Problem Set 1

Yeganeh Karbalaei

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When I was a bachelor's student majoring in Mathematics, I struggled with coding. We used C++ for the course "Advanced Programming," but it was too difficult for me to write programs in this language. I took a course on Coursera to learn coding because I knew there would come a time when I would need this skill. However, since it was a voluntary task, I ended up dropping it. Last semester, I tried learning coding with AI assistance for an Econometrics course, and I think it helped me. Nevertheless, I realize I need to expose myself to coding more because it can make my research path much easier. As a result, I decided to take this course. Additionally, as I often work with large and messy datasets published by governmental agencies, I believe learning data science will save me significant time.

For my research project, I am considering using NIBRS (National Incident-Based Reporting System) data, which is published by the FBI, to study the effects of international students on the crime rates in college towns. I believe it is relatively easy to access the number of international students at each university. The FBI data also covers the years 2011 to 2019, categorized by types of crime. Additionally, I will need to account for control variables such as the unemployment rate, drug and alcohol use rates, and the race and ethnicity of residents. This is still a preliminary idea, but I am very interested in expanding it.

I hope to become a researcher at one of the prominent research institutes in the fields that align with my research interests.

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Equation

$$a^2 + b^2 = c^2 \tag{1}$$