerges victorious! Score: 300
Average Score: 300.0
Scores:        300.0
Win Rate:      1/1 (1.00)
Record:        Win
```

Question 2 : Breadth First Search

```
python pacman.py -l mediumMaze -p SearchAgent -a fn=bfs
```

Output:

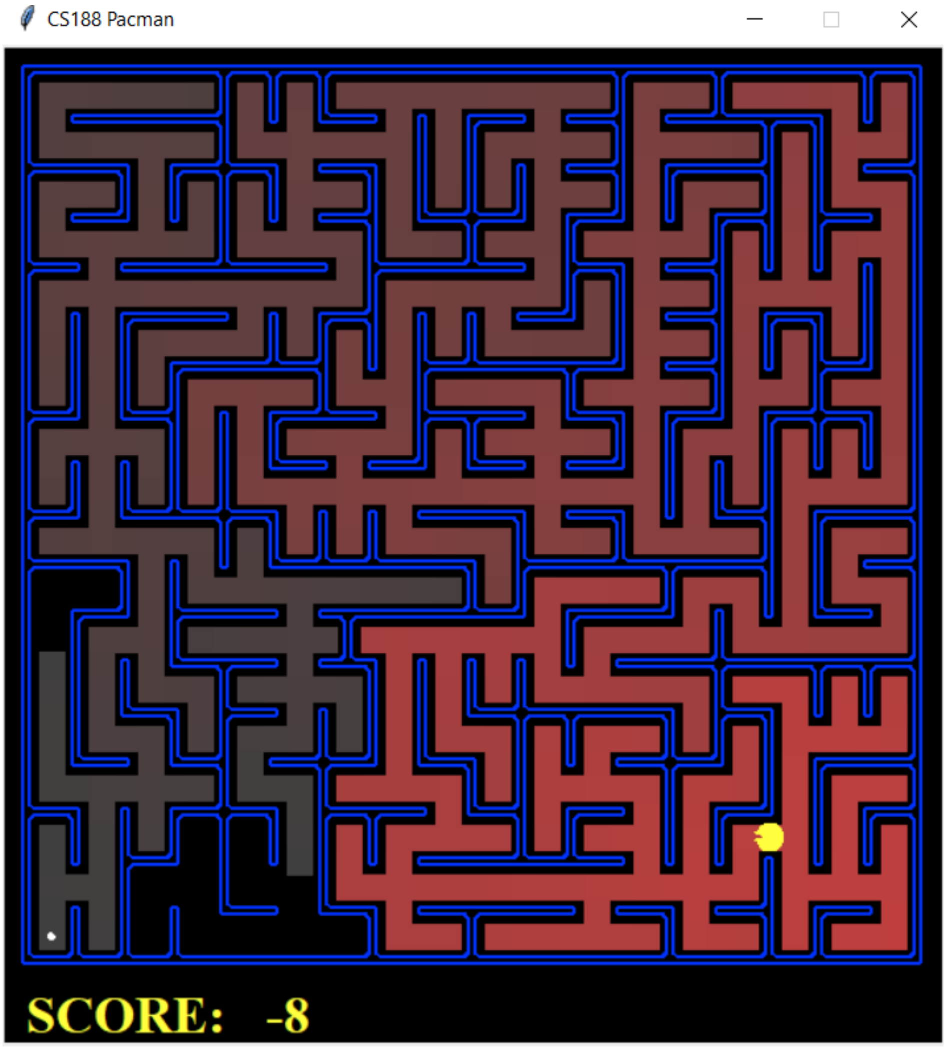


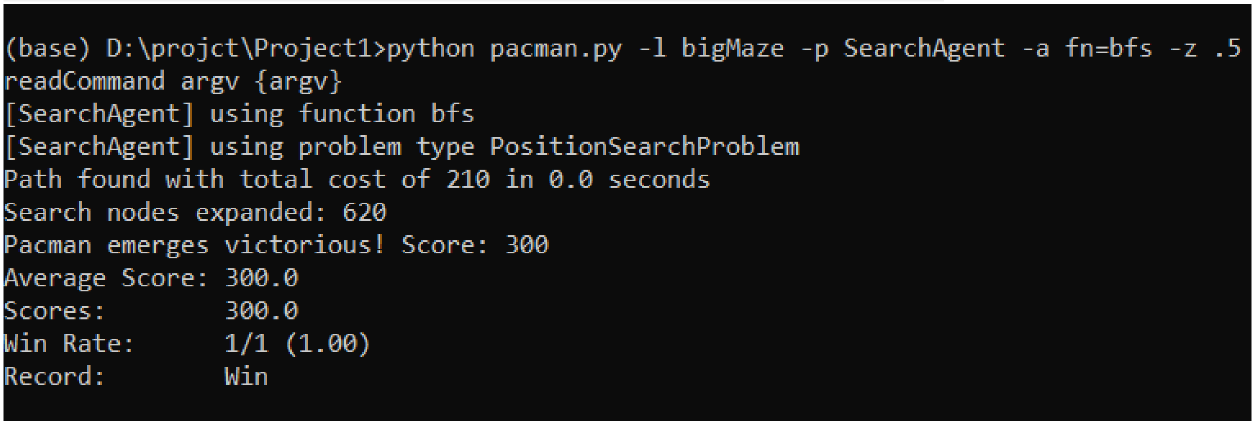


```
(base) D:\projct\Project1>python pacman.py -l mediumMaze -p SearchAgent -a fn=bfs
readCommand argv {argv}
[SearchAgent] using function bfs
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 68 in 0.0 seconds
Search nodes expanded: 269
