COSC 341 – Assignment 3

Due: Friday 23 May, 11:59 p.m.

In this assignment you will choose and describe an NP-complete problem and explain why it is NP-complete.

Administration

- You may work individually, or (recommended) in groups of two or three.

- Please email me with your choice of problem, and group members. First-come, first-served on problem choices, as we would like to avoid duplicates.

- This assignment counts for 10% of your final grade, and consists of:

  - a 15 minute presentation to the class on Monday, 26 May (5%, peer-assessed)
  - a report/notes which are due on Friday 23 May (5%, graded by me)

Description

- Choose an NP-complete problem not considered in lectures or tutorials.

- Describe the problem, and summarise how its NP-completeness is established in the presentation.

- Describe the problem, and give more details of the NP-completeness proof in your report (not more than three sides of A4 in an 11 point font).

Problems not allowed

Boolean satisfiability (SAT), Fair Division and Subset sum, Graph Colouring, Hamiltonian path, Travelling salesman, Clique and Independent set, Vertex cover. Any others that I haven't thought of that will be covered!

Alternate topics

I'm happy to consider proposals for alternate topics to present and report on. The presentation plus report format is fixed, but NP-completeness is not a must (something related to theory of computing though will be required!)