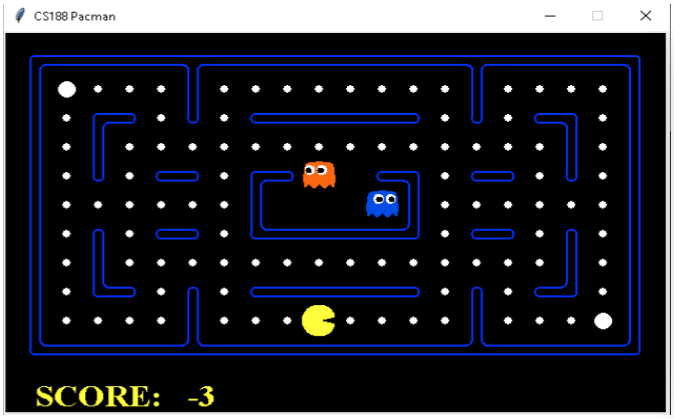
Project output

```
python pacman.py
```

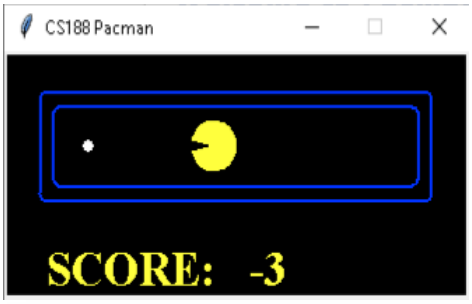
OUTPUT:




```
(base) D:\project>python pacman.py
readCommand argv {argv}
Pacman died! Score: -571
Average Score: -571.0
Scores:        -571.0
Win Rate:      0/1 (0.00)
Record:        Loss
```

```
python pacman.py --layout testMaze --pacman GoWestAgent
```

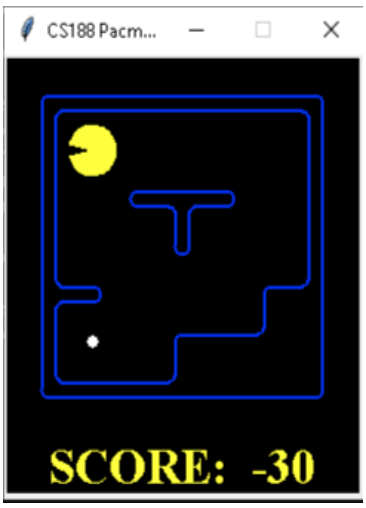
OUTPUT:




```
(base) D:\project>python pacman.py --layout testMaze --pacman GoWestAgent
readCommand argv {argv}
Pacman emerges victorious! Score: 503
Average Score: 503.0
Scores:        503.0
Win Rate:      1/1 (1.00)
Record:        Win
```

```
python pacman.py --layout tinyMaze --pacman GoWestAgent
```

OUTPUT:




```
(base) D:\project>python pacman.py --layout tinyMaze --pacman GoWestAgent
readCommand argv {argv}

(base) D:\project>
```

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

```
python pacman.py -l tinyMaze -p SearchAgent -a fn=tinyMazeSearch
```

OUTPUT:

```
(base) D:\project>python pacman.py -l tinyMaze -p SearchAgent -a fn=tinyMazeSearch
readCommand argv {argv}
[SearchAgent] using function tinyMazeSearch
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 8 in 0.0 seconds
Search nodes expanded: 0
Pacman emerges victorious! Score: 502
Average Score: 502.0
Scores:        502.0
Win Rate:      1/1 (1.00)
Record:        Win
```

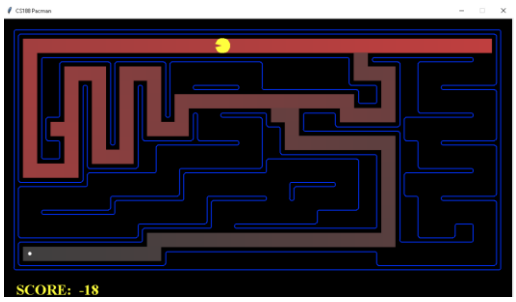
`python pacman.py -l tinyMaze -p SearchAgent`

OUTPUT:


```
(base) D:\project>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
```

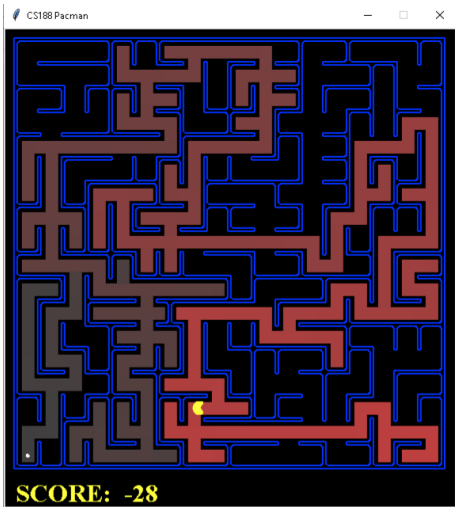
OUTPUT:




```
(base) D:\project>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:

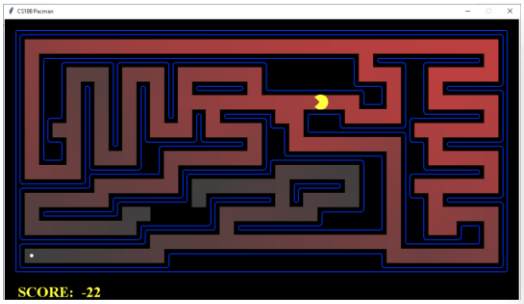