Pacman emerges victorious! Score: 442
Average Score: 442.0
Scores:        442.0
Win Rate:      1/1 (1.00)
Record:        Win
```

```
python pacman.py -l bigMaze -p SearchAgent -a fn=bfs -z .5
```

Output:



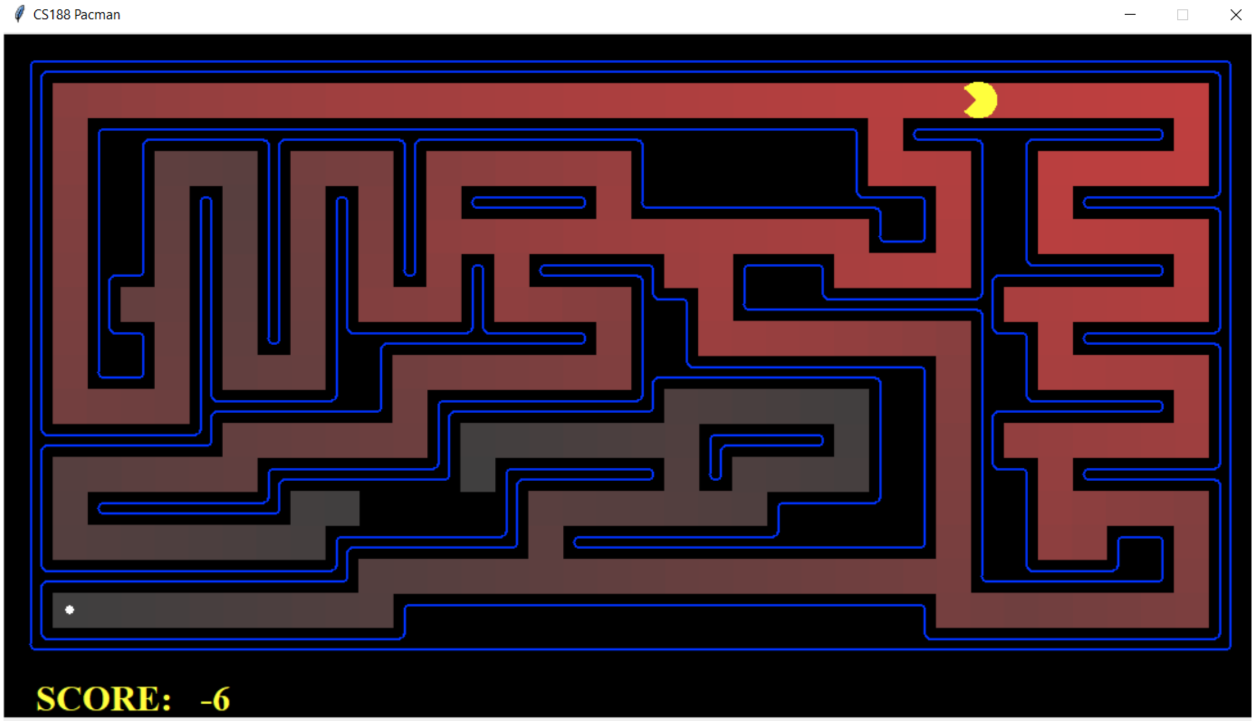


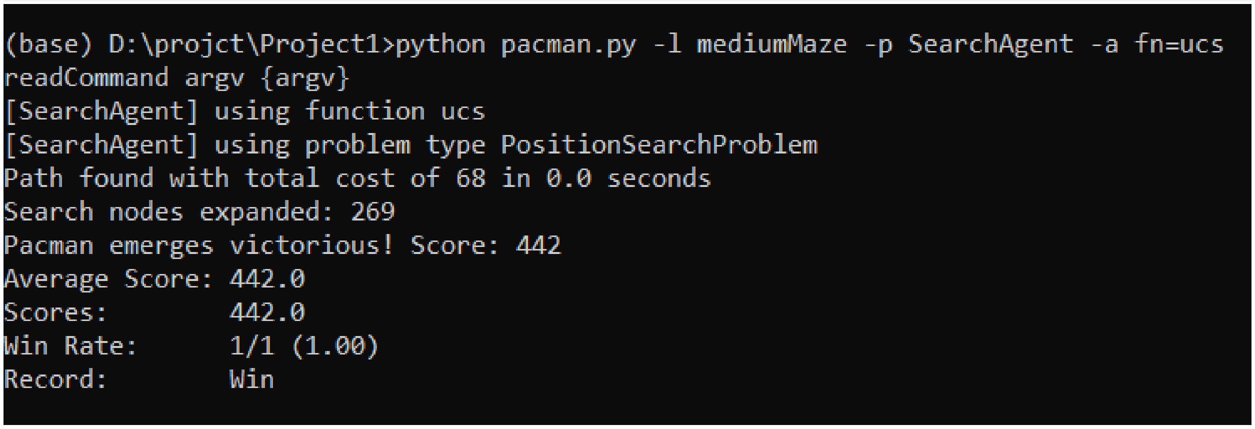
```
(base) D:\projct\Project1>python pacman.py -l bigMaze -p SearchAgent -a fn=bfs -z .5
readCommand argv {argv}
[SearchAgent] using function bfs
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 210 in 0.0 seconds
Search nodes expanded: 620
Pacman emerges victorious! Score: 300
