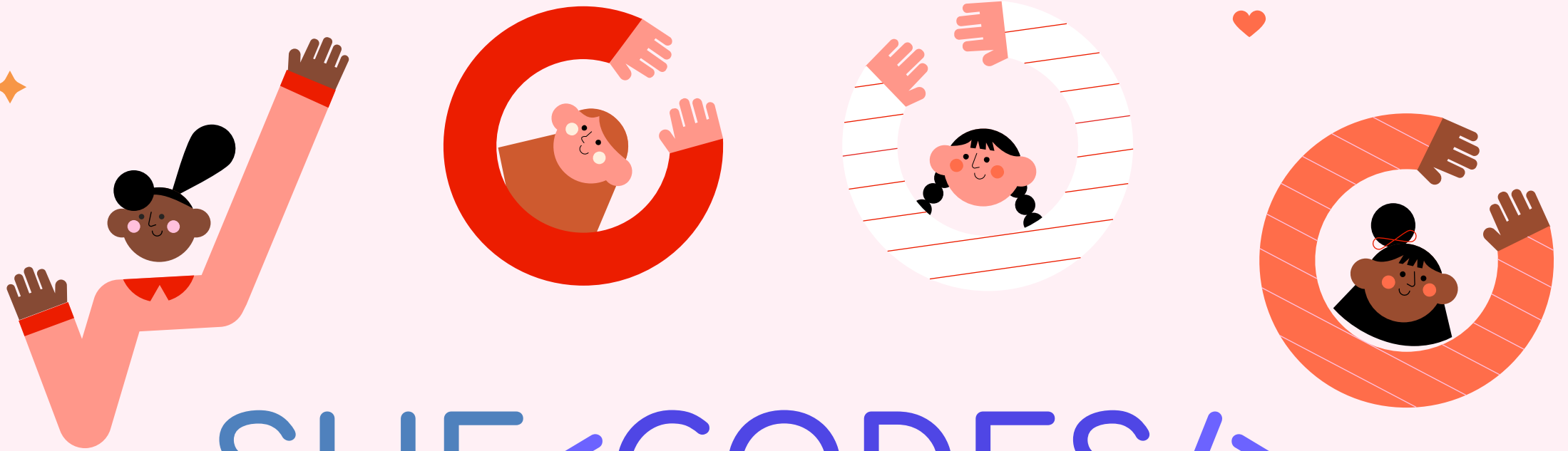




SHE<CODES/>

By Bruna Gentil, Alessandra Ortega,
Gabriel Suarez, Farjana Islam Rahin and Rajiv Chevannes

Mission Overview

Empowering Future Innovators

- Creating a scalable, empowering platform designed to bridge the critical gap between underrepresented peoples and technological fields with gamified education.
- Our mission is to inspire young women and queer youth to explore careers in computer science by exploring the rich contributions of women in STEM history.
- We teach Python fundamentals through a narrative-driven experience for a fun experience and memorable learning lessons.





The Core Problem

A lack of underrepresented peoples in the technological space, inclusive spaces,
and engaging lessons.

