IST 511 Exercise 3
Monte Hall Problem

(5pts) The Monty Hall problem is a classic problem in decision making that is used in game shows throughout the world and was popularized by the show "Let's Make a Deal" with Monty Hall as the game show host. An excellent description of the problem can be found in the reference below.

Basically, you are on a game show playing a game where you try to pick one door out of three behind which one is a prize and no prizes (or goats) are behind the other two. After, you pick your door, the controller of the game (the game show host) opens one of the two remaing doors behind which there is NO prize. Now there are only two unopened doors, yours and his. The host asks if you want to switch from your door to the other unopened door. The basic question is should you?

Write a brief paper on whether you should switch doors and why. Explain how to solve this problem by constructing a "complete" probability decision tree (not in the wikipedia article). Why is this such a hard problem for humans; results imply that pigeons do better? Explain this. Is this an example of heuristic decision making?

The paper format should be ACM.

(extra credit) Find a similar problem and describe it.

References:

http://en.wikipedia.org/wiki/Monty_Hall_problem
http://www.nytimes.com/2008/04/08/science/08monty.html
http://faculty.mercer.edu/spears_a/studentpages/heuristics/webpage.html