AI For Games

## Lab 2

1. Below is a Tic-Tac-toe (Noughts and Crosses) board, suggest some predefined values (from 1 to 5 where 5 is the best) which can be used to inform the AI where to make its initial move. Do some research on how to play the game for suggestions. The AI should always try and grab the centre square (allowing for 4 possible lines of symbols), followed by the adjacent and corner squares (with the adjacent squares providing 5 options for symbol placement, as opposed to 3 from the corner squares).

|  |  |  |
| --- | --- | --- |
| 1 | 3 | 1 |
| 3 | 5 | 3 |
| 1 | 3 | 1 |

1. Given the following situation, and assuming the AI is playing **X**, and is taking the next move, what heuristic might you consider? Stop the opponent from winning (so choose the bottom-middle square for the next X, as shown):

|  |  |  |
| --- | --- | --- |
| X |  |  |
|  | X |  |
| O | X | O |

1. A game has a story line element where, once the player has completed a specified quest, a messenger should appear and deliver a note to the player requesting the player meet a local lord.
   1. What would be the most appropriate approach to this situation?
      1. A hack
      2. A heuristic (chosen approach)
      3. An algorithm
   2. Justify the decision made to the previous question. I believe that a heuristic would make sense as the logic is relatively simple: When the Player completes a certain quest, have a messenger (AI-Controlled)
   3. Given your choice in a. What could go wrong and how could you fix it. A heuristic (‘Rule-of-Thumb’), is not always the most suitable action to take (in certain cases), causing such logic to fail to achieve such results in these cases. To resolve this issue, handling of these cases will have to be implemented, for if they ever crop up, against the given heuristic.