Challenges

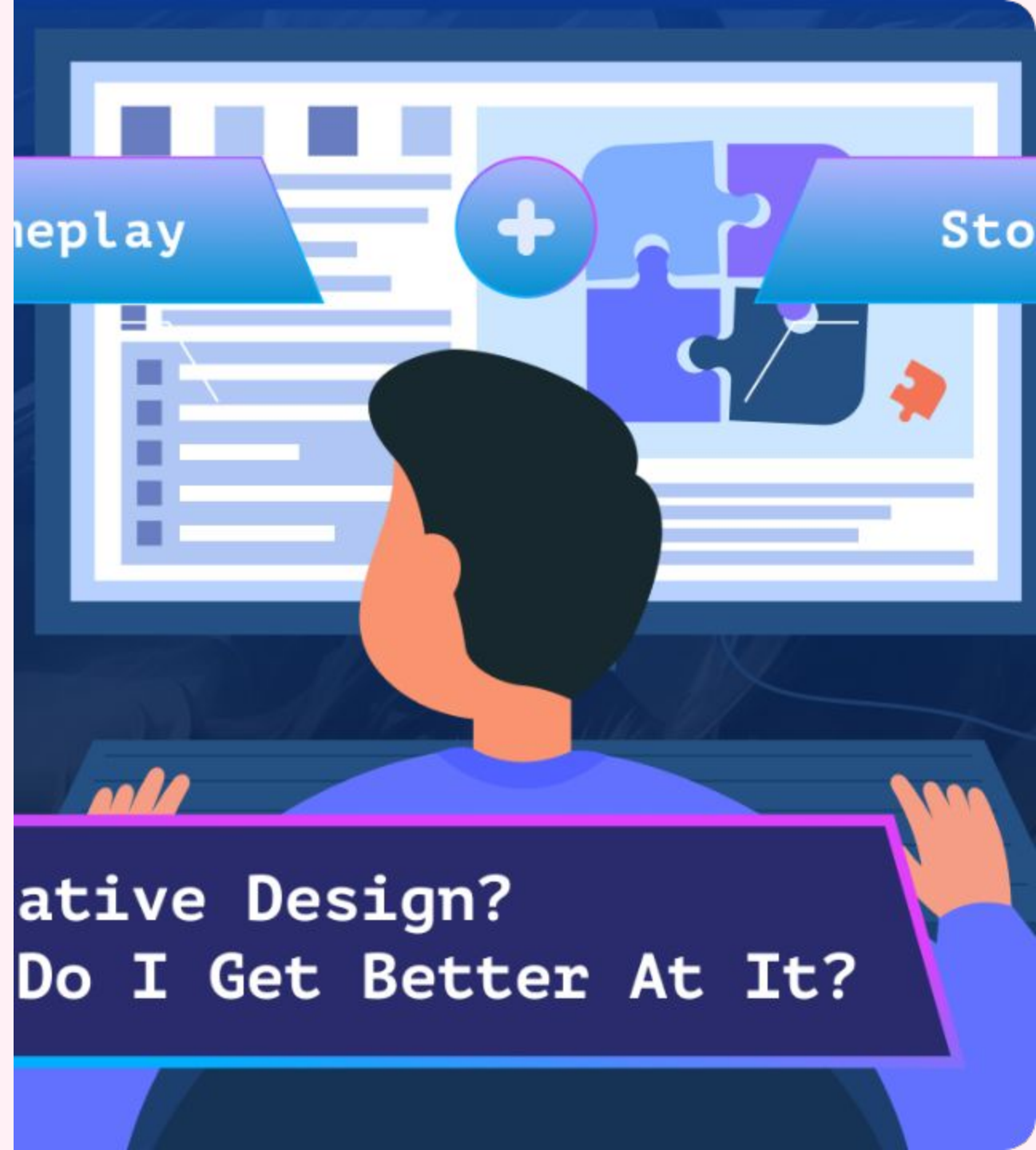


A Space For Everyone

Historically, the tech sector has been dominated by a single demographic; we believe this does not have to be the case. This stereotype often discourages marginalized people from pursuing a career in tech, often not even having the resources in the first place to do so.



SHE<Codes/> is the place for everyone with a desire to learn, regardless of your background.



