

Beta Testing

As I have completed all of my agreed objectives in the technical solution, I will need feedback from the users themselves. I sent my program to test to my client and a maths student for one week. I also provided them with a questionnaire to fill in about how they are finding the features of the program and if they would like any improvements. The questions used in the questionnaire is shown below. The student sent me the document back electronically, so I have added quotes around their answers and have italicised them. My client had written down all his feedback on this beta test, so I have included a scan of that document.

Student Questions

How do you find the Mathematics Revision Application, overall?

What do you think of the GUI?

Are the interactive revision materials helpful?

Do you like the progress tracking features?

How is the Maths Invader Game?

Are there any improvements that can be made?

Did you find any 'bugs' (aspects of the program which made it stop working or did not function as you expect it to?)

Teacher Questions

How do you find the Mathematics Revision Application, overall?

What do you think of the GUI?

Do you like the progress tracking features?

Have I met all the agreed objectives to a high standard?

Are there any improvements that can be made?

Did you find any 'bugs' (aspects of the program which made it stop working or did not function as you expect it to?)

User Feedback

How do you find the Mathematics Revision Application, overall?

"I thought the application itself was really well-made. I liked all the vibrant colours, and there were a large number of features I could use which was nice."

What do you think of the GUI?

"As I said, I really like the vibrancy each screen offers. Colour coding the different sections was a nice touch. The different coloured buttons were cool, and the little home button on the top right of each screen was a smart feature."

Are the interactive revision materials helpful?

"There were some excellent revision materials. Although there were only a few topics you offered, I really found it useful. I enjoyed using the Calculus section the most because I find that topic pretty difficult. Having the graph plotter was brilliant because I kept on trying different functions and having a go at working out the gradient and area. It was great when I got the same answers as the program, and it became more common. I think I actually developed some of my skills in the topic just by practising for a long time with your program. I didn't spend as much time on the trigonometry section as I was already pretty confident in that. The statistics section was interesting to play around with and to use the Central Limit Theorem to estimate the probabilities of being within the set of numbers was an intelligent feature."

Do you like the testing and progress tracking features?

"After spending some time revising, I completed some tests, and I noticed the difficulty of each question becoming progressively harder. It was a great idea having the checkboxes for choosing the topics in the generated test. One thing I did notice was that some of the most difficult questions repeated a couple of times when I used it, but that is probably because of the limited number of questions you said you had in the program. The progress tracking was awesome; it was pretty clear that trigonometry was my strongest topic because of the 100% correct answers I gave! I think it is a great feature that will become more useful as more topics and questions are added."

How is the Maths Invader Game?

"I thought it was a fun game. I remember voting for this game in your initial surveys, and I am glad that you made it! I enjoyed the retro/nostalgic vibe that I got when playing the game but most importantly, the maths questions that you integrated into it were also done pretty well."

Are there any improvements that can be made?

"The only improvements that I can think of is to expand the number of topics that you have, both in revision and in the topic tests. Also, have more questions for each topic as that will make it even more useful."

Did you find any 'bugs' (aspects of the program which made it stop working or did not function as you expect it to?)

"None"

Client Feedback

How do you find the Mathematics Revision Application, overall?

The application is wonderful and works well, I thought the interactive revision materials were completed well and would be helpful to many students. The application was clear and coherent in its instructions for each section. I think you should be proud of it because it is an excellent revision application which I can see helping many maths students in school and hopefully beyond that too!

What do you think of the GUI?

As I signed off all the aspects of the GUI, I thought it was perfect! I realised you could add a simple log out button as I remember that was needed from when I was testing the application.

Do you like the progress tracking features?

They were ~~so~~ superb! I was particularly impressed by the ability to find detailed progress tracking for the class and for a student of my choosing. It was nice to see the additional scheduling aspects that you included which I was happily testing out with both the student and teacher accounts you provided.

Have I met all the agreed objectives to a high standard?

Whilst I was testing out your program, I was looking through each of the objectives and ticking them off one by one. All of the objectives that I decided with you were met, and I think you may have exceeded my expectations with how well the features were combined to make the final application.

