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Senior Design

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Self-Assessment Essay

My senior design project will be a student loan calculator. Students can enter their financial information into a web app and it will calculate their payoff dates, total of payments, and give advice on which repayment scenarios to choose. Today’s college graduates have significantly more student loans than past graduates, and economists are predicting that student loan debt will slow down the US economy in the future. Many college grads do not understand how to calculate loan amortizations and cost/benefit analyses. There are currently no online, high quality, and free calculators dedicated to student loans. My senior design project will fill this need.

Senior capstone is the culmination of 5 years of school studies, and it is where we can demonstrate what we have learned. In Data Structures, I learned the ‘basics’ of programming and how to use computer languages. In Algorithms, I learned how to think and solve problems in the way that computer scientists think. Most of my current knowledge of JavaScript comes from one assignment in Artificial Intelligence. I wanted to specifically do this project because it combines both my major in computer science and my minor in economics. Personal finance has long been an interest of mine, and in 9th grade I scored in the top 1% of the National Financial Capability Challenge.

All five of my co-op terms were at Siemens PLM. During the second and third co-ops, I worked on a web app which was written in Java and compiled to JavaScript using Google Web Toolkit (GWT). Since the source code was written in Java, I did not interact with JavaScript very much during these co-ops. I learned some about UI design relating to web apps, but in my opinion the UI design was lacking, since it was built by software engineers and not graphics designers. Also on my second and third co-ops, the product I was designing used a scrum team methodology. I learned how to build a web app tailored to the customer’s needs, and how to break apart a large project into bite size pieces.

Personal finance has always been a strong interest of mine. I believe that people can experience freedom when they put effort into planning their financial future. The powers of compound interest seem nonsensical or ‘magical’ to people who don’t understand them. This hurts people by causing them to take out loans that are too large or to pay the loans back too slowly. The web app will allow users to input data about each loan that they have. It will calculate their expected repayment time and total of payments over several time periods and for several monthly payment amounts.

For the senior design class we will be using a form of the waterfall method. I’ll write out the design of the product first, including UML diagrams, wireframes, and use cases. I would like to have the design completed and be able to start coding by the beginning of December. At some point I’ll need to get the advice of a graphic designer, since I am not good at that. By the end, the product should be a fully functional and user-friendly web app that is helpful to people with student loans. I will know that I have done a good job if I am proud to show off the product during interviews.