**Proposal for the Analysis of the Elm Programming Language**

The Elm programming language is primarily used for front-end web development. The language is essentially a simplified version of HTML and JavaScript; in fact, when compiled, Elm is converted into JavaScript [1]. Like popular languages such as Python and Lisp, Elm is a functional language, meaning that the syntax is primarily mathematical [2].

Elm’s data structures are consistent with many other programming languages (like Java and C++) in that, while the nomenclature varies, the general structure is consistent. At its core, Elm has functions, variables, if-then statements, lists, records, etc. built in. Functions are useful for taking in parameters and using them to perform some certain task, often returning a value. Lists are a derivative of JavaScript’s array structure; consequently, lists hold elements of the same type [1]. The type of the list is not explicitly defined, so the elements within implicitly type the list, i.e. a list containing all integers will implicitly type it as an integer list. Records are like Java’s classes or C++’s structs. A record in Elm is a structure that can contain a diverse range of variable types concurrently. For instance, a record can hold an integer, a string, and a character if each are defined with a unique name, and each “sub-record” can be accessed and changed independently.

Elm is broken down into three main components: model, view, and update [1]. It is these three concepts that define Elm development; the model is represented by the view (which is HTML or JavaScript) and the update aspect alters the model. Because of the simplicity of this architecture, Elm is useful and manageable for creating websites, blogs, and web games. The Elm architecture is very similar to that of JavaScript (after all, Elm does compile into JavaScript); part of that similarity is that Elm is heavy on messages, meaning that it is event driven. Elm relies on events to trigger or be triggered so that messages can be passed around to update the model [3].

The reason that I chose Elm for this research project is because I am familiar with HTML and JavaScript concepts – in fact, playing around with HTML is what got me interested in computer science in the first place. I have never heard of Elm until now, but now that I have completed some preliminary research on the language, I know that I want to learn it to expand my horizons in terms of front-end web development. I have great aspirations for this project, and I know that I can garner enough information on Elm to create a satisfactory report. The previous paragraphs are simply to acknowledge that I have at least begun to research this language; nonetheless, I do have a set course of action for this project, and as part of this proposal, I will detail that plan.

To begin researching, I plan to consult numerous online repositories and guides to gain a basic understanding of the concepts of the language. I have already integrated the Elm language syntax into the Atom text editor so that I can learn to program in Elm throughout the course of the project. It is my plan that I should not only complete this research project by satisfying the documentation requirements, but I also wish to gain a functional understanding of Elm and to demonstrate that understanding by creating a small webpage. This is perhaps one of the first projects that I am greatly anticipating, and I intend to put forth the utmost effort and quality in my final product. As I work on the paper itself, I will keep a running tally of sources, both online and perhaps physical, and in the paper, I will demonstrate some of the Elm concepts through small snippets of code that I will have written. The paper will thus adequately quantify the information concerning Elm both textually and demonstratively.

I will be using the three sources listed in the reference section of this proposal in the final draft of the paper; however, I will have many, many more sources to come. I sincerely look forward to the completion of this project, and I aim to exceed the standards set forth and to not only complete this assignment but to also acquire a new language to put under my belt.

References

An Introduction to Elm, https://guide.elm-lang.org/, accessed Feb. 2, 2020.

Functional Programming Paradigm, https://www.geeksforgeeks.org/functional-programming-paradigm/, accessed

Feb. 2, 2020.

Getting Started with the Elm Programming Language, https://www.toptal.com/front-end/getting-started-elm-

language, accessed Feb. 2, 2020.