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Prof. Liu
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REFLECTIVE ESSAY

As a Master of Education candidate pursuing Cognitive Science in Education, I had to choose an area of specialization from a few choices. While I was interested in almost all of the options available to me, the Learning Analytics specialization caught my eye because I am very passionate about data and wanted to enhance my technical skills. My undergraduate degree was in Technological Entrepreneurship and Management with minors in Statistics and Cross-Sector Leadership. All though I took plenty of STEM or related courses during my undergraduate studies, the last time I had taken up a programming course was during my 11^{th} and 12^{th} grade when I learned C++ and MySQL.

I had been meaning to learn data mining and visualization with python for a while now and this course was the perfect opportunity, especially because it was at the intersection of education and data. In this course, I learned data wrangling, prediction and classification (supervised and unsupervised machine learning), clustering, principal component analysis and social network analysis through both highly guided Individual Coding Exercises (ICEs) and minimally guided Analysis Challenge Assignments (ACAs). Not having any programming experience in the past 5+ years and suddenly working on complex coding problems was initially a challenge for me. However, I resolved this challenge by spending extra time reading/watching the additional resources that Prof. Liu had shared with each ICE. I also started asking more questions in class and discussing with my peers outside of

the class. All of these best practices helped me in understanding the core concepts more deeply so that I was able to code with ease.

By the end, I enjoyed coding more than ever instead of seeing it as a cognitive overload activity. Particularly, when we had the flexibility to choose our own problem area/dataset for the final ACA, I really enjoyed working on a non-education project that is very close to my heart where I performed social network analysis on characters from the Marvel Cinematic Universe. Through all these projects and Prof. Liu's lectures, this course taught me how to create an analysis plan for a real-world problem and provided useful, powerful tools to add to my technical toolkit. I now feel confident to work on my own mini projects to solve educational problems I care about.

I had previously never considered myself a programmer as I come from a business background. This course helped me realize that understanding the concepts and interpreting results is a more useful skill and that code itself is easier to learn and there are plenty of online resources and support for that. Another thing that surprised me was the ease with which I was able to find good teammates and our professional synergy. Everyone did their part and we communicated expertly, producing quality work for our final Creative EDM project. With all the skills I learned in this course, I now feel more confident in applying for technical internships and even continuing work on my startup idea without a "technical" co-founder.