

Visualizing Complex Functions

Milestone 1

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Milestone 1 :

- Select and research 2D and 3D graphics library
- Research complex functions and their visualization (Tristan Needhm, Visual
- Complex Analysis)
- Requirements Document
- Design Document
- Test Plan

Milestone 1 Matrix

Name	Completion %	Paul G	Branden D	Bradley W	To go
Requirement Doc	100%	20%	60%	20%	0%
Design Doc	100%	20%	20%	60%	0%
Test Doc	100%	50%	30%	20%	0%
Research	60%	30%	15%	55%	40%

Requirements Summary

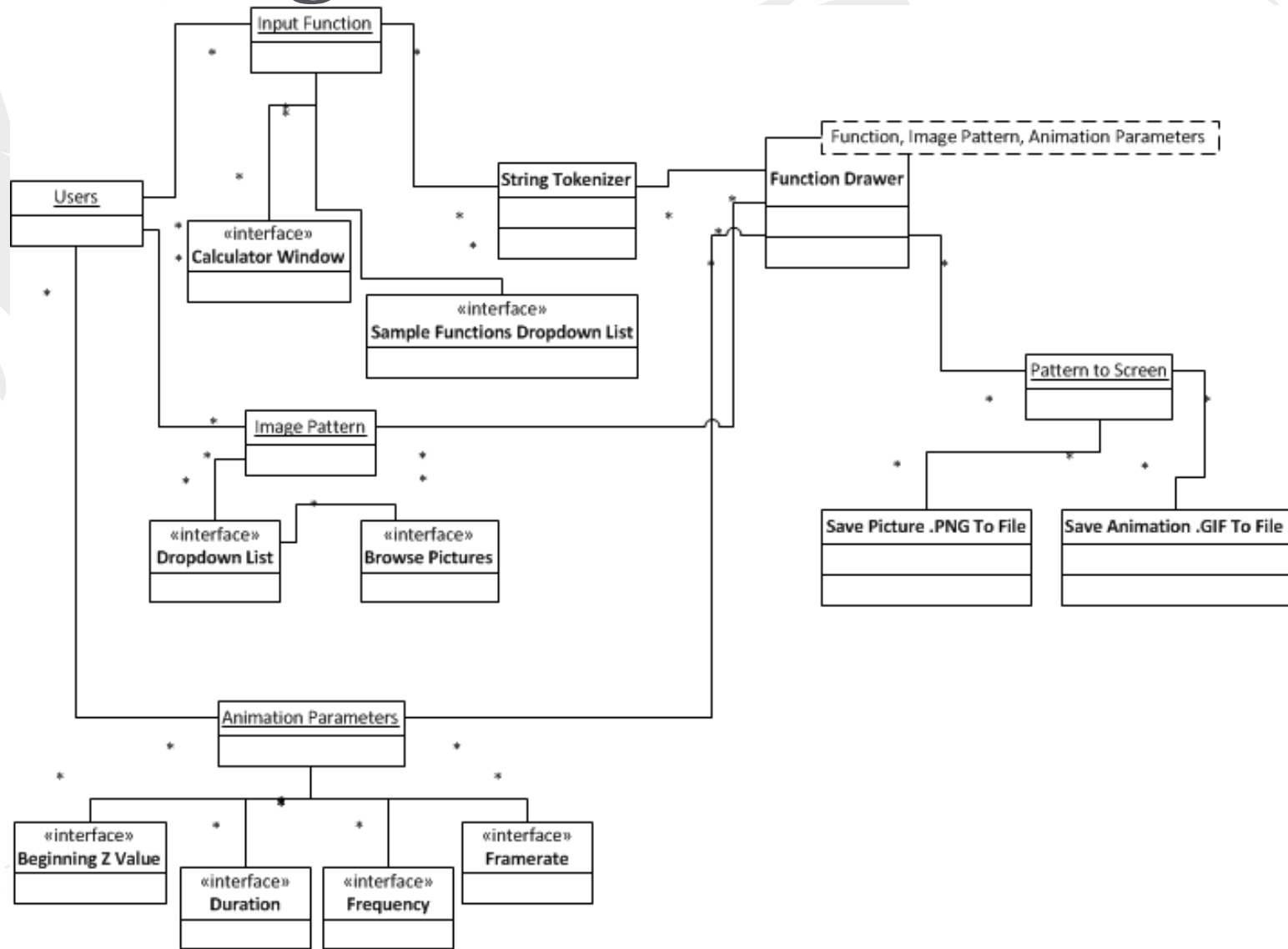
The requirements document defines what we hope to accomplish for this project. The main goals of this project are to allow a user to be able to input a function in a text field to graph. They will also be able to select patterns, shadings, and other parameters from a list, as well as choose what type of graph they want to draw.

