<u>Report: Search Lab</u>
**Key decisions made during development and reflections on course material**
Decisions made during development focused on balancing depth of search and computational efficiency, through integration of iterative deepening search (IDS) combined with alpha-beta pruning to ensure that deeper levels of the game tree could be explored within strict time constraints. Additionally, we limited the number of branches considered at each step (7).

We created a function that calculates the distance between a fish position and a hook position. This function is used in our heuristic_evaluation function to calculate both the distance between the opponent's hook to a certain fish and our player's hook to a certain fish.

We optimized the heuristic function through penalization if the opponent was closer to a high-value fish than we were, and contrastingly prioritize closer positive high-value fish through rewards. If a fish is already on the hook, we give an infinitely high reward to ascertain that this action will always be carried through.

Obviously these are all concepts that have been covered already in the course, such as IDS, minimax function, alpha-beta pruning and adversarial and "regular" search methods. Also simpler concepts like zero-sum games and the utility function are of course relevant in this aspect. Additionally, it's a very cool realization that you are actually dealing with an AI-software that you built yourself, an intelligence capable of making decisions far more advanced than we "normal humans" probably could, which also raises the concern of the social and ethical aspects covered in the first lectures.