

Assignment #6

MACS 30000, Dr. Evans

Due Monday, Nov. 19 at 11:30am

1. **Netflix Prize and Bell, Koren, and Volinsky (2010) (3 points).** Read the paper [Bell et al. \(2010\)](#).

- (a) Describe how submissions to the Netflix Prize open call contest would be judged? That is, what was the criterion function? Were there any cutoffs beyond which a submission would not be judged (i.e., the fit was so poor that it would be called a zero)?
- (b) At the beginning of the Netflix Prize contest, what was the most commonly used method for predicting ratings (stars) on movies?
- (c) The best predictive models in the Netflix Prize open call were hybrids of multiple models (ensemble methods). What characteristic of one model relative to other models made it improve the overall prediction when blended with the other models?

2. **Collaborative problem solving: Project Euler (3 points).** On its face, [Project Euler](#) is simply a collection of math problems that require clever solutions that make use of understanding of theory and understanding of computation. Project Euler is also a great way to improve your coding, modeling, and problem solving ability. In addition, these exercises also have some of the characteristics of human computation projects as well as open call projects. The answers are always easy to check (just a number or a vector), and discussion boards arise to discuss the best of all the correct solution methods. Project Euler also incentivizes attention by giving awards for various achievements.

- (a) [Register](#) as a user of Project Euler. I put my Project Euler friend key (below) on the last page of my [CV](#). Report your Project Euler user name and friend key.

rickecon1:1055910.HgwI83R0RpFlvXA1U2yVGLJZjFaB0MvQ

- (b) Look through the Project Euler [archives of problems](#). The earlier problems are easier problems. Choose one of the problems and complete it using either Python or R programming languages. Report both your code and your answer.
- (c) Look through the Project Euler [Progress page](#). List the three awards that you would most aspire to achieving and describe what you like about those awards.

3. Human computation projects on Amazon Mechanical Turk (2 points).

Sign in to Amazon Mechanical Turk (MTurk) as a worker.¹

- (a) Select an MTurk human intelligence task (HITs) that is a human computation project and IS NOT a survey or an experiment. Most HITs on MTurk are human computation projects.
- (b) Describe the full payment structure of this HIT. That is, the reward column says an amount, but there is a lot more information available as to what that amount means.
- (c) Describe any qualifications, eligibility requirements, or restrictions (or lack thereof).
- (d) What is the allotted time for this task? How many items do you think you could do in an hour? What is the implied hourly rate (dollars per hour)?
- (e) When does this job expire?
- (f) What is the most this project would cost the HIT creator if 1 million people participated in the task?

4. Kaggle open calls (2 points). [Kaggle](#) is an open call project and dataset platform.

- (a) Register for a Kaggle account from the Kaggle home page.
- (b) Describe one of the open competition. Make sure that your description is paraphrased (in your own words) and not just copied and pasted from the text in the open call project. Include in this description the following information:
 - the title of the competition
 - the sponsor of the competition
 - a description of what type of company or what type of person the sponsor of the project is
 - How submissions will be evaluated
 - Prize structure for winning submissions
 - Any honor code issues of importance
 - Timeline description
 - Submission instructions
- (c) Given your answer about what the sponsoring entity does and your description of this project, what do you think the sponsoring entity will do with the winning submission answer? How will they use it?

¹You should have already created an account in [Assignment #5](#). If not, sign up.

References

Bell, Robert M., Yehuda Koren, and Chris Volinsky, “All Together Now: A Perspective on the Netflix Prize,” *Chance*, 2010, *23* (1), 24–29.