# BIT5201 – AI as Representation and Search
# Course Assignment 2008-2009

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The assignment is split in two parts. Part 1 (Best-First Search) carries 50% of the overall mark of the assignment while Part 2 (Min-Max) carries the rest of the overall marks awarded to the assignment. In both parts of the assignment the student is expected to produce a working implementation of the algorithms together with relevant documentation explain the approach undertaken.

**Part 1 – Best-First Search (50% of overall mark)**

In the first part of the assignment the student is expected to implement a best-first search algorithm in order to automate the process of finding a solution to the one-player n-puzzle game. The value n will depend on the number of tiles on the board which should be one of the parameters to the program.

Each instance of the game should initially randomly place the tiles on the board after which the algorithm would start searching the solution space in order to find a path leading to the correct solution. It is expected that different heuristics (+ a combination of these) are used to traverse the search space.

In your documentation describe the algorithms and representations used together with the overall approach taken.

**Part 2 – Min-Max (50% of the overall mark)**

Min-Max is a basic game playing algorithm that simulates a computer player in a two player game. For the second part of your assignment the student is expected to implement Min-Max for a small search space such as that of the game Nim (with varying number of sticks).

During game play the computer player is expected to play interactively as either Min or Max with the user who would take the opposite role.

In your documentation describe the algorithms and representations used together with the overall approach taken.