Yatzee has a few rules You throw 6 dice and then pick out a subset of those dice and can do that 2 times. Total dice throws is therefore 3.

One can after any dice throw then decide from a set of rules to try and maximize ones points. Examples could be 3 dice who have the same value, or full house. I will now preceed to make an algorithm that can closely determine the optimal way of playing Yatzee

Let's begin with a greedy algorithm. It will not reroll any dice and pick whatever gives the highest reward in the near term. For rulepoint i, point function q and dice X, for each round of the game

$$\max_{i \in I_t} q_i(X_1, ..., X_6), I_{t+1} = I_t - i$$