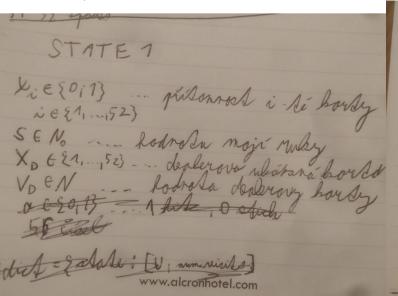
Report Reinforcment Learning





STATE 2

Sie 1621-133 number of i-Ab suid in Mayor Rand

Rigio 621-133 number of j-Ab suid in Mayor Rand

M & EN value of my land

So suid of babricard

Rio rand of Joabro Land

STATE 3

1616 Value of my land

STATE 3

1616 Value of my land

2-21 244-44

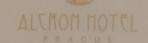
2 number of aces in lands 0-4 19.4.9.

A number of oards in land 5-11 =6151

2 Vs value of darks card

12-101

2) rough estimate of overall number of states



STATE 1
$$\left(\binom{52}{2} + \binom{52}{3} + \binom{52}{4} + \binom{52}{5} + \binom{52}{5} + \binom{52}{5} + \binom{52}{5} \right) \cdot 20.52 \cdot 11 =$$

STATE 2 (
$$n+n-1$$
) & combinations
 $n=4$ Si
 $\binom{1+n-4}{1}+\binom{2+n-1}{2}+\binom{3+n-1}{3}+\binom{4+n-1}{4}+\binom{5+n-1}{5}$.
 $\binom{1+\frac{1}{3}-1}{1}+\binom{2+\frac{1}{3}-1}{2}+\binom{3+\frac{1}{3}-1}{3}+\binom{4+\frac{1}{3}-1}{4}+\binom{5+\frac{1}{3}-1}{5}$.
 $\binom{1+\frac{1}{3}-1}{1}+\binom{2+\frac{1}{3}-1}{2}+\binom{3+\frac{1}{3}-1}{3}+\binom{4+\frac{1}{3}-1}{4}+\binom{5+\frac{1}{3}-1}{5}$.
 $\binom{1+\frac{1}{3}-1}{1}+\binom{2+\frac{1}{3}-1}{2}+\binom{3+\frac{1}{3}-1}{3}+\binom{4+\frac{1}{3}-1}{4}+\binom{5+\frac{1}{3}-1}{5}$.
 $\binom{1+\frac{1}{3}-1}{1}+\binom{2+\frac{1}{3}-1}{2}+\binom{3+\frac{1}{3}-1}{3}+\binom{4+\frac{1}{3}-1}{4}+\binom{5+\frac{1}{3}-1}{5}$.
 $\binom{1+\frac{1}{3}-1}{1}+\binom{2+\frac{1}{3}-1}{2}+\binom{3+\frac{1}{3}-1}{3}+\binom{4+\frac{1}{3}-1}{4}+\binom{5+\frac{1}{3}-1}{5}$.
 $\binom{1+\frac{1}{3}-1}{1}+\binom{2+\frac{1}{3}-1}{2}+\binom{3+\frac{1}{3}-1}{3}+\binom{4+\frac{1}{3}-1}{4}+\binom{5+\frac{1}{3}-1}{5}$.

ALCRON HOTEL

STATE 3

Calculations for representations 1 and 2 contain many invalid states so the result is only a rough estimate.

For state 1 we calculate combinations of cards that we can have in hand and multiply this with the all possible values in hand, dealers card and its values.

For state 2 we calculate combinations of suits in hand multiplied by combinations of rank, value of hand, suit of dealers card and rank of dealers card.

For state 3 we multiply possible number of values in player's hand, number of aces in hand, cards in hand and value of dealers hand.

3) I have chosen state 3. Simply for the reason that the other two state representations are too large. It contains the value of the player's hand, number of aces in hand because that inforamtion might help us since they can contain two values, number of cards in hand and value of dealers card. This state does not contain all the information. The simplifications is in that we do not know ranks or suits of any of the cards in player's or dealer's hand.

We cannot use exact methods like policy or value iteration since we do not have an MDP. Number of episodes and discount factor were chosen based on trial and error method.

6) Comparison of the agents can be found in the repository as various pdfs from averages to moving averages and so on. Estimates of the U/Q values are also in the pdfs.