```
(base) D:\project>python pacman.py -l bigMaze -z .5 -p SearchAgent
readCommand argv {argv}
[SearchAgent] using function depthFirstSearch
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 210 in 0.0 seconds
Search nodes expanded: 390
Pacman emerges victorious! Score: 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
```

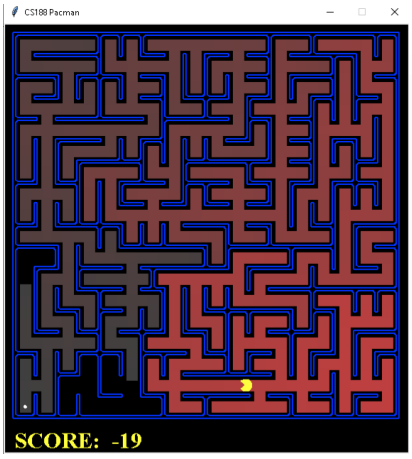
OUTPUT:




```
(base) D:\project>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:

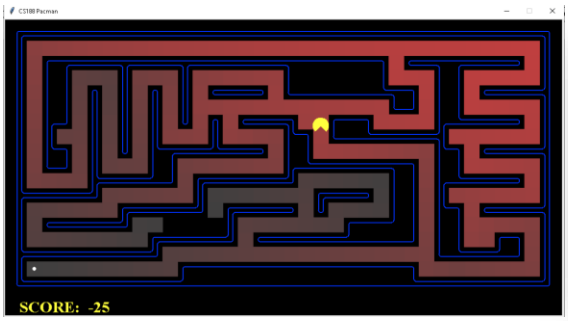



```
(base) D:\project>python pacman.py -l bigMaze -p SearchAgent -a fn=bfs -z .5
readCommand argv {argv}
[SearchAgent] using function bfs
[SearchAgent] using problem type PositionSearchProblem
Path found with total cost of 210 in 0.0 seconds
Search nodes expanded: 620
Pacman emerges victorious! Score: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

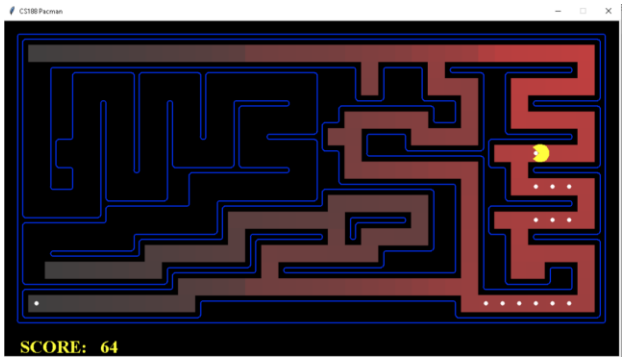
OUTPUT:




```
(base) D:\project>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
```

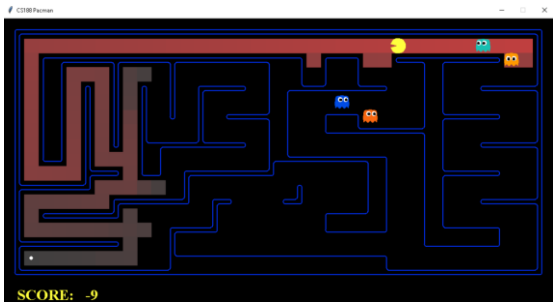
OUTPUT:




```
(base) D:\project>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:

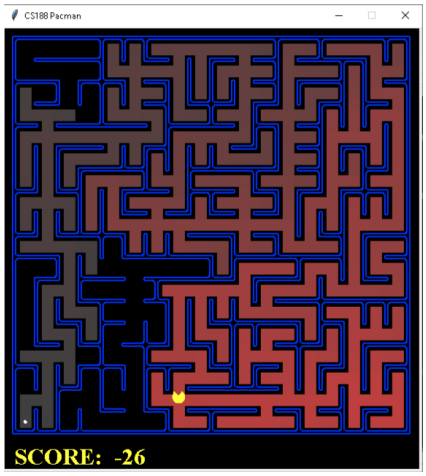


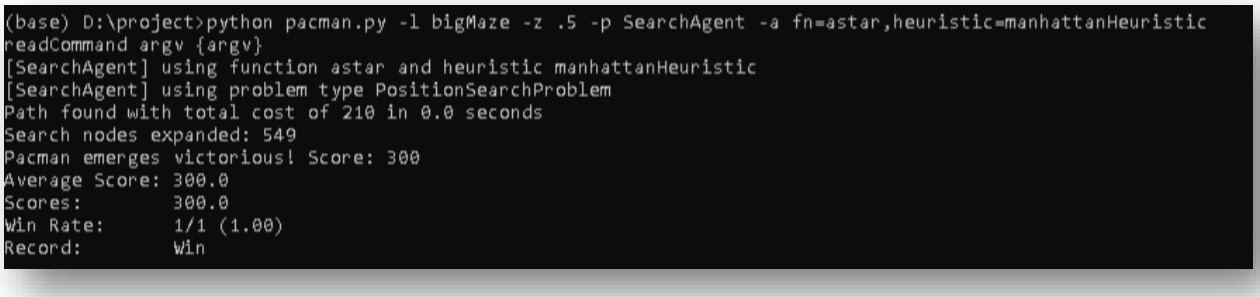

```
(base) D:\project>python pacman.py -l mediumScaryMaze -p StayWestSearchAgent
readCommand argv {argv}
Path found with total cost of 68719479864 in 0.0 seconds
Search nodes expanded: 108
Pacman emerges victorious! Score: 418
Average Score: 418.0
Scores:        418.0
Win Rate:      1/1 (1.00)
Record: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

Question 4: A* search

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

OUTPUT:





فاطمه خدادادی_97143013