Average Score: 300.0
Scores:        300.0
Win Rate:      1/1 (1.00)
Record:        Win
```

Question 3 : Varying the Cost Function

```
python pacman.py -l mediumMaze -p SearchAgent -a fn=ucs
```

Output:

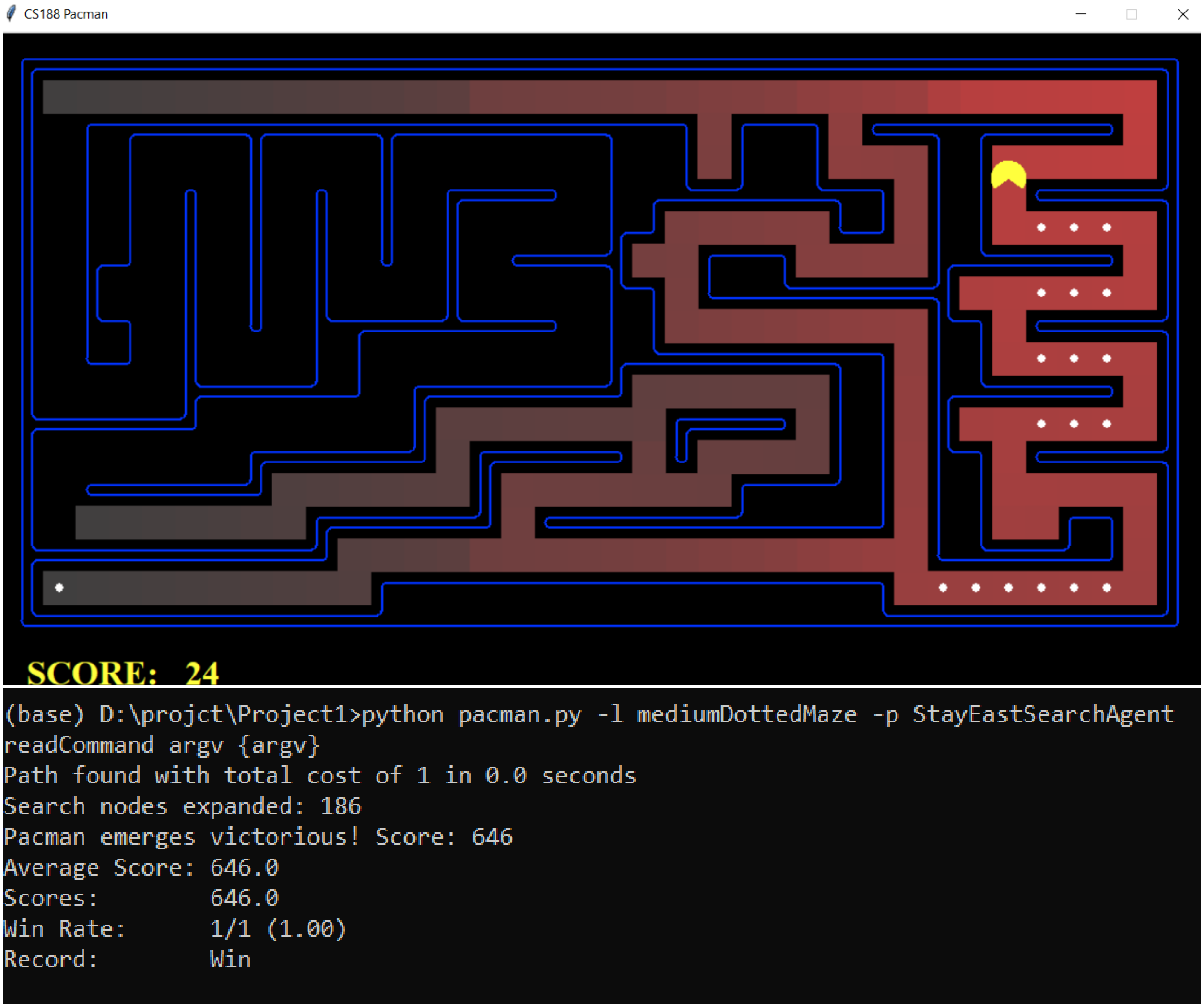




```
(base) D:\projct\Project1>python pacman.py -l mediumMaze -p SearchAgent -a fn=ucs
readCommand argv {argv}
[SearchAgent] using function ucs
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 68 in 0.0 seconds
Search nodes expanded: 269
Pacman emerges victorious! Score: 442
Average Score: 442.0
