CITM Game Development - Revaluation Exam - Feb 3rd 2016

Your Name:

- You have 2 hours min to complete the assignment.
- Be clear and concise on your explanations.
- You can only use the square below to answer each question.
- If you take assumptions, write them down and explain your reasoning.

1. **(3 points)** Adapt the A* algorithm to work on a map that can wraparound. This means that leaving to the left should be connecting you to the right (we assume the is **no** wraparound top-bottom). Describe the pathfinding phases that would be affected and how. E. g.:

	X	Start									
X	X								Dest	X	X

```
while the open list is not empty
  find the node with the least f on the open list, call it "q"
  pop q off the open list
  generate q's 8 successors and set their parents to q
  for each successor
    if successor is the goal, stop the search
    successor.g = q.g + distance between successor and q
    successor.h = distance from goal to successor
    successor.f = successor.g + successor.h
    if a node with the same position as successor is in the OPEN list which has a lower f than successor, skip this successor
    if a node with the same position as successor is in the CLOSED list which has a lower f than successor, skip this successor
    otherwise, add the node to the open list
  end
  push q on the closed list
end
```

2. **(3 points)** Given an map with isometric view, were the tiles are 128 x 64, write down the formula to find the screen coordinates of the tile the character is in. Also, calculate the tile the character would be in if it were drawn at 200,300. Both screen coordinates and tile coordinates start at 0,0 top vertex and increase to the right-bottom. Hint: world to screen on x coordinate formula *(x-y) * (tile_width / 2)*
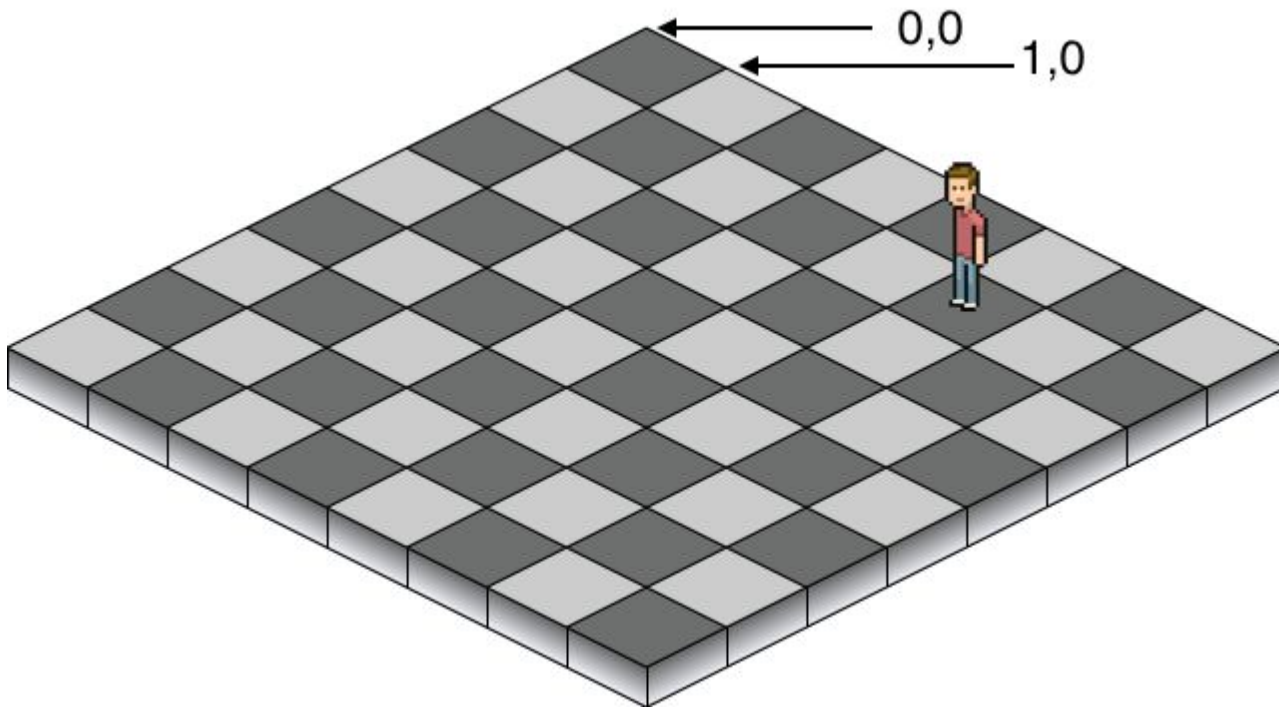
3. **(2 points)** Draw the UML of each of the classes (including methods and attributes) of an UI system with the elements (and **only** the elements) seen on this screenshot.

4. **(2 points)** *Come up* with an XML structure that would define the game entities seen in this screenshot from Starcraft 1. The XML should define **both** their properties and their current situation. Besides following the XML syntax, avoid property repetition as much as possible..