CS269I: Exercise Set #2

Due by 11:59 PM on Wednesday, October 10, 2018

Instructions:

(1) You can work individually or in a pair. If you work in a pair, the two of you should submit a single write-up.

(2) Submission instructions: We are using Gradescope for the homework submissions. Go to www.gradescope.com to either login or create a new account. Use the course code MZZ2BV to register for CS269I. Only one person needs to submit the assignment. When submitting, please remember to add your partner's name (if any) in Gradescope.

(3) Please type your solutions if possible. We encourage you to use the LaTeX template provided on the course home page.

(4) Write convincingly but not excessively. You should be able to fit all of your solutions into two pages, if not less.

(5) Except where otherwise noted, you may refer to the course lecture notes and the specific supplementary readings listed on the course Web page *only*.

(6) You can discuss the exercises verbally at a high level with other groups. And of course, you are encouraged to contact the course staff (via Piazza or office hours) for additional help.

(7) If you discuss solution approaches with anyone outside of your group, you must list their names on the front page of your write-up.

(8) No late assignments will be accepted, but we will drop your lowest exercise set score.

Lecture 3 Exercises

Exercise 8

Give at least two real-world examples of markets that suffer from congestion, and note one or more techniques that these markets use to mitigate it.

Also, give at least one real-world example of a market where some form of signaling is implicitly or explicitly used by participants to express special interest.[1]

Lecture 4 Exercises

Exercise 9

In the "market for lemons" example in lecture, there were two types of cars (good and bad). Now suppose there are three types: good, medium, and lemons. Every seller knows what kind of car they have, but buyers cannot distinguish between different types. The fraction of used cars of each type is $\frac{1}{3}$ and buyers know this. Assume that good cars are worth 8 to sellers and 9 to buyers, medium cars are worth 5 to sellers and 8 to buyers, and lemons are worth 1 to sellers and 4 to buyers. If you wish, you can assume that there are more buyers than sellers.

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[1]Needless to say, all of your examples should be different from the ones already discussed in class.

(a) Is there an equilibrium in the used-car market in which all types of cars are sold? Explain briefly.

(b) Is there an equilibrium in the used-car market in which only medium quality cars and lemons are sold? Explain briefly.

(c) Is there an equilibrium in the used-car market in which only lemons are sold? Explain briefly.

Exercise 10

Identify a real-world reputation system that you find ineffective. Explain your issues with it, and make at least one realistic recommendation for how to improve it. If your recommendation was implemented, what effect do you think it would have on the behavior of the users of the system?