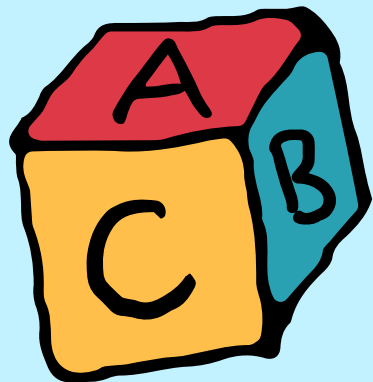


BILINGUAL BUDDY: A BILINGUAL MATH TRANSITION APP

Making Math Multilingual

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THE NEED FOR A BILINGUAL MATH TRANSITION

APP

The Importance of Math Education:

- Mathematics is a foundational skill that is critical.
- Success in math often correlates with higher problem-solving and analytical thinking abilities.

Challenges for Bilingual Students:

- Transitioning from learning math in one language to another poses unique challenges.
- Language barriers can hinder understanding.

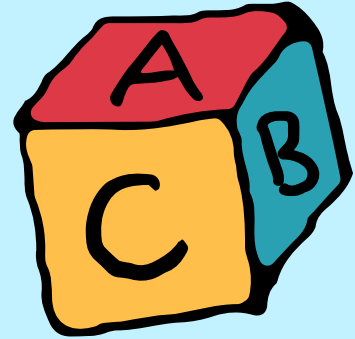
Current applications of the Field:

- Very limited tools exist that address the specific needs of bilingual students in mathematics.
- Most educational apps focus on teaching math itself, not math in a new language.

The importance of this tool:

- Schools with bilingual programs often see students fall behind due to language barriers
- Empowering students to learn math terminology in English can enhance their confidence and performance.

A^BC



OUR PROJECT: BILINGUAL BUDDY

The Problem

- Bilingual students struggle to transition from learning math in Spanish to English, hindering their understanding of math terminology.

The Solution:

- A bilingual app that helps students learn math concepts in English, not just math itself.

Features:

- Custom profiles tailored to students' needs.
- English math terminology lessons.
- Gamified badges for motivation.
- AI assistant for real-time help.
- Designed for summer learning support.

Our Vision:

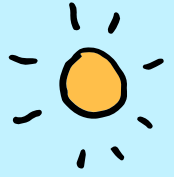
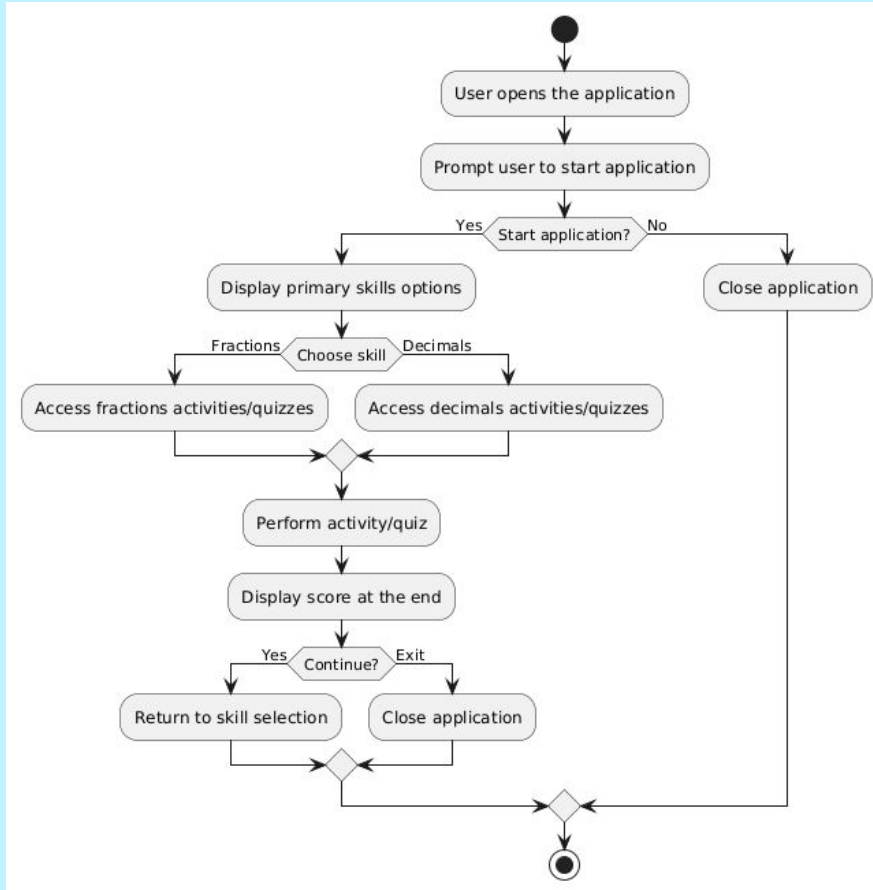
Empower bilingual students with the skills to succeed in English-based math education.