Scores:        442.0
Win Rate:      1/1 (1.00)
Record:        Win
```

```
python pacman.py -l mediumDottedMaze -p StayEastSearchAgent
```

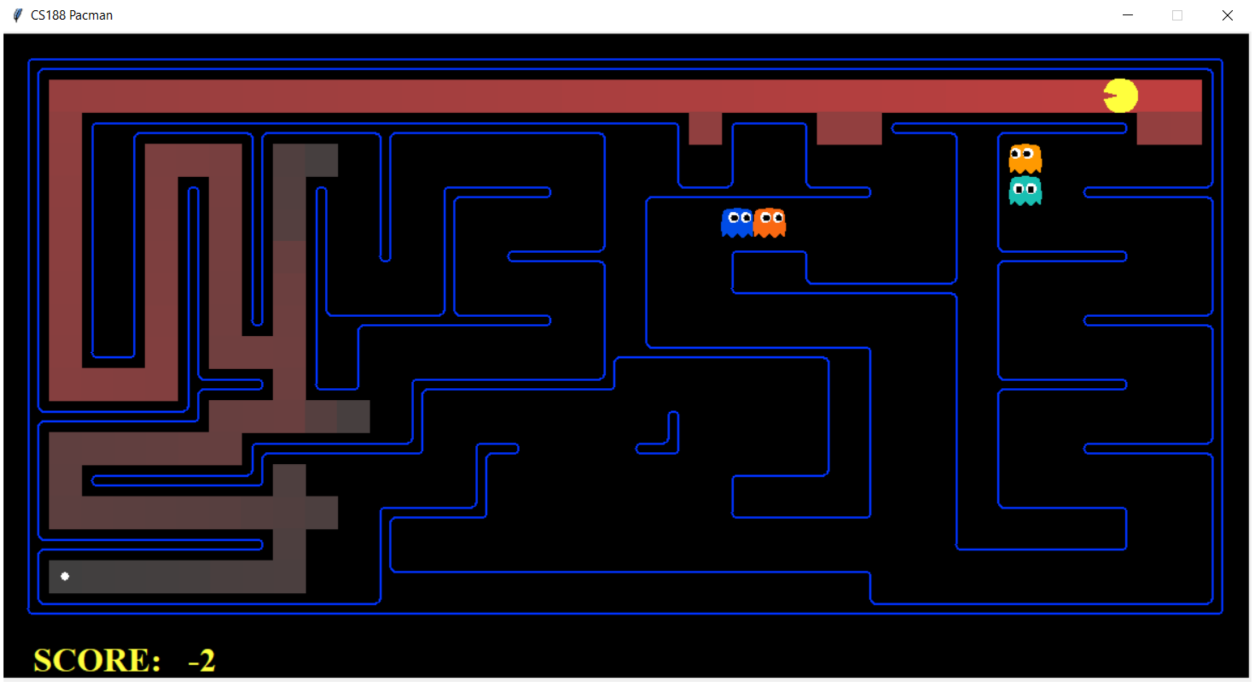
Output:

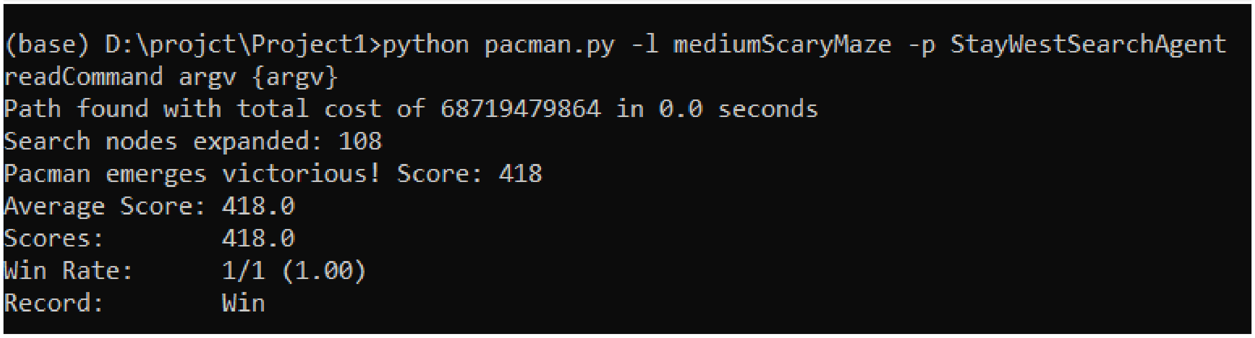


```
(base) D:\projct\Project1>python pacman.py -l mediumDottedMaze -p StayEastSearchAgent
readCommand argv {argv}
Path found with total cost of 1 in 0.0 seconds
Search nodes expanded: 186
Pacman emerges victorious! Score: 646
Average Score: 646.0
Scores:        646.0
Win Rate:      1/1 (1.00)
Record:        Win
```

