**COMP 3710 Applied Artificial Intelligence**

**Seminar/Lab 2.**

**Search Space**

1. **Objectives**

* Familiar with arrays in JavaScript
* Understand search space
* Formalize a state for a give searching problem

1. **Associative arrays in JavaScript**

* Associative arrays are like maps in Java.
* Property names instead of index values

var students = [];

students['Tom'] = 10; students['John'] = 20;

for (var name **in** students)

document.write(name + ' - ' + students[name] + '<br>');

var records = [];

records ['Tom'] = []; records ['Tom'][0] = 10; records['Tom'][1] = 'CS';

for (var name **in** records)

document.write(name + ' - ' + records [name][0] + ', ' records[name][1] + '<br>');

* Complete the posted exercise program.

1. **Search space**

* Define formal states for the following problems. You need to decide variables and their domains for each problem, with short explanations.
  + Missionaries and cannibals problem
  + 3×3 puzzle game
  + The towers of Hanoi problem
* Give initial states and goal states.

1. **Assignment**
   1. Submission

* Submit the exercise program in 2) and a document file for 3) by email. (Note. Hand written documents will not be accepted.)
  + The title of the mail should include your name, id, and COMP 3710.
    - Due
    - 11:59 PM, January 14, 2019 – 10% bonus
    - 6:00 PM, January 16, 2019 – full marks
    - 6:00 PM, January 17, 2019 – 10% penalty
    - 6:00 PM, January 18, 2019 – 20% penalty
    - Total marks – 5 + 5
    - Any further late submission will NOT be accepted.