FLORIDA INTERNATIONAL UNIVERSITY

FIU | Engineering & Computing

CIS 4951 – Capstone 2 Showcase

PyQuest

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What is PyQuest?

- A beginner-friendly mobile app that teaches kids basic Python coding
- Uses a simple login, level selection, and structured lessons designed to reduce fear of coding
- Built in Unity and VS Code for clear visuals and easy navigation, the app delivers an accessible learning experience for young first time coders.

Problems to Solve

- Technology is advancing faster than ever, yet many schools do not prioritize early coding education or other technological foundational skills.
- Schools often lack age-appropriate resources to introduce programming concepts.

About Our Demo

Requirements:

- Login
- Level Selection
- Lessons
- Quizzes
- Progress tracking

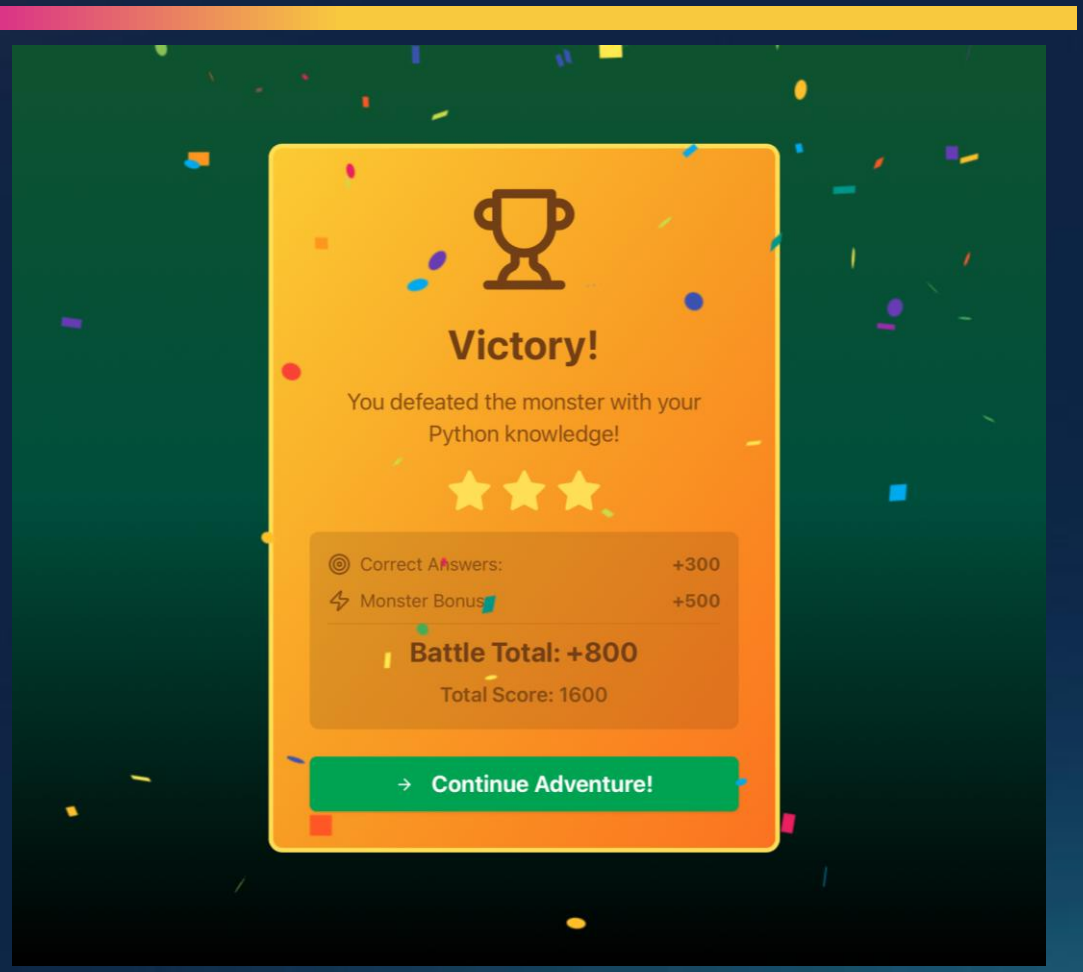
What does success mean for us?

A functional demo where users can complete at least one full lesson and quiz.

