Exercise – Algorithm Design and Function Pseudocode

For the following activities you will need to work with a partner.

1. You have been given the problem of keeping scene objects in view of the camera by scrolling them across to the other side of the screen when they go out of view.

   The game is Asteroids and the camera is fixed in one position looking straight down onto the y and x axes.

   The Y axis is pointing up and the x axis is pointing right. The screen height is 800 and the screen width is 600.

   All scene objects have a structure called position which contains 2 floats, x and y.

   Decide on the inputs and outputs, start states and goal states.

   Decide on the steps of the algorithm.

   Test your algorithm with data that goes out all 4 sides of the screen as well as diagonally across the screen.

   Write the pseudo code to match the algorithm

2. You have been given the problem of making the Pac-Man ghosts chase the player.

The AI to chase Pac-Man is quite simple, when there is a turn available take the direction that has the smallest difference, or take a random direction.

For example, if Pac-Man is at grid 7, 4 and the ghost is at 12, 6 the ghost will choose to go up.

The AI also needs to work out if it can turn at the square it is on. In your pseudo code use a function like:

'if IsSquareEmpty(GhostX, GhostY) then'

Where GhostX and GhostY is the ghosts position on the grid.