

QUINTESSENCE: THE ART OF LEARNING

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MOTIVATION

Scientific literacy is a crucial skill for students contemplating a career in any STEM field; however, this is many times inaccessible due to the sheer difficulty of navigating complex texts without proper guidance. For students in lower grades the difficulty is even higher, discouraging many to pursue the topic whilst those who attempt to persevere find themselves at a loss of how to understand the topic. Addressing this issue for the younger generation will be essential in filling that void which impedes a student's progress in learning science concepts beyond their grade level.

Target Audience

This app is primarily focused to serve students in grades 4-9 who are interested in learning and researching complex texts that require higher level comprehension. Students who struggle with completely understanding a text may use this device to test their knowledge and develop greater critical thinking skills.

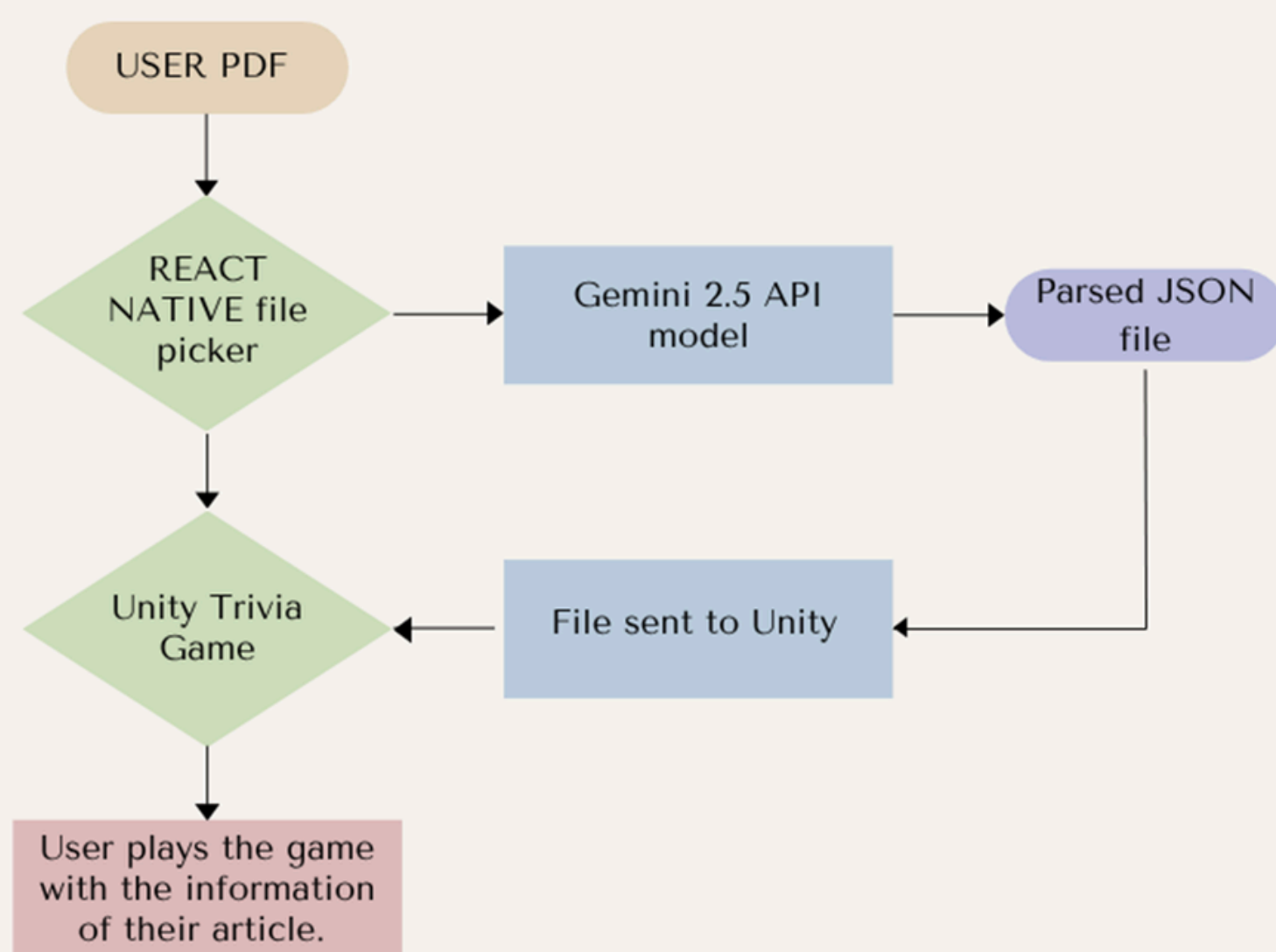
Solution

Our Solution – Develop an engaging game format which will use trivia style games to test student's knowledge on a paper of their choice after they have read it. Will quiz them on various topics of their paper to give a scale on how well they understand the paper.

Most Viable Product – Gemini API which breaks down a large article into various sections (Background, Methodology, Results, etc.). Turns this information into questions and answers that will be used to test user's knowledge on the paper. Sends this information to our game which is what the user directly engages with.

2nd Criteria – Trivia game which receives information from the Gemini model and displays it as a trivia game which the user can play with and at the end receive a score of how well they completed the game.

SIMPLE FLOWCHART



Tools

Gemini 2.5 API – Model which collects and parses information from PDFs for our application.

Flask – framework for Python, designed to build web applications, APIs, and backend services.

React – JavaScript library for building User Interfaces.

Unity – Popular real-time development engine for developing 2D/3D games for mobile, desktop, console, and VR/AR platforms.

Expo Go – platform to run our React project for testing

Future

- Further refinement of model to allow it to analyze and include diagrams/images in the games
- Develop a Gim-Kit style game and build more on the trivia concept along with an adventure style game in conjecture

