Assignment 4 - Monte Carlo

Jonathan Stumber 3151587
Christian Reiser 3131934
Magnus Ostertag 3178706

1. Monte Carlo Methods vs Dynamic Programming

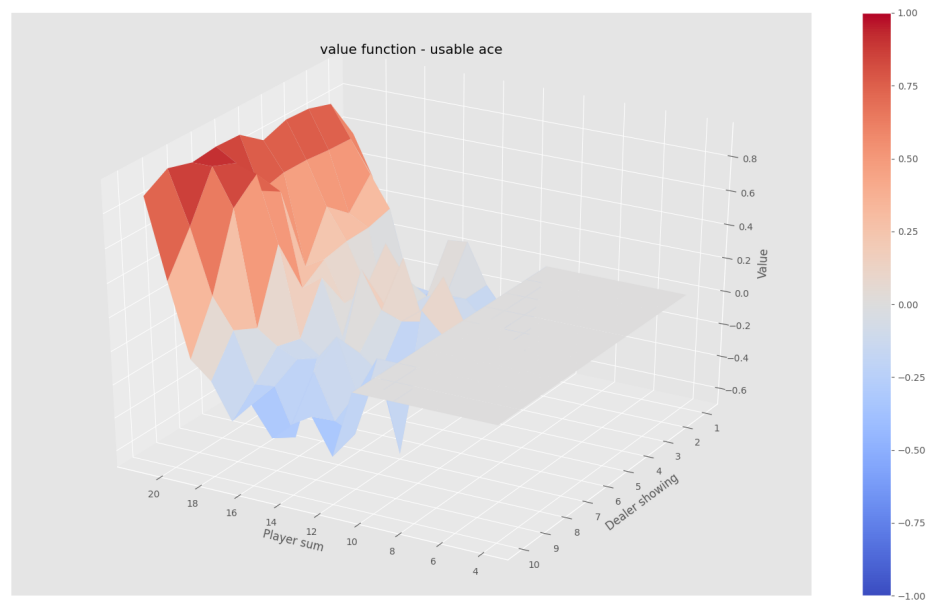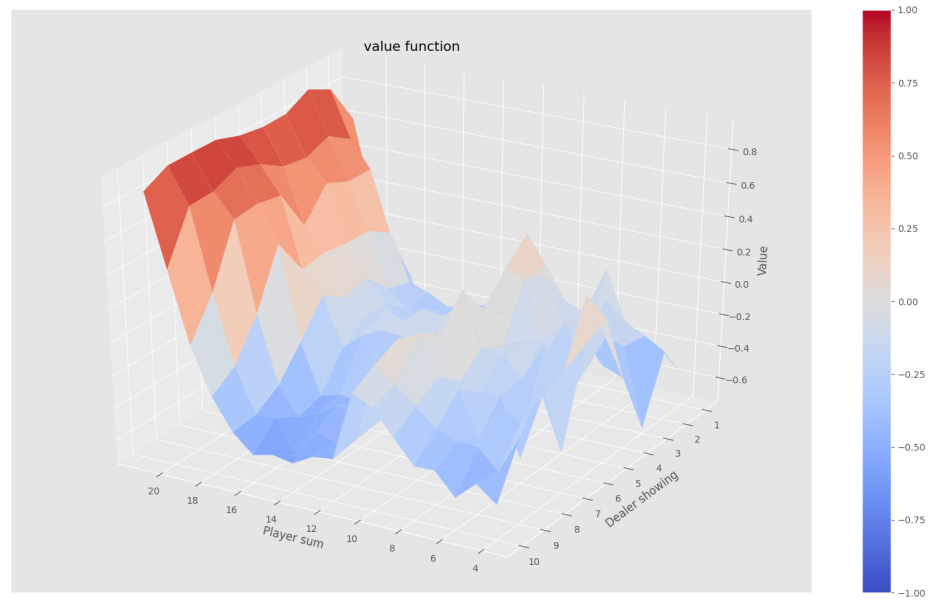### 1.1 a) Advantages of Monte Carlo methods over dynamic programming

Monte Carlo

1. can learn directly from experience

2. has no need for full models

3. is less harmed by violating Markov property

1.2 b) Example environment where we would use a Monte Carlo method to learn the value function rather than using dynamic programming

Finding best policy for winning in a computer game. It is superior to DP because the model is not given but the algorithm can learn from experience.

JONATHAN STUMBER , CHRISTIAN REISER , MAGNUS OSTERTAG

2. Monte Carlo ES for blackjack

2.1 a) Figures

2.2 b) Optimal policy