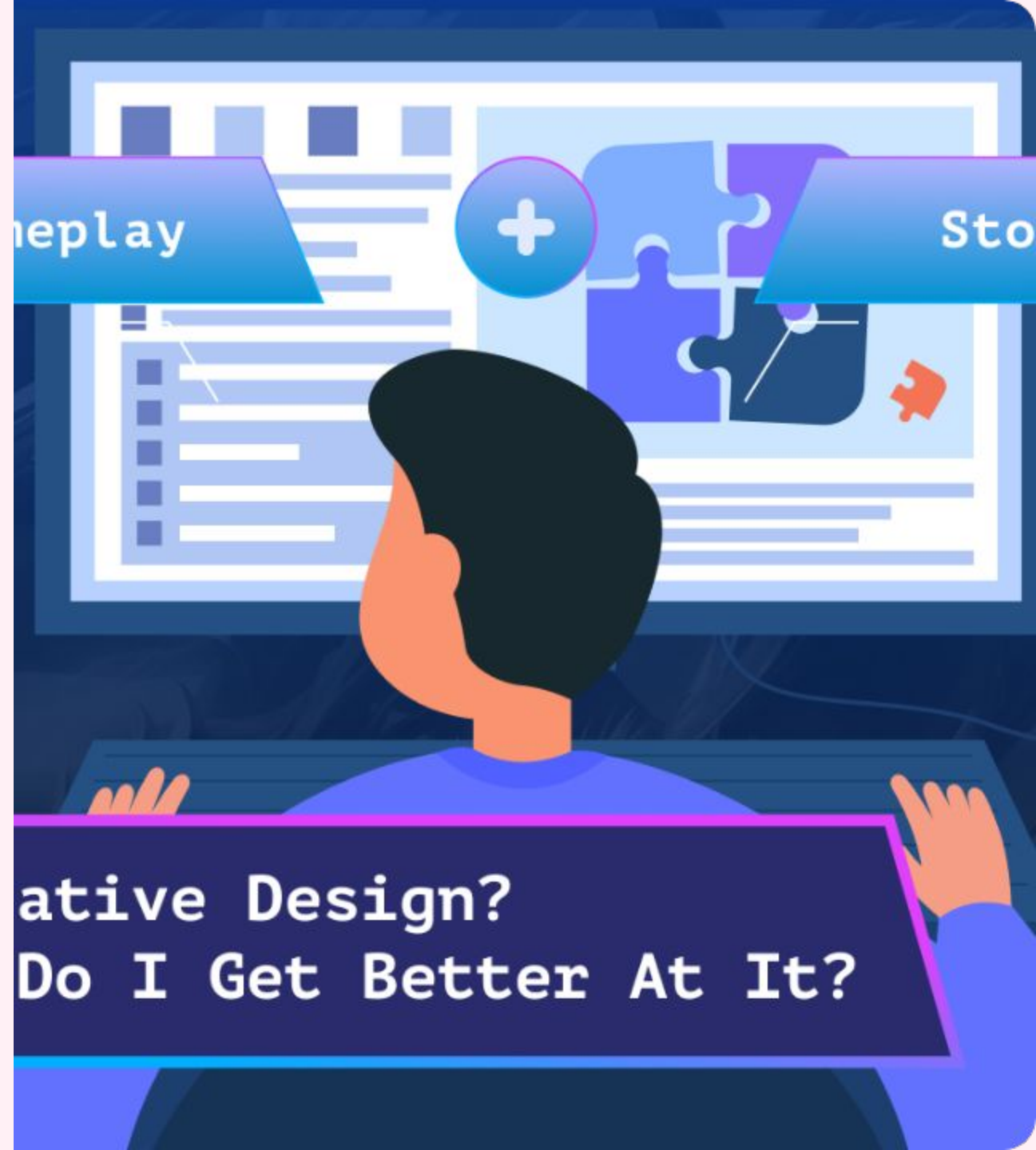
Challenges

The Engagement Gap

Traditional coding tutorials are often abstract, intimidating, or boring, leading to low retention among young beginners.

The SHE Solution

We solve this by using a narrative game format to make learning engaging, creative, and fun. By turning education into an adventure, we keep students captivated.



The Gender Gap



The Visibility Problem

Girls often feel excluded from STEM fields due to societal pressures and lack of relatable role models.

Our Solution

SHE<Codes/> focuses on the contributions of historical women in STEM. We provide inspiring, visible role models integrated directly into the learning experience to learn about history and developing a safe space for all.





"You can't be what you can't see."

Highlighting Contributions of Women in STEM

Key Pillars



Narrative Game

Engaging storytelling meets
Python fundamentals.



Inclusive

Designed specifically for girls
and queer youth.



History-Focused

Learning from the pioneers
of the past.



SHE<Codes/> Solution

The Approach

- The game immerses players on an adventure to repair a time machine, transporting their consciousness to pivotal moments in computing history.
- Players learn programming concepts by solving interactive coding puzzles presented by historical pioneers like Ada Lovelace, Grace Hopper, Alan Turing, and Katherine Johnson.
- Challenges range from typing placeholder code to fill-in-the-blank and Python coding.

