Assignment 1, Constraint Satisfaction For Decision Making (CE884-7-SP), 2015-16
Set by Edward Tsang, University of Essex

1. Introduction:

This is an assignment on constraint satisfaction problem formulation and solving. This assignment accounts for 10% of your total marks in this course. This assignment must be submitted electronically. The deadline of this assignment is ***11:59:59, Friday 17 February 2016***.

2. Objective:

The objective of this assignment is to test your ability to ***formulate*** a constraint satisfaction problem.

3. The Photos Identification Problem:

You are given five photos, 1, 2, 3, 4 and 5 of five suspects, A, B, C, D and E, but you do not know which photo is taken from which suspect. Five witnesses each made two assertions on the identity of the photos. Exactly one assertion per witness is correct (and the other is wrong). Given the following witness reports, formulate the problem as a constraint satisfaction problem:

Witness 1:	2 is A	3 is B
Witness 2:	1 is C	2 is D
Witness 3:	3 is D	5 is C
Witness 4:	2 is A	4 is E
Witness 5:	4 is E	1 is B

4. Your tasks:

Your task is to formulate this as a constraint satisfaction problem. You must state clearly what the variables, domains and constraints are. You are encouraged to formulate this problem in different ways and compare their merits and disadvantages.

5. Submission requirements:

a) You must submit a report of no more than 500 words explaining how you formulate and solve the problem;
b) If you present multiple formulations, explain the merits and disadvantages of each formulation.

6. Assessment criteria for this assignment:

Your work will be assessed by the following criteria:

a) Clarity – clarity is essential. You must clearly address the requirements stated above. No work will score 70% or above unless it is clearly explained;
b) Correctness – your formulation must be correct;
c) Knowledge of constraint satisfaction techniques – whether you manage to refer to constraint satisfaction techniques in your discussion.

7. Notes:

- You may be asked to defend your submission in an interview.
- Please refer to the Student's handbook on the School's Policy on Plagiarism and Late Submission

Assignment 2, Constraint Satisfaction For Decision Making (CE884-7-SP), 2015-16
Set by Edward Tsang, University of Essex

1. Introduction:

This is an assignment on constraint satisfaction problem formulation and solving. This assignment accounts for 10% of your total marks in this course. This assignment must be submitted electronically. The deadline of this assignment is ***11:59:59, Friday 18 March 2016***.

2. Objective:

The objective of this assignment is to test your ability to ***solve*** a constraint satisfaction problem.

3. The Photos Identification Problem:

You are given five photos, 1, 2, 3, 4 and 5 of five suspects, A, B, C, D and E, but you do not know which photo is taken from which suspect. Five witnesses each made two assertions on the identity of the photos. Exactly one assertion per witness is correct (and the other is wrong). Given the following witness reports, formulate the problem as a constraint satisfaction problem:

Witness 1:	2 is A	3 is B
Witness 2:	1 is C	2 is D
Witness 3:	3 is D	5 is C
Witness 4:	2 is A	4 is E
Witness 5:	4 is E	1 is B

4. Your tasks:

Your task is to select a formulation of this constraint satisfaction problem and solve it. You do not have to use the formulation that you use in your Assignment 1.

5. Submission requirements:

a) You must submit a report of no more than 500 words explaining what formulation you have chosen and how you solve the problem. (You may include supporting information in an appendix.) State clearly any constraint satisfaction techniques that you might be using – there is no need to explain details of the techniques;
b) If you have not written a program to solve the problem, explain in the report the steps that you take to solve the problem;
c) If you have written a program to solve the problem, submit the program – submit both the source code and executables. Explain how your program should be run and how the output should be interpreted. Your program should produce output that helps others to understand how your algorithm works.

6. Assessment criteria for this assignment:

Your work will be assessed by the following criteria:
a) Clarity – clarity is essential. You must clearly address the requirements stated above. No work will score 70% or above unless it is clearly explained;
b) Correctness – your solution must be correct.

7. Notes:

- You may be asked to defend your submission in an interview.
- Please refer to the Student's handbook on the School's Policy on Plagiarism and Late Submission