Assignment A1: Random Actions in Wumpus World

CS 4300
Fall 2015

Assigned: 25 August 2015

Due: 3 September 2015

For this problem, handin a lab report pdf (include name, date, assignment and class number in pdf) which studies statistics for a Wumpus World exploring robot. You should handin the report pdf as well as the source code used in the study. The code should conform to the style requested in the class materials. You will find the Wumpus World Matlab code in the class code link, in subdir A1; use CS4300_WW2 (with a fixed board layout).

In addition, please turn in a hardcopy of the report in class before the start of class on September 3, 2015.

Your assignment is to:

1. Develop an agent (named CS4300_agent1.m) function that randomly (uniformly) selects actions from FORWARD, ROTATE_RIGHT, ROTATE_LEFT in the Wumpus World. The starting location for each trial should by $x = 1, y = 1$ and facing right (toward square $[2, 1]$).

2. Run 200 trials and determine the mean and variance of:

   - the number of distinct rooms visited,
   - the number of FORWARD actions taken, and
   - the total number of actions taken.

Write a lab report in the format (please do not deviate from this format!) described in the course materials. Discuss the statistical framework to establish a confidence interval on the means, and any hypothesis tests.