About Our Demo

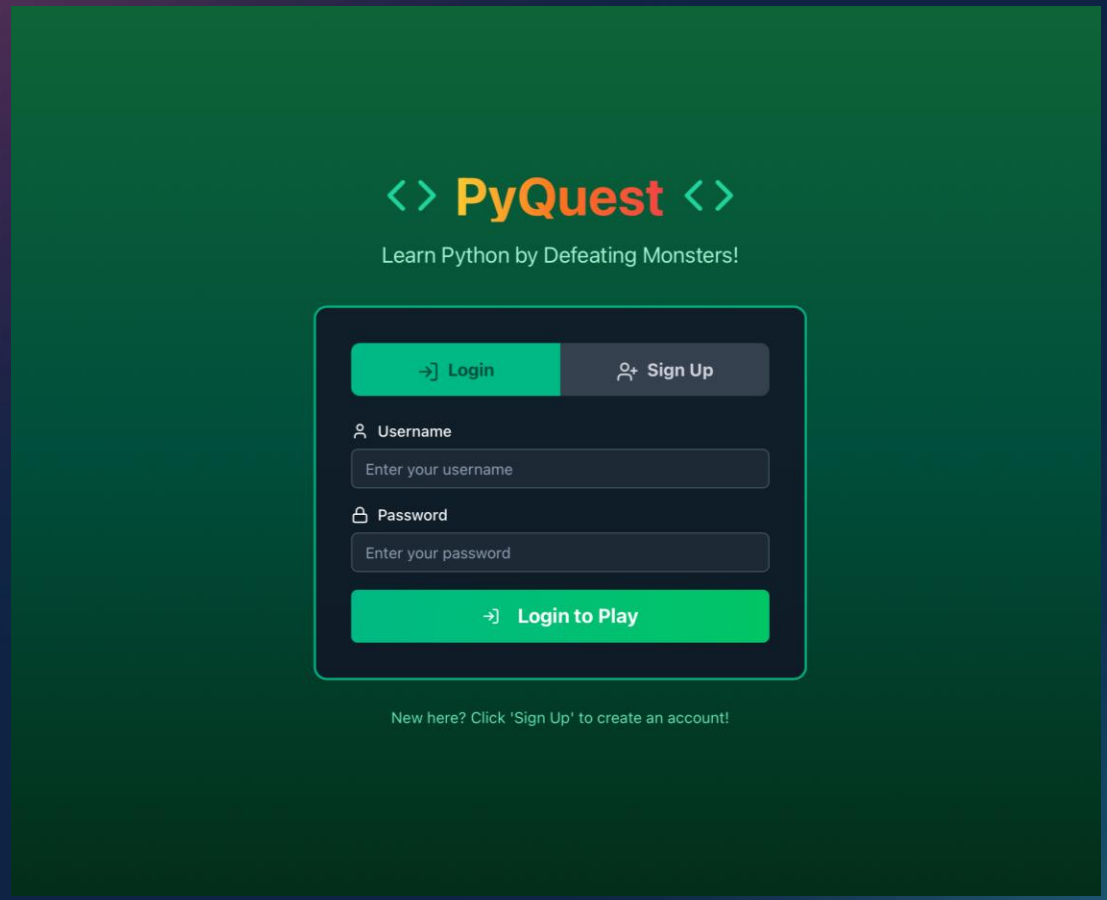
PyQuest’s educational flow algorithm ensures lessons unlock only after successful quiz completion

PyQuest is a Unity 2D game built in C#, using Unity’s scene system to control how the player moves through different parts of the game.



System Overview

- The app is structured using multiple Unity **Scenes** such as Login, Main Menu, Level Select. Level 1, etc.
- Character movement, animations, and interactions (like opening treasure chests) are handled through **C# scripts.**
- Level layouts are created using **Tiled** and imported into Unity using the **Tiled2Unity / SuperTiled2Unity** workflow.



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Implementation notes

- We use Unity's 2D tools for all movement, collisions, and animations.
- Code is organized by feature: Player movement script, Chest interaction script, Quiz system script, Level loading script, etc.
- Each scene has its own GameObjects and scripts to keep the project simple and easy to understand.
- All logic runs locally in Unity — no external server or database is required.
- Sprite animations are controlled using the **Unity Animator**, and transitions depend on player input and movement.
- Tiled maps are imported into Unity and used to design levels quickly without manually placing tiles one-by-one.

Security, Privacy, Accessibility

- No user data is stored externally; only temporary in app variables are used.
- To improve accessibility, PyQuest uses large fonts, high-contrast colors, and simple language for children.
- PyQuest does not use external API’s, networking, or intake personal data, to ensure safety for minors

Limitations

- Currently, PyQuest only supports a few lessons
- There is no long-term data saving yet (Player progress resets each time unless we add file-based saving).
- We prioritized functionality while developing our demo, animations and art are still simple.

Our Goals for the Future

- Add more levels, puzzles, and Python lessons.
- Create boss battles for each level as originally planned.
- Add simple cloud or file saving so kids can return to where they left off.
- Improve sprite animations and add cutscenes or character dialogue.
- Expand to more platforms (Windows, Android, iOS) using Unity's build tools.

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Thank You!