GuessTheFunction

Overview

Understanding and analyzing data and its relation to other data has been of growing use over the past couple of decades. Those that can study data and garner confident conclusions about some state of the world hold a place of value in the current economic climate. Tools exist to graph equations from functions but no tool exists that, from a graph, can list a number of potential functions – this is useful in running further calculus based analysis about the relation between the x and y axes. Designing this product is the goal of this project.

Customer

This product is intended for math / science students from 10 years old and up. The intention is to fill the current void in products that provide this service – if you use desmos, you're a potential end user of this product.

Validation

To validate that a user would find some value from this project, I completed a very rudimentary product roadmap walking through the stages of the product from need identified to need solved (Figure 1). I sent this product roadmap to 6 of my closest friends (as this is an avenue for highest response rate). At the end of the product roadmap, I asked each respondent to fill out a form asking if they see a need for this product (Figure 2); 60% of respondents responded yes, 20% no, and 20% not sure with a total sample size of 5 respondents. Further testing would be needed to lend confidence to this project but I do believe this validates that the product would serve some use.

Functional Components

1. Frontend

   Build functional website where data is translated from a 2d whiteboard input to the backend in a lossless manner. Answer the question: how can we communicate user input to the backend in a user friendly way?

2. Backend

   Design and implement an algorithm that translates pixel location to functional input / output with tolerated degree of uncertainty. Answer the question: how can we convert user input into reliable predictions?

3. Testing Team

   Test code coverage and abstract-ability when in development; test user experience and error handling when code is pushed live. Answer the question: what wasn't considered that should have been?

4. DevOps

   Consistently maintain formalized and standardized code quality, effectively communicate with team members tasks to be done and current project timeline including small and large wins. Answer the question: how can we ensure students are at the intersection of intrigue and challenge with exposure to the full pipeline of the product's development?
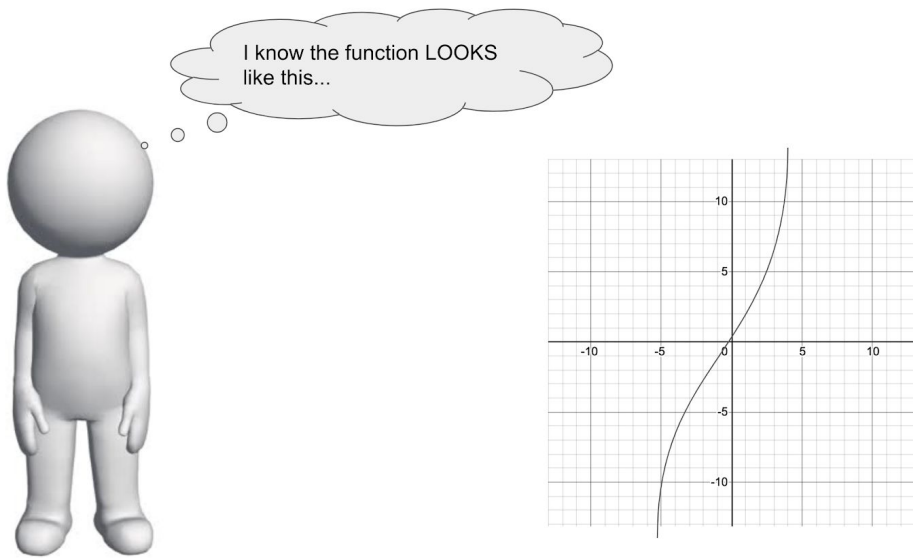
Conclusion

