

Matrix: Accessibility Report

7 Principles of Universal Design

Principle 1: Equitable Use

The features and usability of our program is the same for every user. In fact, every user has access to a simple and appealing UI, as well as the ability to customize any worksheet they desire. Logging in and creating a user is the same for everyone. In addition, we have pictures (e.g. profile icon, or user history icon) that also have text below it for the use of text-to-speech. Finally, our program has alternative features for input. For instance, instead of clicking a button, users can click the enter key to move to the next page. In the future, we will look to implement speech-to-text so the user can customize their worksheet without typing in their input.

Principle 2: Flexibility in Use

Our program is quite flexible in use as the primary function is to create customizable math worksheets. With that being said, our program adheres to the flexibility in use principle as each user can customize their own math worksheet with their desired inputs to accommodate all users. Furthermore, our program is runnable on multiple operating systems; including MacOS and Windows. Our UI is also very simple and easy to use, with simple labels on buttons (buttons are also highlighted when the user is hovering over that particular button). Finally, we also have drop down menus to allow users to easily choose specific inputs.

Principle 3: Simple and Intuitive Use

Our program adheres to the simple and intuitive use principle. Only the most important information is displayed on each screen, with multiple screens to avoid clutter and complexity. In addition, the program provides effective prompting and feedback throughout if they accidentally put in an illegal value. For instance, if the user attempts to input an operand 1 range that has a minimum greater than the maximum, the program will not allow the user to progress to the next screen and instead provides a warning: "Operand's minimum must be lower than the maximum".

Principle 4: Perceptible Information

Our program adheres to the perceptible information principle with the use of simple and easily legible fonts, simple and uncluttered screens, and various colors. Each screen within the UI only contains important elements, with the most essential information being bigger and/or highlighted. For example, buttons have a specific color background, and are highlighted blue when the user is hovering over it. In addition, the border of each button that progresses to the next screen is blue to indicate the user can use the enter key to progress to the next page. Lastly, titles are clearly bolded and are a different color than the labels.

Principle 5: Tolerance for Error

The tolerance for error principle can be seen in our program as we catch invalid inputs and display warning errors. When invalid inputs are caught, we don't allow the user to proceed to the next screen to ensure the generated worksheet is in the correct format. Furthermore, we have our equation details screen separate from the topic/operator screen to avoid invalid parameters/inputs for different operators. For example, the equation details page for fractions is different from the integer equation details page. Thus, the operator

chosen in the topic screen will decide the following screen and our program does not rely on the user to know each operator's parameters.

Principle 6: Low Physical Effort

Features that adhere to the low physical effort principle in our program include the user information persistence and worksheet history feature. Essentially, both these features minimize repetitive actions as our program keeps a record of the user's previous worksheets so they are able to easily regenerate past worksheets (without having to type in the same input). Moreover, when the user navigates between screens, the information the user had in previous screens will be saved to avoid the user having to repeat the same actions (and type in the same input).

Principle 7: Size and Space for Approach and Use.

Our program adheres to the size and space for approach and use principle as our program's color scheme is easily viewable (with contrasting colors) and the program display is also scaled to different screen sizes. For example, if someone has a smaller screen, the size of the buttons, labels, and pictures will scale so each component is easily visible. The size of more important components will remain constant regardless of the user's screen size.

Target market

We would market our program towards those interested in developing customizable math worksheets for the grade school level. More specifically, tutoring agencies, math teachers, parents, and students who would like to complete or assign math worksheets. They would find our program particularly useful because of its simplicity and versatility in creating an unlimited amount of customized worksheets, thus, saving them a lot of time. Whether it's teachers/tutors who want to easily customize worksheets, or parents who want their kids to be ahead in mathematics, our program will easily capture market share among these demographics.

Demographics that will use our program less

Although our program will be extremely useful for students, teachers, and parents interested in customizing math worksheets, we recognize there are certain demographics that would find our program less useful. For instance, people who are looking for advanced mathematics questions, or those who are not interested in giving/practicing math questions won't find our program useful. In fact, our program targets a specific demographic of those interested in customizing grade level math worksheets to assign or complete. Anyone outside this demographic will find our program less useful.