CSE 571: Probabilistic Robotics
Assignment #3 February 24, 2012
Due: Thursday, March 8, 2012 (noon)

Problem:

1. Consider an undiscounted MDP having three states, (1,2,3), with rewards -1, -2, 0, respectively. State 3 is a terminal state, that is, no matter what the robot does, it remains in state 3. In states 1 and 2 there are two possible actions: *a* and *b*. The transition model is as follows:

   - In state 1, action *a* moves the robot to state 2 with probability 0.8 and makes the robot stay put with probability 0.2.

   - In state 2, action *a* moves the robot to state 1 with probability 0.8 and makes the robot stay put with probability 0.2.

   - In either state 1 or state 2, action *b* moves the robot to state 3 with probability 0.1 and makes the robot stay put with probability 0.9.

   Show the values of the three states for the first two iterations of value iteration. Assume no discount ($\gamma = 1$).

2. Implement Gaussian Process regression. The provided skeleton code and more information are on the course website.