CIS 716.5 Homework 1

1. The term "agent" in the context of computer systems has no universally accepted meaning — the term is usually defined by listing attributes that it claimed an agent has. Briefly describe what you undersdand to be the most commonly mentioned attributes of agency.

   (10 points)

2. Classify each of the following environments

   (a) WWW server;

   (b) office cleaning robot;

   as

   - Accessible *vs* inaccessible
   - Deterministic *vs* non-deterministic
   - Episodic *vs* non-episodic
   - Static *vs* dynamic
   - Discrete *vs* continuous

   (30 points)

3. Suppose the vacuum world from Lecture 3 "Deductive reasoning agents" contains obstacles which the agent has to avoid, and that the agent has a sensor to detect the obstacles. Write down a new logic-based solution for the agent.

   (25 points)

4. Suppose that the vacuum world agent's sensors — the one from the lecture that sees the dust, and the new one from Question 3 that can see obstacles — are now *noisy* so they only give the right answer 80% of the time. How does this change the logic-based control program? Assume that if the agent tries to move into a square that contains an obstacle, it does not move.

   (35 points)