**University of Puerto Rico Mayagüez Campus**

***DEPARTMENT OF MATHEMATICAL SCIENCES***

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***Project Plan: Poinsly***

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**Introduction:**

Our goal with Poinsly is to provide an effective and simple programming language for public use to solve Algebraic problems. It could be used as a tool for those learning Algebra and for those getting started in the programming world. This language would be fit for solving Quadratic and linear equations and graphing as of writing this plan.

**The features Poinsly offers span from:**

* Efficient performance.
* Ease of use.
* Solving equations.
* Providing graphs.
* Readily accessible.

**Example Program in Branch:**

1. Solving a linear equation

Input:*12x+24*

Output: Solving for X: -2, Linear equation graph

1. Quadratic equation where discriminant is less than 0

Input:*2x^2+5x+6*

Output: No real solutions

1. Quadratic equation where discriminant is equal to 0

Input: *1x^2+-2x+1*

Output: Real and same roots: 1, Quadratic equation graph

1. Quadratic equation where discriminant is greater than 0

Input: *1x^2+10x+-24*

Output: Real and different roots: 2 and 12, Quadratic equation graph

**Implementation tools:**

The OS we will be using is Windows. We will also be utilizing the premade Python lexer/parser named “SLY” and Python standard libraries such as Cmath. Using that lexer and parser to build an action tree so that way we can execute our code. As we currently take this class and learn of more tools, we will be adding more of them that we find important for our language.

**Project plan:**

On the 3rd of May of 2021, after the losing a member from our previous project “Branch” 2 weeks prior, we decided to create the new programming language named “Poinsly”. Our team consists of 2 members named “Edmanuel Ayala”, and “Jorge Huertas”. The goal for this new programming language is to incorporate a very easy to use graphing calculator. First, we begin work on phase 2 starting with the SLY lexical analyzer and SLY syntax analyzer as our foundation of our language. That way for phase 3 we can begin to understand what tools we need and how we can use them to reach our goal. Through that we can use intermediate code and start to clean up any errors we can find up until May 14th. After that, the final report process will commence and will include:

* Introduction
* Language tutorial
* Language reference manual
* Language development
* Translator architecture
* The interfaces between the modules.
* The software development environment used to create the Translator.
* The test methodology used during development.
* Programs used to test our translator.
* And the conclusion

**Project Timeline:**

**\***See Gantt Chart for more details

Project Begins – May 3

Learning SLY – May 4 – May 9

Adjusting Lexer & Parser – May 5 – May 9

Intermediate Code – May 9 – May 11

Testing and Error Correction – May 9 – May 11

Development of final report – May 11 – May 12

Final Report and Demo Ready - 13 May