

Question 2 – Minimax

Our Minimax agent terminates too early, so it does not generate all the nodes it's supposed to. We have spent many hours on this assignment and have also spoken to a student assistant. We can't find the problem, but we still feel we have gotten a good understanding of the Minimax algorithm.

```
FAIL: test_cases\q2\7-2c-check-depth-two-ghosts.test
Incorrect move for depth=3
  Student move: <multiagentTestClasses.MultiagentTreeState object at 0x000001A811641E20>
  Optimal move: Right
Incorrect generated nodes for depth=3
  Student generated nodes: a b1 b2 b3 c1 c2 c3 d1 d2 d3
  Correct generated nodes: a b1 b2 b3 c1 c2 c3 d1 d2 d3 e1 e2 e3 f1 f2 f3 g1 g2 g3 h1 h2 h3 i1 i2 i3 j1 j2 j3
Tree:
      a
    /-| \--\
   /  |  \
  0 b1 0 b2 b3 8
   |   |   |
  0 c1 0 c2 c3 8
   |   |   |
 10 d1 0 d2 d3 8
   |   |   |
  0 e1 0 e2 e3 8
   |   |   |
  0 f1 0 f2 f3 8
   |   |   |
  0 g1 10 g2 g3 8
   |   |   |
  0 h1 0 h2 h3 8
   |   |   |
  0 i1 0 i2 i3 8
   |   |   |
  j1   j2   j3
  0    0    8
```

```
*** At depth 3, the evaluation function is called at level j,
*** so Right should be returned. If your algorithm is returning
*** a different action, check how you implemented your depth.
*** Running MinimaxAgent on smallClassic 1 time(s).
Pacman died! Score: 84
Average Score: 84.0
Scores:      84.0
Win Rate:    0/1 (0.00)
Record:      Loss
*** Finished running MinimaxAgent on smallClassic after 33 seconds.
*** Won 0 out of 1 games. Average score: 84.000000 ***
*** FAIL: test_cases\q2\8-pacman-game.test
*** Bug: Wrong number of states expanded.
*** Tests failed.
```

Question q2: 0/5

Finished at 11:06:12

Provisional grades

=====

Question q2: 0/5

Total: 0/5

Question 3: Alpha-beta pruning

The same goes for this one; it terminates too early.

```
Note the minimax value of b1 is 3.
FAIL: test_cases\q3\1-6-minimax.test
Incorrect move for depth=4
  Student move:
  Optimal move: Left
Incorrect generated nodes for depth=4
  Student generated nodes: a b1 b2
  Correct generated nodes: A B C D E F G Z a b1 b2 c1 c2 cx d1 d2 d3 d4 dx
Tree:
      /-----a-----\
     /                   \
    /                     \
   b1                     b2
  /  \                   |
 c1   c2                 cx
 /  \  /  \             |
d1  d2 d3  d4           dx
 /  \ /  \ /  \       |
A  B C  D E  F G  H   Z
-3 13 5 9 10 3 -6 8   2.99
```

```
*** Exception: getScore() called on non-terminal state or before maximum depth achieved.
***

### Question q3: 0/5 ###

Finished at 11:10:26

Provisional grades
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Question q3: 0/5
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Total: 0/5
```