**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.