

Advanced Application Development

Homework 4

Enhance the games in your Game Suite

1. **Drunken Bug Game in 2-D**

Change the “moving environment” to a grid by altering only the Environment class. The new Environment should be a two-dimensional “chess board” through which the bug will randomly (drunkenly) walk. Since it’s not the purpose of this assignment to make you figure out an optimal path through a two-dimensional board, have the movement in any possible direction (there are at least three cases to consider here) be completely random, regardless of how much the bug has had to drink. Control the movement within the environment. There can be no sober walk in this case. (Who would walk around a chess board sober anyway?)

Other requirements:

- Make the size of the board configurable by the user.
- Use 20 x 15 as the size for your tests.
- Run the bug through the board 1007 times for each simulation and compute the average number of moves it takes for the drunken bug to touch every location on the entire board.
- *Extra Credit* Implement an option for the bug to move only as a Knight on the chess board. Then compare this average time after MAX_RUNS runs with the results of the non-Knight bug.

2. **Multi-Player Single-Deck Blackjack Game**

Implement a logging option that, when activated, keeps track of all of the details of every game. Log to a text file, the event log, or the screen.

Deliverables

E-mail me the code *and the executable* for each project. Print out and turn in the source code. Use a cover sheet and staples to complete the package you hand in.