

CONNECT-K FINAL REPORT **[TEMPLATE --- do not exceed two pages total]**

Partner Names and ID Numbers: _____

Team Name: _____

Part 1: (Required) Narrative (should extend longer than one page, as needed)

1. Describe your heuristic evaluation function, Eval(S). This is where the most “smarts” comes into your AI, so describe this function in more detail than other sections. Did you use the dot product of a vector of weights with a vector of features? What features? How did you set the weights? Did you simply write a block of code to make a good guess? What heuristic did you use? Please use a half a page of text or more for your answer to this question.

2. Describe how you implemented Alpha-Beta pruning. Since you put it on a switch so that you can turn it on and off, please evaluate how much it helped you, if any.

3. Describe how you implemented Iterative Deepening Search (IDS). Were there any surprises or difficulties?

4. Did you remember the values associated with each node in the game tree at the previous IDS depth limit, then sort the children at each node of the current iteration so that the best values for each player are (usually) found first? Describe the data structure you used. Did it help?

5. Describe your quiescence test, Quiescence(S). Did it help?

6. Any suggestions for improving this project? (One suggestion is to remove the first-player advantage: the first player initially places one single mark, and then the players alternate each placing two marks per turn. But, this would square your branching factor for each ply. I hope to compensate for this in the tournament by having each pair play both sides in alternation.)

Part 2: (Required) What You or Your Team Did (should not require a full page of text)

Please note: You will lose many points if you claim to have done something the Reader cannot reproduce or find in your source code. Please check **exactly one** of Yes/Partly/No for **each** item and condition below.

Please note: If you answered “I/We tested it thoroughly” as not “Yes” then you ***must*** answer “It ran reliably and correctly” as “No” because “Not tested thoroughly” ⇒ “Not reliable.”

You will lose points if you say that it ran reliably and correctly but you did not test it thoroughly.

| I/We coded it. | | | I/We tested it thoroughly. | | | It ran reliably and correctly. | | | What was it? |
|----------------|--------|----|----------------------------|--------|----|--------------------------------|--------|----|-------------------------------------------------------------------------------------------------|
| Yes | Partly | No | Yes | Partly | No | Yes | Partly | No | |
| | | | | | | | | | Implemented Eval(S). [5 pts] |
| | | | | | | | | | Implemented Eval (S) as MFEF and implemented at least five new features (not Win-Path). [5 pts] |
| | | | | | | | | | Implemented Iterated Deepening Search (IDS) and terminated within time limit. [5 pts] |
| | | | | | | | | | Implemented a Quiescence Test (must do IDS above). [5 pts] |
| | | | | | | | | | Implemented Alpha-Beta Pruning (ABP). [5 pts] |
| | | | | | | | | | Sort children for ABP using values found in previous iteration of IDS. [5 pts] |

Other Extra Effort or Creativity Not Reflected Above:

If you/your team made any extra effort, or exhibited any extra creativity, that is not reflected above, please describe it briefly but clearly here.