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CMPT 220 Software Development I

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Project Proposal: ATM Program

For my semester-long project, I plan to create a program that simulates a working ATM. I have been interested in finance for a while and I believe that this could give me a good opportunity to improve my abilities at developing functioning software. I know that this kind of sounds like a simpler project, but I plan to give it more advanced functionality and create a user interface (because doing everything in the console is lame) to make it more challenging. Most software developers could easily make a simple ATM program in the console in one night, so I'm trying to make it as in-depth as possible to make it be worth it for the semester. I have no idea how GUIs work in Java, so it should be a good learning experience. The ATM program would contain around 4-5 classes:

- **ATM** - class that makes the ATM function (kind of like the main class)
- **ATMGui** - this would make the GUI/menu operate
- **Account** - class that stores most of the account information including number, name, balances, insufficient funds - everything you would typically expect to access in an ATM. This would probably be stored in text files.
- **Transaction** - class that allows for withdrawals, deposits, transfers to other accounts
- **User** - class that will prompt users with a card number, PIN, etc. to permit them access to the functions of the ATM.

Maybe even something that encrypts and decrypts your PIN/password for the account? I could also include a class that deals with what **bank** you are interacting with. Another idea to improve functionality is to have a **security** system, where the ATM locks you out after failing a certain amount of attempts of entering a PIN/password. Overall, this should be an interesting task to take on. While I have no intentions to become a software developer, there is no doubt that it is still an important topic to have some skills in, regardless of what kind of computer scientist you are. I wanted to try connecting this to a database somehow, but I have little to no knowledge of how to implement that with Java. I might try to experiment with databases just a little bit, but I really have no experiences at all with them. Perhaps I could connect the ATM application to a MySQL database. That would require a bit of research, but it definitely seems like a rewarding task.