**Honors Capstone Project Prospectus**

**Renee Lucas**

**Proposed Title:** Financial Application

**Mentor:** Deborah Wilson

**Purpose of the Study:**

The purpose of this study, or better known as a program, is to allow users to make more informed financial decisions by having an application that would perform all the complex calculations for their given scenario. Thus, allowing the process to be simplified so that the average user can understand the effects of their investment in a more visual format. For now, I am tailoring the program to user’s like myself and several family members and friends that have very little financial knowledge yet would like to make the most of their investments.

To do this I have decided that Visual Basic would be the best programming language to use, since it has versatile graphical user interface (GUI) features that can be used. The application will contain a startup menu, displaying all the features and functions of the program, a splash screen and will support importing and exporting functions. These features will include, but is not limited to, a Certificate of Deposit Calculator, Loan Calculator, Tax Rate analyzation and some budgeting functions. As time and interest permits, additional features may be added. Thus allowing to project to adapt to the complexity level that is needed to satisfy the Honors Program capstone requirements. Graphical features, like visual graphs and tables, will be used to display the data and conclusions.

Programs are created to make life easier for the user, thus any program that accomplishes this goal is important to the world of computer science. I’m interested in creating this program to assist myself in making financial decisions in my life. Through the creation of this program I will enhance my understanding of basic financial topics and the mathematics behind them in addition to expanding my programming skills. This is important to me since I have spent the last learning how to make well informed financial decisions and investments and enjoy using visual basic. I would like to learn what other things visual basic can do and to put it to use in a real world project.

**Methods:**

Research of financial topics will be performed by using scholarly materials including but not limited to textbooks, academic journals and papers. Once the mathematical background has been established, I will use multiple online sources to guide myself into learning additional features in Visual Basic that was not taught in the Programming for Business classes. The program will be a representation of my understanding of these features and functions.

When it comes to the process of the program development, the Software Development Lifecycle will be followed. This process includes; establishing program requirements, design and development, testing, documentation and implementation. When it comes to testing, I will perform my own functionality testing during development to ensure that everything works as it should before moving onto the next step. At the end of the initial development phase I will find volunteers to perform system and user acceptability tests on the application. These volunteers will include students, professors, and family members and they would test the application and will try to break it. As “bugs” arise, I will go back and find what broke and fix it in such a way that prevents the same issue from occurring again. Upon completion of these tests a detailed user manual/documentation will be created to allow users to quickly understand how the user the application.

**Materials:**

There are no particular materials that would need to be purchased, but this project relies on the user of Visual Studio, which I already have installed on my computer, and multiple online resources that will be determined at a later date.

**Learning Outcomes/ Student Outcomes:**

1. Integrate theories and concepts in the field of study to broaden their knowledge.

2. Engage in self-directed learning and independent research.

3. Develop and demonstrate the ability to conduct an individual inquiry on a proposed topic.

4. Utilize Visual Basic in areas not covered in Programming for Business, such as utilizing multiple forms, classes, and data importation and exportation.

5. Exhibit the ability to follow the software development processes.

6. Integrate error handling into an application.

7. Develop a real-world application to assist users in making financial decisions.

**Expectations:**

Though this project I expect to expand my knowledge on both Visual Basic code and finance. I would also get the opportunity to work on my error handling skills.

Studying this topic would be useful to me in the future, as it gives me some exposure into the world of software development. After working in the field of networking for the past year and a half through my internship, this project would give me a different change of pace and an opportunity to expand my skillsets. Creating a large scale program, like this project, will show employers that I can work independently and showcases my troubleshooting skills (when things don’t work as expected). It also would allow me with an opportunity to learn how to perform research in the field of computer science, and to experience on how to present computer related topics to an audience who may not be too familiar with the subject.

**Existing Literature:**

There is currently a lot of different financial calculators out there, with most of them being web based. I will be making my program different from other calculators by creating an integrated application that can be installed on any computer running windows. No internet access will be needed to run the program. I am also considering allowing users to save their data through exporting features. These features will allow for more functionality to create a budget and possibly integrating a database. In particular. I am looking into integrate some cost splitting analysis.

Some of the existing programs I have found include:

* Calculator.Net: <https://www.calculator.net/financial-calculator.html>

This site has many different interactive calculators ranging from investments, loans and even taxes.

* Bankrate.com: <https://www.bankrate.com/calculators.aspx>

This site also has several different calculators but focuses on investments.

* Investopedia has some descriptions of current apps: <https://www.investopedia.com/personal-finance/personal-finance-apps/>

These are more orientated to android apps; which this could be another direction I can take this project. These suggested “best apps” include Mint, You Need a Budget, Wally, and Acorns.

**Annotated Bibliography:**

* **Microsoft Visual Basic Reference:**

Kathleen, Dollard. “Visual Basic Language Reference.” *Microsoft Docs*, docs.microsoft.com/en-us/dotnet/visual-basic/language-reference/

This would be a nice reference to use to learn how to program using Visual Basic. Since it comes from the publisher of the programming language it would be an ideal source.

* *Programming with Microsoft Visual Basic 2012,* Sixth Edition, by Diane Zak, ISBN: 978-1-285-07792-5, 2014, Cengage Learning.

This is the book from when I took Programming for Business. It is mainly tutorial based, but it could be a good reference for when I can’t remember a command, especially since I’m already familiar with the textbook.

* Calculator.Net: <https://www.calculator.net/financial-calculator.html>

This site has many different interactive calculators ranging from investments, loans and even taxes. These would be great starter ideas to expand upon.

* Bankrate.com: <https://www.bankrate.com/calculators.aspx>

This site also has several different calculators but focuses on investments. Also a good resource to gather starter ideas

* Investopedia has some descriptions of current apps: <https://www.investopedia.com/personal-finance/personal-finance-apps/>

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**Proposed Timeline:**

*August – September 2019-* Develop design requirements and perform any financial mathematic research. Develop a plan on how to develop the program

*October - December 2019-* Coding: This will be further divided into sections once user requirements are established

*January - February 2019-* User based system testing, fixing bugs and finalizing the program. Begin to develop documentation as time allows

*March 2019-* Create user documentation

*April 2019-* Defense Prep and making any final touches