# Computer Science NEA

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## 0.1 Analysis of problem

### 0.1.1 Problem Identification

This paper will detail my process of coding a chess engine in Python 3.12. The game of chess can be traced back to some 1,500 years ago to it's origins in India, where it was known as 'Chaturanga'. Chess is a hard game to master, with most master level players starting to play at the ages of 7-9 years of age. The game not only has a multitude of strategies, openings and tactics, but also is very mentally taxing. In the 1984 world chess championship Anatoly Karpov reportedly lost over 22lbs (roughly 10 kg). The game of chess has a branching factor of 35-38 moves per position, which is a lot of moves to consider per position. Luckily we now have much better technology than 1984, and computers can now process roughly $10^9$ $O(1)$ operations per second! This plays to the strengths of the modern computer, even though it doesn't posses the human intuition needed to disregard moves that 'look disadvantageous', we can simply check all moves available in a given position then evaluate which move is the most optimal, assuming our opponent always plays the best response.