Homework 0: Introductions

Monday, August 27, 2018

CSE 597

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1 Syllabus Acknowledgement

By turning in this assignment, I, Roman Istomin (rji5040@psu.edu), acknowledge that I have received and understand the course syllabus information available on `sites.psu.edu/psucse597fall2018`.

2 Introduction

My name is Roman Istomin (rji5040@psu.edu). I am a 5th year PhD student in the Economics department. My programming experience includes C++, Matlab, Python and shared memory parallelization methods (mostly OpenMP). When I compute, I typically use ACI-B. My research is mostly computational in nature.

My area of interest is computational Industrial Organization and Education research. For my job market paper, I am implementing non-parametric estimator first envisioned in Agarwal and Somaini (2018). I use Gurobi linear solver to check feasibility of group system of linear inequalities.

I also work on numerical inversion of Pure Characteristics model of demand proposed by Berry and Pakes (2007). To do that I compute the jacobian of direct mapping from structural parameters to market shares and use it in conjunction with interior point optimizer by Knitro 10.3 to find inverse mapping.

2.1 Accounts

I have gotten an account on ACI using `https://ics.psu.edu/?page_id=57`. My ACI username is rji5040@psu.edu.

I have gotten an account on XSEDE using `https://portal.xsede.org/my-xsede?p_p_id=58&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&saveLastPath=0&_58_struts_action`. My username is rom4ik (or rji5040@psu.edu, I use both to sign in).

I will be making my assignments available using Github (https://github.com/romanis/CS597HW).

2.2 My Course Project

I am currently thinking about choosing least squares problem or the eigen value decomposition as my $Ax = b$ problem for the semester project. I believe that this will be a good project because

- Least squares is widely used in Economics
- Eigen value decomposition is widely used in optimization

3 HW 0 Code and Writeup

You can get my assignment onto ACI using the command:

```
git clone git@github.com:romanis/CS597HW.git
```

3.1 Program overview

This is a simple hello world program, written in C++. There is only one code file. The repository also contains the makefile for creating the executable, a readme, licensing information and the tex file for the write-up.

3.2 Instructions for running and verifying the code

Creating the executable:

```
module load gcc/7.3.1
make
```

Running the program:

```
./hello
```

Expected output:

```
What is your name?
Roman
hello, Roman
```

3.3 Instructions for compiling the write-up

I used ACI to compile the document. You can do this using the command:

```
./pdfmake.sh
```

4 Acknowledgements

I would like to acknowledge Chris Blanton and Chuck Pavloski for helping formulate the homework material.

References

Agarwal, N. and Somaini, P. (2018). Demand analysis using strategic reports: An application to a school choice mechanism. *Econometrica*, 86(2):391–444.

Berry, S. and Pakes, A. (2007). The pure characteristics demand model. *International Economic Review*, 48(4):1193–1225.