

Describe your process:

- Developed a children's learning game with a basic GUI using Java's Swing library.
- The program allows the child to input their name and initiates two learning modules: alphabet and counting.
- The Alphabet module displays random letters (A, B, or C) with associated images, while the Counting module requires the child to count a randomly selected set of images.
- Incorporates error handling and a user-friendly GUI for a more interactive experience.

Indicate any problems you encountered and how you resolved them, if you did:

- I encountered a `NullPointerException` issue in the `AlphabetModule` when accessing values associated with a key that didn't exist in the `alphabetImages` map.
- Resolved by adding a check for the existence of the key before accessing its associated values.

What you learned from this process:

- Reinforced the importance of error handling, especially when dealing with user input or map operations.
- I learned to incorporate a basic GUI using Swing for a more engaging user experience.
- Emphasized the significance of planning and organizing code to create modular and readable programs.

What resources did you used:

- Java documentation is needed for Swing to create basic GUI components.
- I looked at previous projects and labs
- I looked at old lecture notes.
- I got help from roommate, who helped with array and HashMap

If I had more time...

- I would enhance the GUI by incorporating images into the interface, making it more visually engaging for children.
- Implement the Colors and Shapes module as outlined in the initial project requirements.
- Further improvements could involve refining the scoring system, providing more detailed feedback, and expanding the content of each learning module.
- Explore additional features and modules to enhance the educational value of the game.

### **Summary Report:**

The provided Java code establishes a simple learning game for children, integrating a basic GUI to enhance the user experience. The Alphabet module prompts the child to match letters with images, while the Counting module challenges them to count randomly displayed images. The GUI allows for an interactive and child-friendly environment, encouraging engagement and learning. The code provides a foundation for additional modules and features, fostering the potential for further development and improvement.