

## 2101INT Assignment I: Search: Pacman

**Due Date: 10AM 6<sup>th</sup> September (Tuesday Week 7) 2005**

**Weighting: 15% of the total marks for the course**

This assignment is to be completed **individually**. Whilst you are free to discuss it with other students during tutorials and outside, your submission must be all of your own work and the University's Academic Misconduct policy will be strictly enforced.

### Deliverables

You must submit:

- 1) A working version of your source code (written in either C/C++ or Java), and any associated makefiles or project files emailed as a ZIP file to s.bain@griffith.edu.au by the submission date. Your code must not reference/import anything apart from standard classes/libraries. You will have to demonstrate your working code on the due date from the files you submitted.
- 2) A printout of your source code, clearly marked with your name and student number, and instructions on how to compile and run your program.
- 3) A report detailing (approx 2 pages):
  - How you represented the state space of the game
  - How you implemented the search procedure
  - What heuristic you used in the A\* procedure
  - An explanation of why this heuristic is admissible
  - (Bonus) Detail any special features/extensions you have implemented in your search procedure.

### Assignment

Pacman is played on a square board, and the task is to collect all pellets on the board. A number of ghosts on the board (only 1 in the example code) attempt to reach Pacman. The game is over if this occurs.

The task of this assignment is to implement an A\* search routine for the ghosts in the game of Pacman. Ghosts are allowed complete knowledge of the state space, so have access to the current x and y coordinates of Pacman.

The only moves available to a ghost are {Left, Right, Up, Down}. Ghosts are restricted to move along the corridors like Pacman (in the example, these are the `.` and ` ` squares).

Sample code (in C) is available from the subject website.

Remember, bonus marks will be given to assignments that implement something that exploits the nature of the environment beyond standard A\* search.