Evaluation

Overview

To summarise the project, all requirements have been met and tested in the testing section. The program works as intended and serves its purpose to visualise experiments and models that maths and physics students would gain benefit from visualising. There is a great foundation in this program to expand and add more models very easily, as well as, ironing out problems with current models. The adaptability of the program is very good and things such as a menu in the pygame window would be an easy implementation in terms of editing existing code which already determines what would be on the menu. Although certain allowed values break the slope model (not the program as a whole which continues to run) which involves setting angle to a higher value than ~45° on the slope experiment but this would be an easy fix to disallow these values but a slightly more complex solution to integrate these values into the program. More experience in using pygame and more fluidity in my python programming would have allowed faster progress and potentially more requirements to have been made and completed which leads to:

What could have been different

In hindsight, many factors have hindered fast progress which, in a second version of the project, could be eliminated to ensure a more successful program. The Following includes what a remake would have put into it and what it would entail. My personal experience with pygame and python is far stronger now than it was at the start of the project, with this increase in confidence and speed in programming necessary algorithms to help get more done in the time spent. With this increased personal aptitude more models could be implemented expanding the scope of the program, increasing its usefulness to the end user. Programming everything to be easy to debug from the start and compartmentalising the code would improve the expandability of the program even further which increases the value of the project for improvement by not only myself but by others. Giving an option to save results permanently would be a useful addition to the program. Providing an option to change the resolution of the results or to change the resolution of the results table would increase the user friendliness of the program. Having the ability to run any model from a file would also be a good addition requiring more information to be stored in the file as well as improving the accessibility of the program and allowing students to be given models by the teacher without having to go through much of the program. These are just a few examples of what could go better in a version two but it also highlights how the core program of this version is a successful project.

Feedback

- Dad's Feedback, The program simulates the experiments correctly, however the user interface is not intuitive and so accessibility could be improved, which involves the functions of the program, which are not immediately apparent to the user as the wording of some functions are similar and can be confusing if the user interface is not explained. For example: when continuing to simulation from the experiment-menu to the post-1st-instance-options-menu my father was confused by the similar wording of simulating the numbers of the experiment to actually displaying the model. To fix this I could change the wording of "continue to simulation" to "perform simulation" or "run calculations" & change "continue to model" to "show model" or "display model".

Summary

- Overall success
- Could have done more models
- Strong input sanitisation

In summary, the program is an overall success with a strong foundation for growth through new models or a more accessible and polished user interface. The strong input sanitisation ensures a smooth crash-free experience for users which is essential for people who don't want to worry about the program they're using and just want to look at the models.

Evaluation writing plan:

4/4 requirements Full consideration given to how well the outcome meets all of its requirements. How the outcome could be improved if the problem was revisited is discussed and given detailed consideration. Independent feedback obtained of a useful and realistic nature, evaluated and discussed in a meaningful way.

plan: - The outcome has met most requirements (link the testing list and talk a bit about that) - outline defensive programming against user input - More requirements could be done

- More experience with pygame and python
- More Models
- Robust programming from the start
- More compartmentalisation
- More separate files to improve debugging efficiency
- Saving results more permanently
- Running from files

- feedback
- Overall success
- Could have done more models
- Strong input sanitisation