420-SF3-RE

Program Development In A Graphical Environment

Deliverable 4 – Project Implementation

Sebastian Bobos, Alex Huang

Nagal Drawel
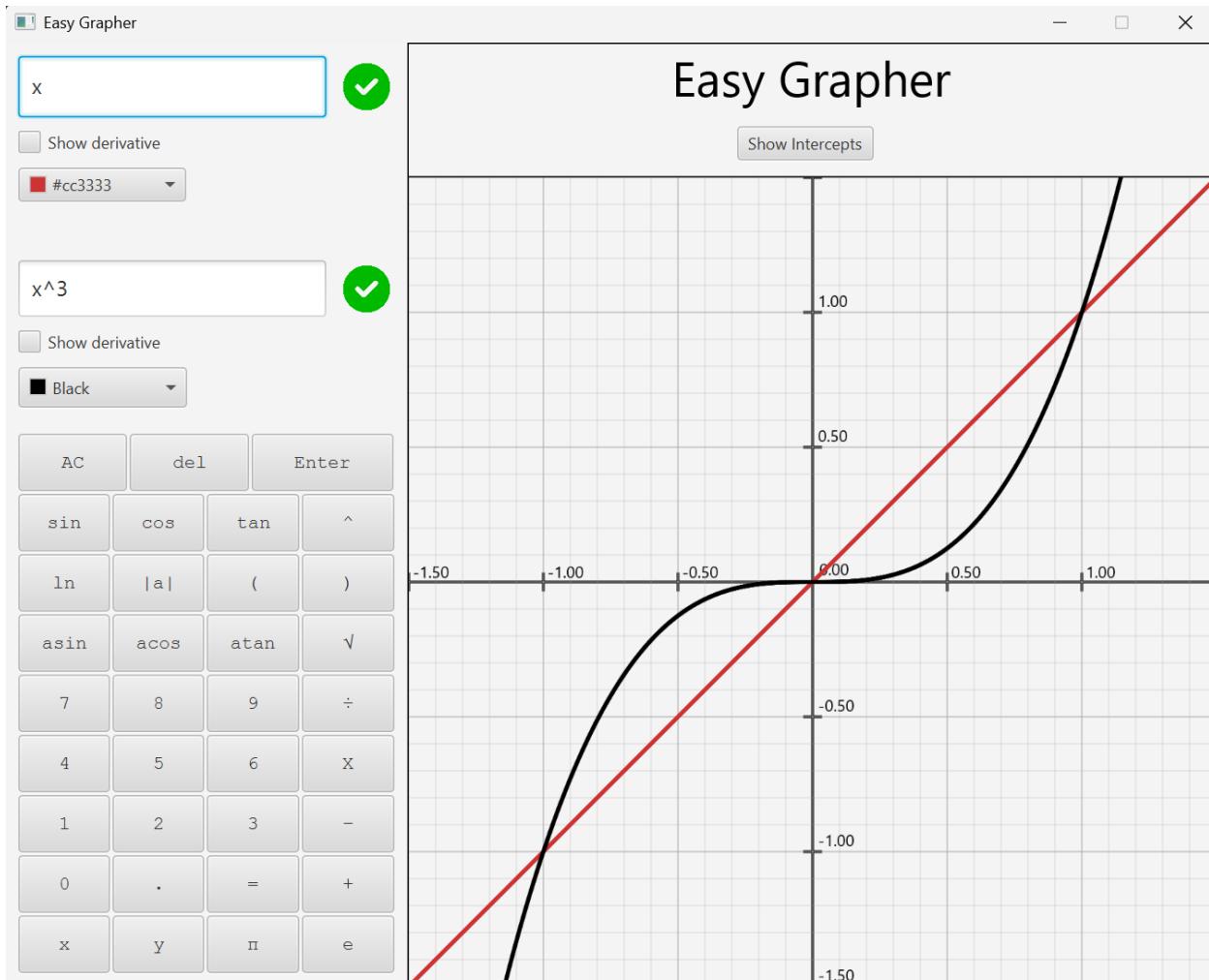
November 30, 2025
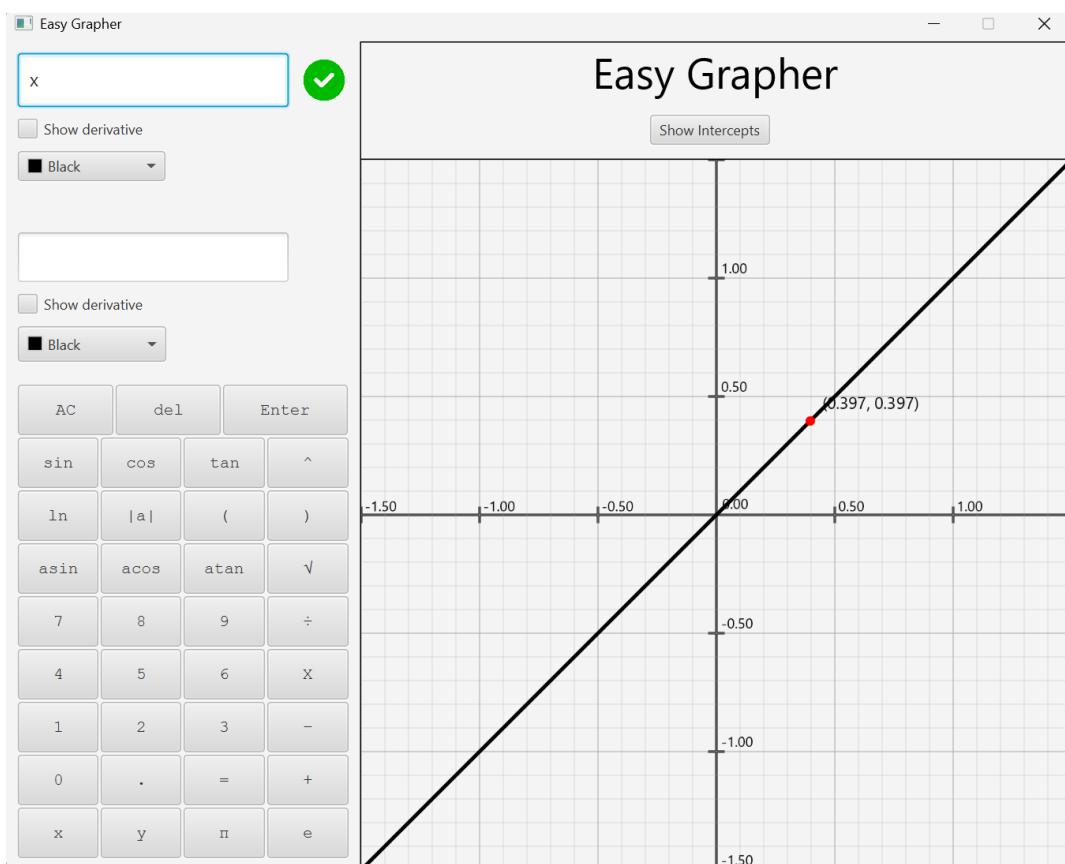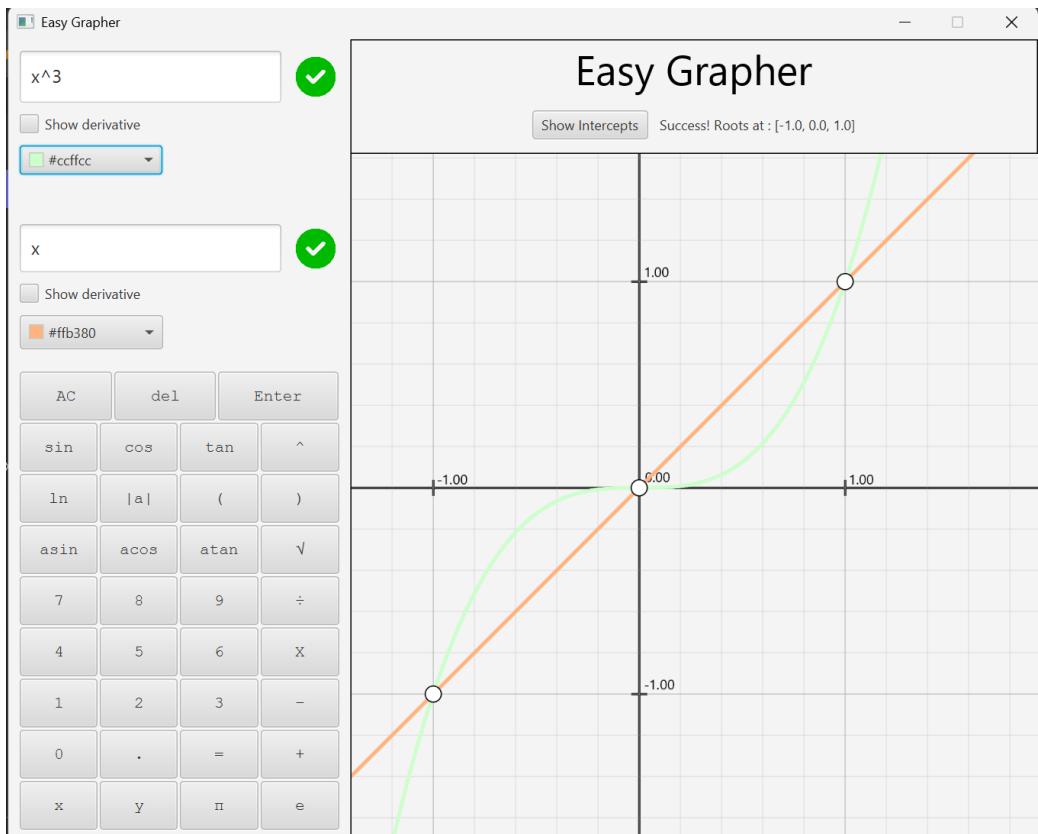
1. Changes made to proposal
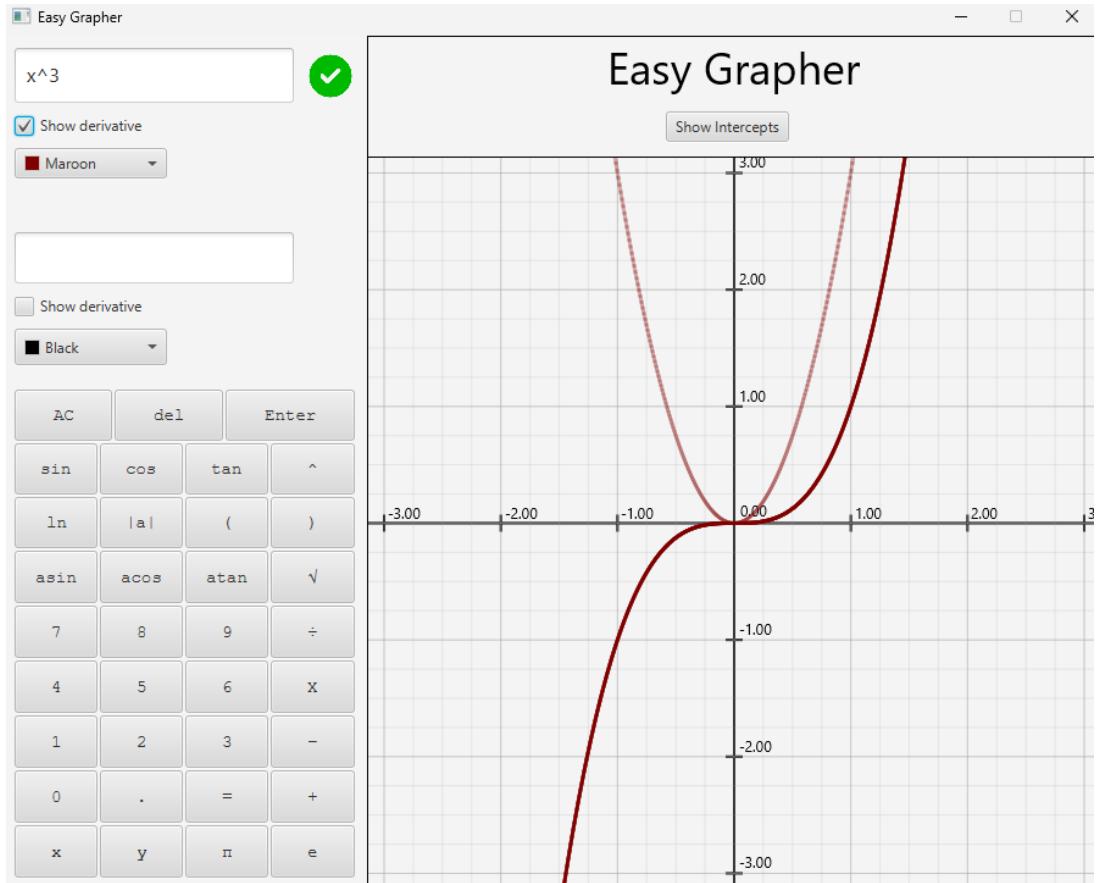
We did not make many changes to our proposal, but we added a new feature to our project which is showing a point on a curve when clicking on the corresponding curve. We also added some quality of life features such as debounce in the function inputs so that the user wouldn't need to hit enter but the performance would not be heavily affected (not reloaded after every key stroke).

