CMPE 540 Assignment #1
"Logic Puzzle"

Problem Statement

Consider the following logic puzzle: In five houses, each with a different color, live five persons of different nationalities, who each prefer different brands of cigarettes, drinks, and pets. Given the following facts, the question to answer is "Where does the Zebra live, and in which house do they drink water?"

> The Englishman lives in the Red house.
>
> The Spaniard owns the Dog.
>
> The Norwegian lives in the first house on the left.
>
> Kools are smoked in the Yellow house.
>
> The man who smokes Chesterfields lives in the house next to the man with the Fox.
>
> The Norwegian lives next to the Blue house.
>
> The Winston smoker owns Snails.
>
> The Lucky Strike smoker drinks orange juice.
>
> The Ukrainian drinks tea.
>
> The Japanese smokes Parliaments.
>
> Kools are smoked in the house next to the house where the Horse is kept.
>
> Coffee is drunk in the Green house.
>
> The Green house is immediately to the right (your right) of the Ivory house.
>
> Milk is drunk in the middle house.

What to do

a) Model this problem as a constraint satisfaction problem (CSP).

b) Write a CSP program using the heuristics discussed in the lecture and solve this problem.

c) Write a genetic algorithms program and solve this problem

d) Compare and comment on the solutions in parts (b) and (c).

What to Submit

a) A hardcopy report that discusses your CSP model and programs of parts (b) and (c) and the comparison in part (d)

b) Attached to the report a CD containing

    a. your source codes,

    b. sample input and corresponding output files and

    c. an instruction file on how to compile and run the codes

Deadline

October 30, 2006 Monday 17:00