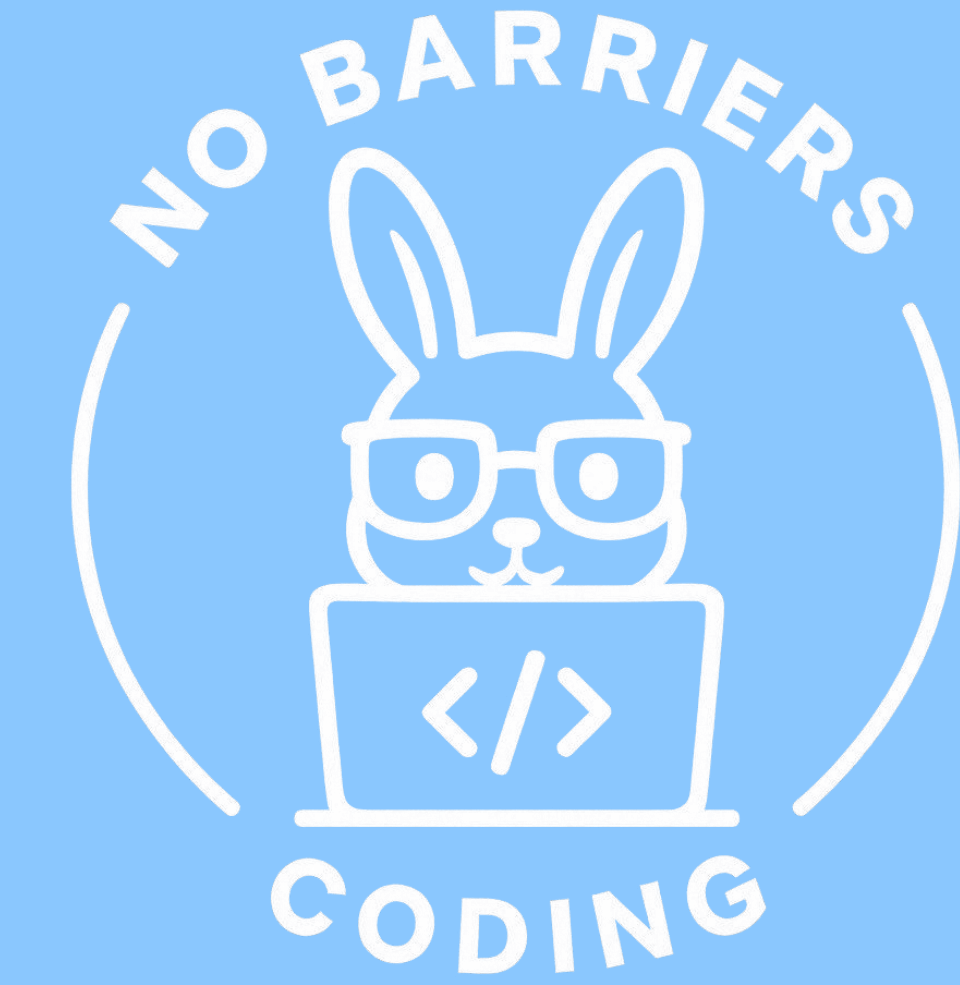


Quorum iOS Accessibility

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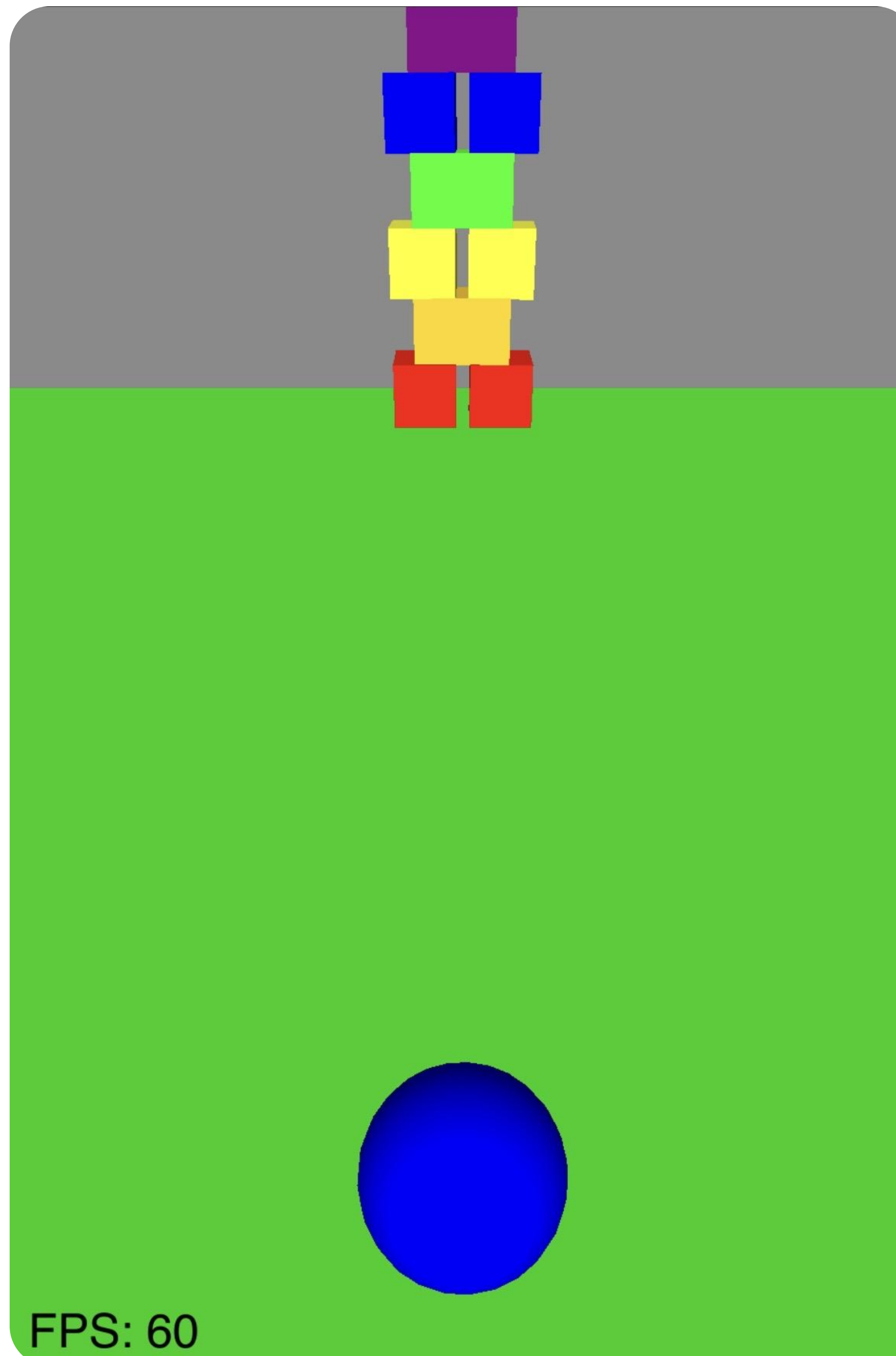


Background

- **Problem:** Blind and Visually impaired users face barriers in iOS app and game development because most programming tools are not accessible.
- **Goal:** Extend the Quorum programming language so it can use Apple's UIAccessibility framework and let blind developers build and test fully accessible iOS apps and games.
- **Impact:** Makes iOS game creation possible for blind developers and students.

Game in Action

- 3D physics demo written in Quorum and running on iOS.



Discussion

- **Quorum's Empiricist Design:** Quorum is tested with blind users, so accessibility is built into the language from the start.
- **Broader Impact:** Expands the tools blind developers have, helping them create accessible iOS apps and games.
- **Challenges:** Connecting Quorum to Apple's UIAccessibility via MobiVM, provisioning, and real-device testing.
- **Results:** Early builds show Quorum apps can expose accessible UI elements that work correctly with VoiceOver.

Methods

- **Step 1:** Ran existing Quorum apps on iOS and logged how VoiceOver handled each UI element.
- **Step 2:** Linked Quorum to Apple's UIAccessibility using MobiVM and Xcode.
- **Step 3:** Updated iOS UI components to expose labels, roles, and states.
- **Step 4:** Tested all components with VoiceOver on/off on iPhones/iPads and fixed issues found.
- **Tools:** Quorum Studio | Xcode | MobiVM

Conclusions

- **Goal Achieved:** Quorum's integration with iOS accessibility is functional, enabling blind users to design and test games on iOS devices using the VoiceOver screen reader.
- **Impact:** The project empowers blind developers to create iOS apps independently, reducing barriers in mobile development.
- **Next Steps:** Continue testing on physical iOS devices, finalize the integration of all UI components, and further optimize accessibility features.