Design Summary

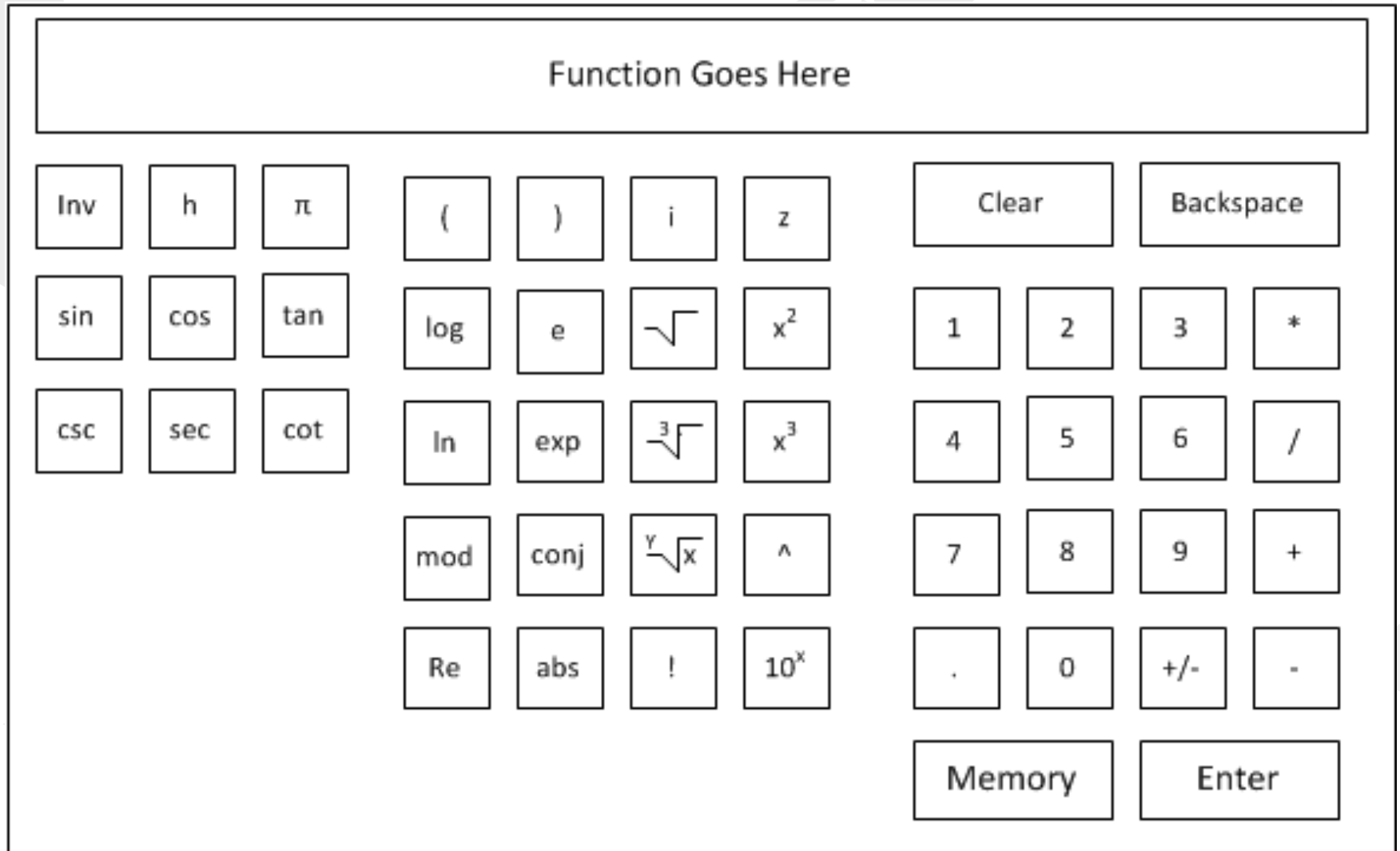
The design document shows how the program will run and what each step the program is in as it runs. The UML diagram shows the steps the program will take from Users to printing the pattern to screen and asking the user if he/she wants to save the resulting PNG image or GIF animation.

The written document will further explain each step of the program. The class “Function Drawer” is a parameterized function that will take 3 parameters -- a valid function, an image pattern, and an animation class (duration, frequency, FPS, and starting z value) -- and will create an image to map the complex function.

UML Diagram



Calculator Diagram



Test Summary

The test document defines how we will test multiple functions in our project. The primary goals of our testing includes validating accuracy in modeling complex functions, simplicity and usability of the program with relation to the end user, and functionality in different environments.

Test Examples

Name	Description	Frequency of expected problems and Impact Value	Test Cases
Input Field	Area for users to input functions to graph	High Freq. High Impact	Buffer Overflow Divide by 0 Unrecognized Variable Uneven number of parentheses Parentheses with empty field No entry Negative Square Root Int/Double Overflow
String Tokens	Breaking down a string into readable components	Med Freq. High Impact	Evaluating tokens that are invalid on their own (e.g. “-”) Parsing capital and lowercase letters Tokens that can't be evaluated together
Interface Design	Conveys program features effectively and ease of use by our target user	High Freq. Med Impact	See if the user can infer what each button does at first glance See if the user can operate the program with relative ease Get user feedback on the interface

Research

Complex Drawer

3D Complex Function Grapher

Milestone 2 Goals

- Set up website and applet with dummy GUI
- Implement a simple function
- Implement one pattern

Milestone 2 Matrix

Task	Paul G	Branden D	Bradley W
Set Up Website	20%	70%	10%
Dummy GUI	30%	20%	50%
Functions and Patterns	50%	25%	25%

Questions?