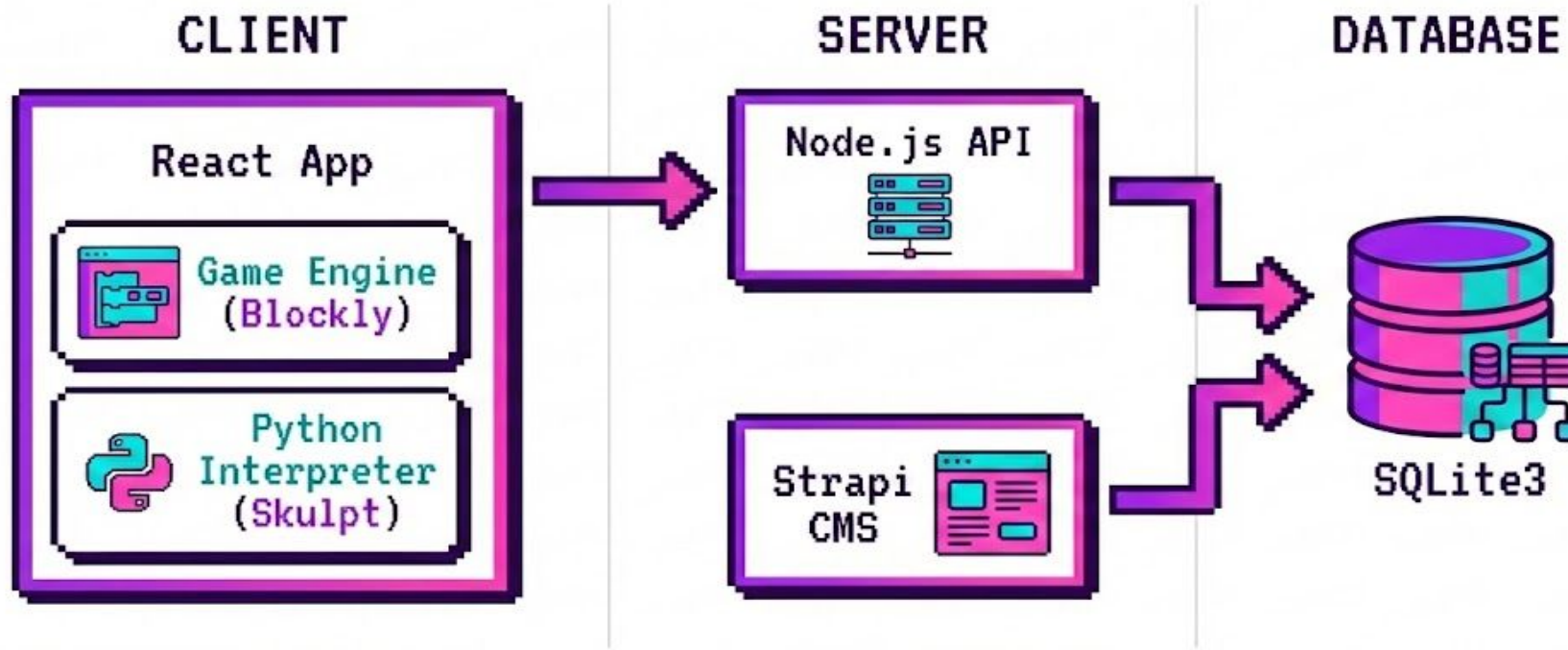


Architecture

Component	Technology	Description
Frontend	React JavaScript	Industry standard for interactive, component-based UIs, with strong typing to reduce errors.
Styling	Tailwind CSS	CSS framework for quickly building responsive and accessible layouts.
Code Editor	Blockly	Visual block-based coding tool for beginner-level challenges.
Interpreter	Skulpt	Lightweight Python-in-JavaScript interpreter, allowing students to run Python code directly in their browser.
Backend	Node.js Express	Scalable and widely compatible solution for handling API requests (saving progress, retrieving content).
Database	SQLite	Robust relational database for storing user information, progress, achievements, and story content.
Security/Auth	JWT + bcrypt CORS	Stateless authentication using JSON Web Tokens (JWT) and secure password hashing.
Build Tool	Vite	Modern build tool and development server that provides instant HMR and lightning fast builds for React applications

Architecture Continued

SHE<Codes/> - WEB-BASED EDUCATIONAL GAME ARCHITECTURE





Questions?

Let's discuss the future of inclusive coding education.

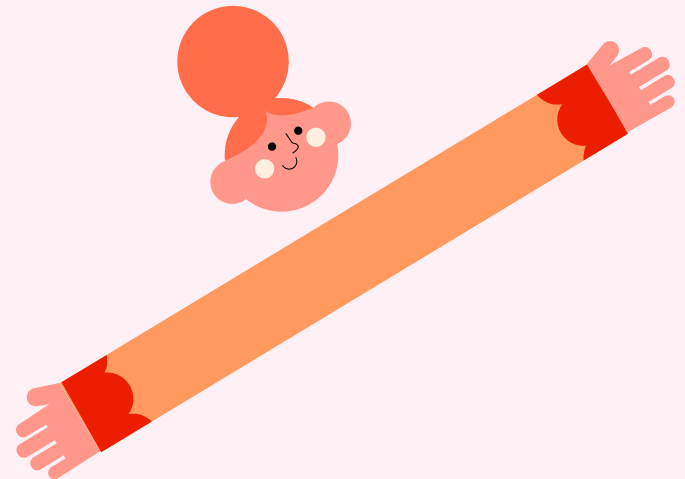


Image Sources



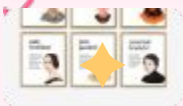
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