Are there any improvements that can be made?

Apart from the log out button, I cannot think of any other improvements. I do know that some ~~say~~ students suggested including more topics, but we have already discussed the time limitations on the project, so I understand if it will not be possible to accommodate that specific request.

Did you find any 'bugs' (aspects of the program which made it stop working or did not function as you expect it to)?

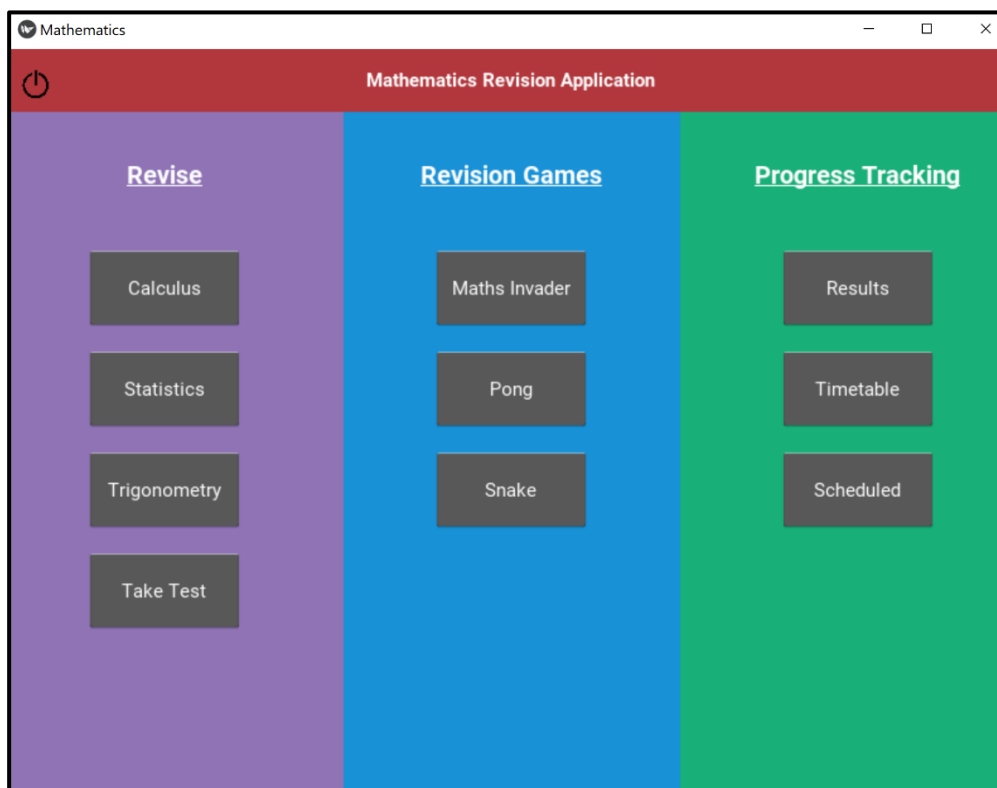
No, I did not find any bugs.

Amendments

As mentioned by the client in his own comments, the addition of new topics and questions will not be possible because of time limitations. I had already laid this out from the beginning, in my Analysis Section, that one limitation of the application due to time was the inability to cover every single topic that is required in A-Level Mathematics Course. However, the other improvement that my client suggested was to have a log out button. I have made this improvement and have added it to the application and relevant screens. The code and example of the improvement are shown below.

```
<PowerButton@Button>:
    size_hint_x: 0.05
    size_hint_y: 0.05
    background_normal: ''
    background_color: 0,0,0,0
    Image:
        source: 'Power_Icon.png'
        y: 550
        x: 0
        size: 45, 45
        allow_stretch: True
```

Code Screenshot 9.1 – Creating my log out button, calling it PowerButton and inheriting from the Kivy button properties.



Code Screenshot 9.2 – Home Screen with updated Log Out button introduced in top left corner from client feedback in beta testing