```
python pacman.py -l mediumScaryMaze -p StayWestSearchAgent
```

Output:



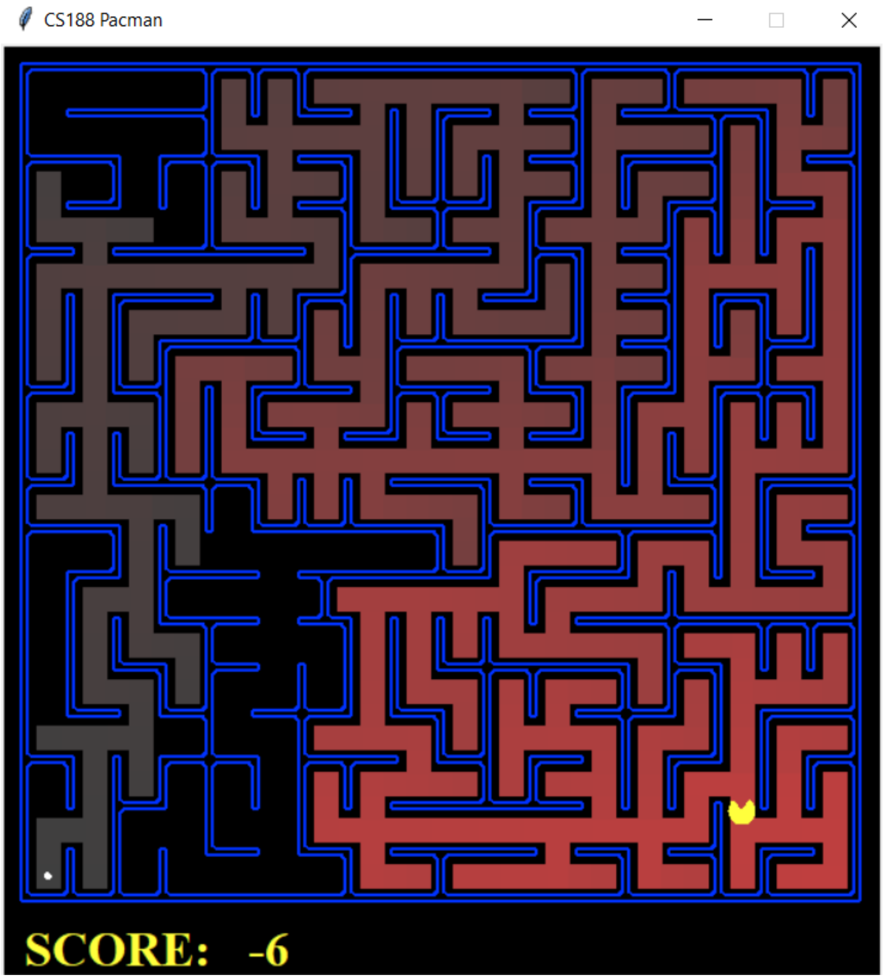


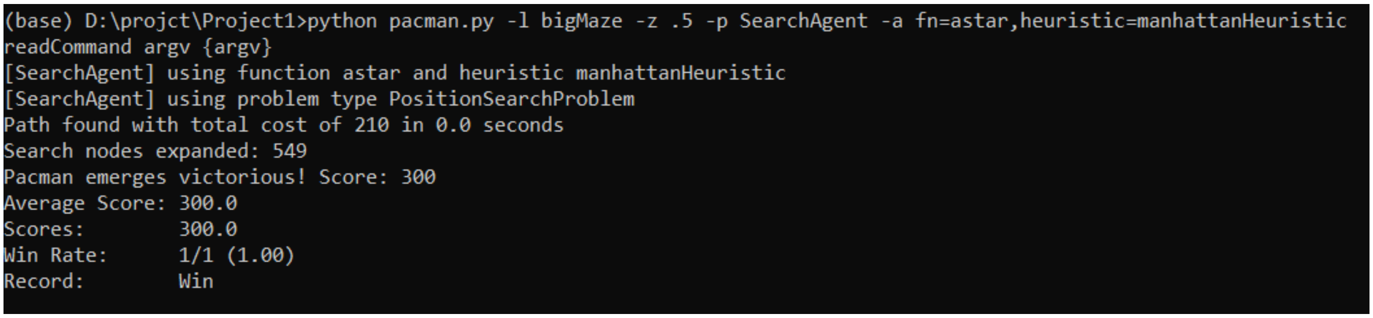
```
(base) D:\projct\Project1>python pacman.py -l mediumScaryMaze -p StayWestSearchAgent
readCommand argv {argv}
Path found with total cost of 68719479864 in 0.0 seconds
Search nodes expanded: 108
Pacman emerges victorious! Score: 418
Average Score: 418.0
Scores:        418.0
Win Rate:      1/1 (1.00)
Record:        Win
```

Question 4 : A* search

```
python pacman.py -l bigMaze -z .5 -p SearchAgent -a fn=astar,heuristic=manhattanHeuristic
```

Output:





```
(base) D:\projct\Project1>python pacman.py -l bigMaze -z .5 -p SearchAgent -a fn=astar,heuristic=manhattanHeuristic
readCommand argv {argv}
[SearchAgent] using function astar and heuristic manhattanHeuristic
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 210 in 0.0 seconds
Search nodes expanded: 549
Pacman emerges victorious! Score: 300
Average Score: 300.0
Scores:        300.0
Win Rate:      1/1 (1.00)
Record:        Win
```

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