

NumberQuest



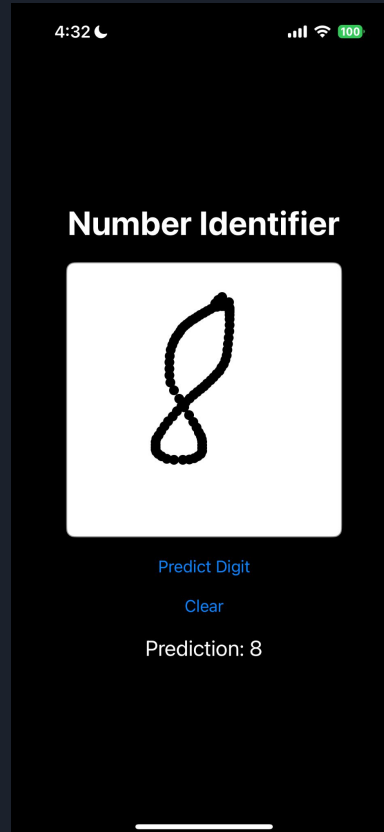
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Purpose

- Support young children in learning to write numbers through guided practice
- Reinforce number recognition skills by using machine learning to provide immediate feedback
- Prioritized a self-paced, interactive environment

Initial Prototype – Number Identifier App

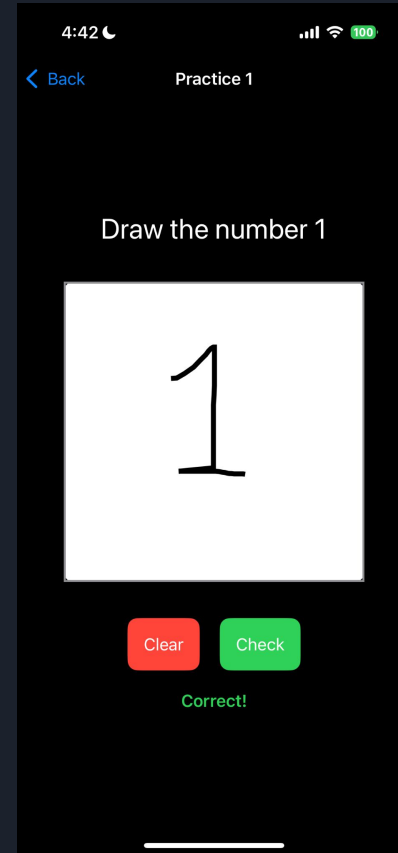
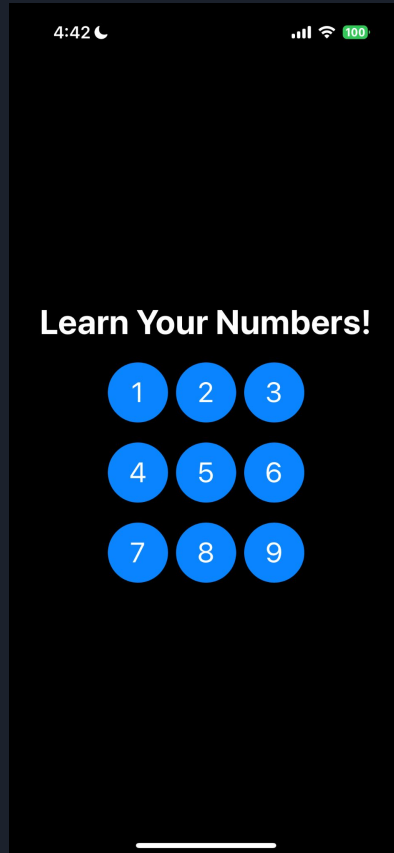




Method of Development

- App was created using Apple's Swift App Building software
- Created a drawing pad using SwiftUI to let users write digits with touch input.
- Integrated a pre-trained MNIST model developed by Apple using CoreML to recognize handwritten numbers.
- Created buttons for to make predictions and clear the canvas to ensure an interactive environment.

Final Design - Child Companion App





Additions to the Final App

- Level-based practice system: Users choose a number to practice from the home screen
- Inverted images to improve prediction accuracy with the MNIST model.
- Provides feedback (“Correct” or “Incorrect”) on the number drawn



Future Improvements

- Improve UI/UX Design by adding child-friendly animations and sound
- Voice feedback to pronounce numbers and congratulate the user for mastering a number
- Expand the app to letter recognition