

Online Advertising

Excercises

Exercise 1

Let's look at the results of the small competition. Which team got the most clicks on their ads? Which team had the highest click-through rate? How much of their budget did they use up? What was the best "strategy"? Was it simply a good choice of key words to bid on, or had it more to do with the chosen text for the ad?

Exercise 2

When there is only a single item then bidding truthfully is a dominant strategy in the second price auction. Does this still hold when each bidder i has a budget b_i and the auction is repeated n times? Assume that the valuations do not change and that the bidders want as many copies of the single item as possible for as little money as possible. Give a proof (sketch) or find a counter-example.

Exercise 3

Suppose you had developed an mp3 player that uses the earphones to monitor a person's heart beat and brain waves. Doing so it can detect a person's mood and adapt the music accordingly. Now you want to create an online search advertising campaign for this product. Further suppose you had access to the web search log of a large commercial search engine. Assume that for every issued query you know which URLs were clicked and that you also know basic demographic details about the person issuing the query. Describe at least one algorithm that computes something "useful" in this setting and describe how you'd use the output of this algorithm to help plan your campaign.

Exercise 4

In current sponsored search auctions, advertisers are assigned at most one of the available slots. Describe a simple pricing mechanism for a setting where each bidder i can bid for up to k_i slots simultaneously. You can define the exact model as you see fit and possibly include budget limits. Try to analyze basic properties of the mechanism. Will the highest bidder always get the first consecutive slots? Is it very easy to "game" your mechanism? How would you estimate click-through rates in this setting? Do you think your mechanism would lead to more or less long-term revenue for the search engine?

Exercise 5

Think of a search key word, a corresponding paid ad and a relevant (existing) landing page that you think might make a person smile. Send your idea to ingmar@yahoo-inc.com. I'll put the best suggestions (possibly several) online and we'll analyze their performance next time.