This project provides meaningful areas for developers from all skill levels to provide genuine value. If you are just starting out coding, it could be beneficial to begin working on the testing team to make sure the product is well integrated. If you are an intermediate developer, perhaps you would have a better time developing the algorithmic backend needed to predict a function's equation or working on the UI/UX in the frontend to relay information from the user to the
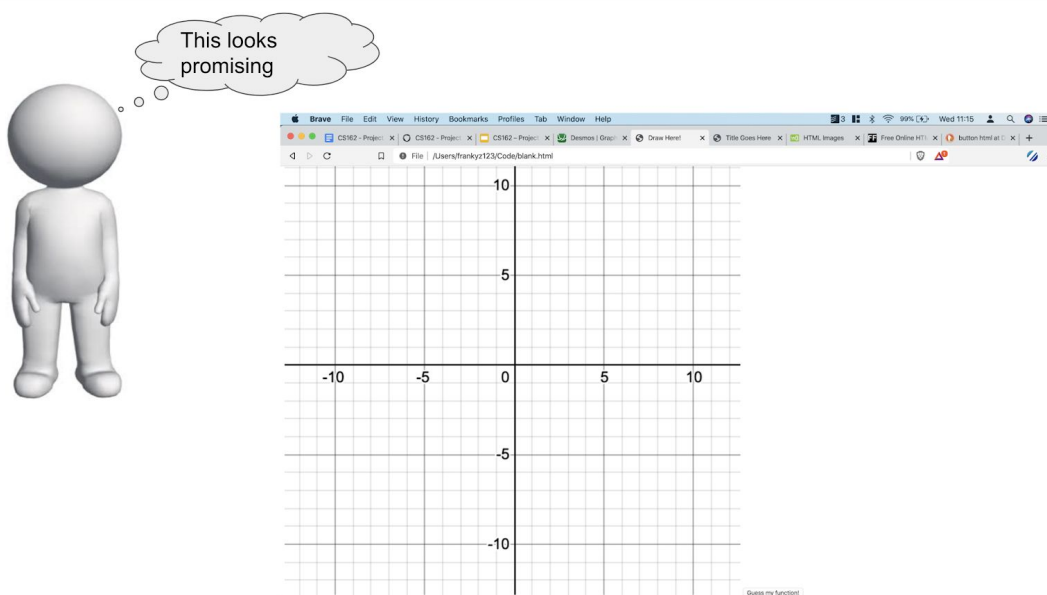
backend in a reliable, lossless manner. If you are an advanced programmer, this project would allow you the opportunity to direct more junior level students in their development of a component of this product as well as take creative license in the execution. This project is attainable, it is interesting, it is scalable, and it is novel – let's build it!
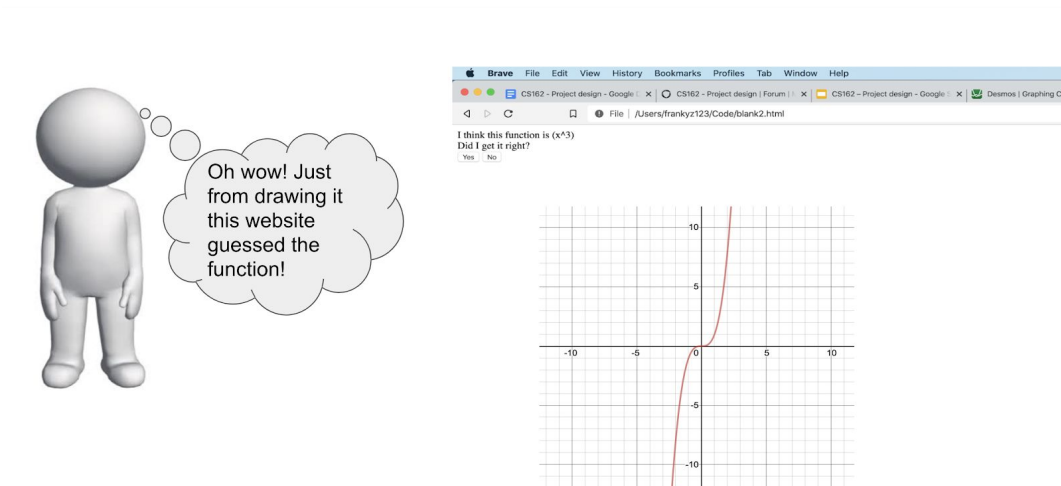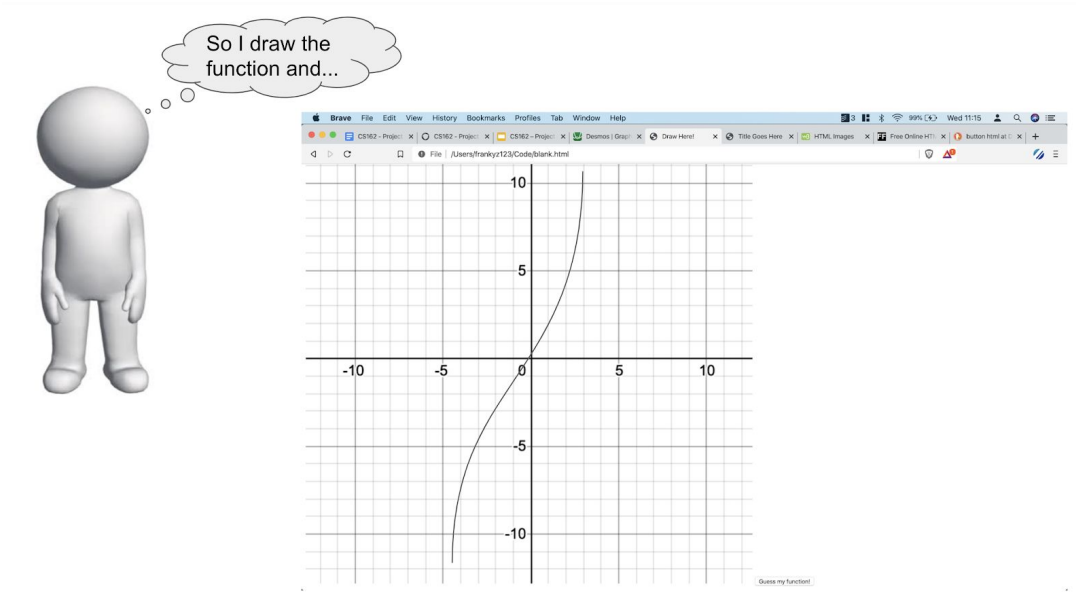
Appendix

Figure 1

I'll try desmos

Darn! Desmos only lets me graph a function's equation! I only know how the function looks!

This looks promising

Please fill out this survey! https://forms.gle/Yn24SdrpiMnycVNV6

Figure 2

Draw a Function and Learn It's Equation

Can you see a use for this product?

○ Yes

○ No

○ Other:

Is there anything that prevents you from answering the above question that I can clarify in email?

○ Yes

○ No

If yes, please provide email (this is anonymous by default)

Your answer

Submit