2. Examples of project functionality

Here are some screenshots showing the implementation of the features of our project:

Easy Grapher

x^3

☐ Show derivative

#ccffcc

x

☐ Show derivative

#ffb380

AC	del	Enter	
sin	cos	tan	^
ln	|a|	(	)
asin	acos	atan	√
7	8	9	÷
4	5	6	X
1	2	3	–
0	.	=	+
x	y	π	e

Easy Grapher

Show Intercepts   Success! Roots at : [-1.0, 0.0, 1.0]

1.00

-1.00   0.00   1.00

-1.00

Easy Grapher

x

☐ Show derivative

Black

☐ Show derivative

Black

AC	del	Enter	
sin	cos	tan	^
ln	|a|	(	)
asin	acos	atan	√
7	8	9	÷
4	5	6	X
1	2	3	–
0	.	=	+
x	y	π	e

Easy Grapher

Show Intercepts

1.00

0.50

(0.397, 0.397)

-1.50   -1.00   -0.50   0.00   0.50   1.00

-0.50

-1.00

-1.50

Easy Grapher

x^3 ✓

☑ Show derivative

■ Maroon ▾

☐ Show derivative

■ Black ▾

AC	del	Enter	
sin	cos	tan	^
ln	|a|	(	)
asin	acos	atan	√
7	8	9	÷
4	5	6	x
1	2	3	-
0	.	=	+
x	y	π	e

Easy Grapher

Show Intercepts

These showcase the following features (the features of our project):

- Graphing of functions,
- Color changing,
- Reading (and understanding) function inputs
- Finding and graphing the derivative
- Showing the intercepts/roots
- Showing a selected point of a function
- Using the on-screen keyboard
- Zooming and panning of the graph

3. **Links**

Trello link: https://trello.com/b/tXBT0KVG/graph-calculator

Github link: https://github.com/nepallium/Easy-Grapher