

# CS 186 PROBLEM SET 5

Marco Gentili, Alex Wang – GleaningWit

## 1 Designing a Bidding Agent

Done.

## 2 Experimental Analysis

- (a) In a population of truthful agents, the average utility per truthful agent is \$330.

In a population of only balanced bidders, the average utility per balanced bidder is \$530.

[Explanation of findings]

- (b) In a population of 4 truthful agents and 1 balanced bidder, the average utility per truthful agent is \$375. The average utility for the balanced bidder is \$510.

In a population of 1 truthful agents and 4 balanced bidder, the average utility per truthful agent is \$500. The average utility for the balanced bidder is \$575.

This suggests that balanced bidding dominates truthful bidding as a strategy, and thus a strategy profile of everyone bidding truthfully is not stable as everyone has an incentive to deviate to balanced bidding.

## 3 Auction Design and Reserve Prices

## 4 Budget Constraints