TIMELINE

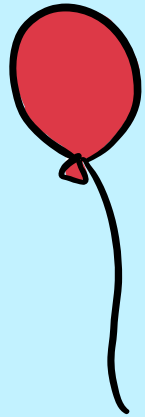
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ACTIVITY DIAGRAM



USE CASE: DASHBOARD ACCESS

Use Case ID	UC-03
Name	Dashboard Access
Description	Displays overview of progress, lessons, badges, and access to other features
Dependencies	Login (UC-01)
Precondition	User is logged in
Ordinary Sequence	<ol style="list-style-type: none">1. User accesses Dashboard2. System displays lessons, progress, badges, etc
Postcondition	User can view overall progress
Exceptions	<ol style="list-style-type: none">1. System error → Reload or error message
Comments	Main hub for app navigation





RISK ANALYSIS

#1. TIME CONSTRAINTS

Description: Insufficient time to complete development and testing before the deadline.

Probability: 40%

Consequence: The app might be launched with bugs or incomplete functionality.

Mitigation: Follow a detailed timeline with milestones and focus on a minimal viable product (MVP).

#2. UNABLE TO IMPLEMENT AI ASSISTANT

Description: Technical and time constraints may prevent the AI assistant from functioning as intended.

Probability: 50%

Consequence: The app may lack the real-time assistance feature, reducing its value.

Mitigation: Use prebuilt AI tools or frameworks and focus on limited but effective AI capabilities.

#3. FEATURE SCOPE CREEP

Description: Adding too many features could overwhelm the development process.

Probability: 40%

Consequence: The project could become unmanageable, leading to delays or incomplete features.

Mitigation: Define clear project goals and stick to the agreed-upon scope.



RISK ANALYSIS

#4. LACK OF USER TESTING AND FEEDBACK

Description: Insufficient testing with target users could lead to an ineffective product.

Probability: 40%

Consequence: The app may fail to meet the needs of bilingual students, reducing its impact.

Mitigation: Conduct regular user testing and incorporate feedback during development.

#5. LANGUAGE COMPLEXITY RISK

Description: English math terminology may be too difficult for students to grasp.

Probability: 40%

Consequence: Students may struggle to understand lessons, hindering their learning progress.

Mitigation: Simplify language, use visuals, and offer explanations tailored to the user's proficiency.

CONSTRAINTS



01

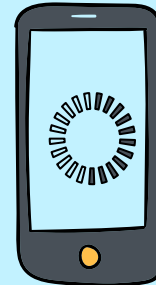
ACCESSIBILITY

Using Flutter doesn't guarantee that every student will have access.

02

PERFORMANCE

There's a chance that a device is not up-to-date and the app runs poorly.

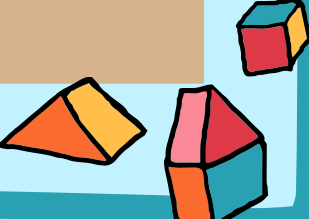




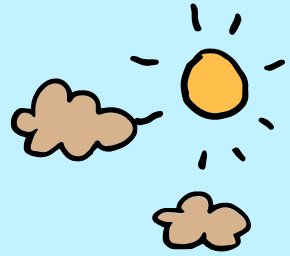
STANDARDS



STANDARDS	USES
Unified Modeling Language (UML)	We make and use diagrams to break down complex functions and different sections of our math app.
IEEE Standard, 7001-2021 - Transparency of Autonomous Systems	This standard is relevant because its goal is to set measurable and testable levels of transparency for autonomous systems, e.g., our AI assistant.
Web Content Accessibility Guidelines (WCAG) 2.1	Ensures that our app is accessible for people with disabilities, and various other best practices, e.g., color contrast, adaptable screen layout (portrait & landscape).



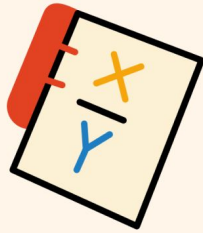
PROTOTYPE



9:41 Mon Jun 10

100%

Bilingual Buddy



START

9:41 Mon Jun 10

100%

Primary Skills



Fraction

1 2

3 4

Decimal

Fraction Exercise

What is $\frac{1}{2} + \frac{1}{4}$?

¿Cuál es $\frac{1}{2} + \frac{1}{4}$?

- a. tres cuartos
- b. cinco cuartos
- c. tres octavos

a

b

c

Decimal Exercise

$0.8 - 0.3 = ?$

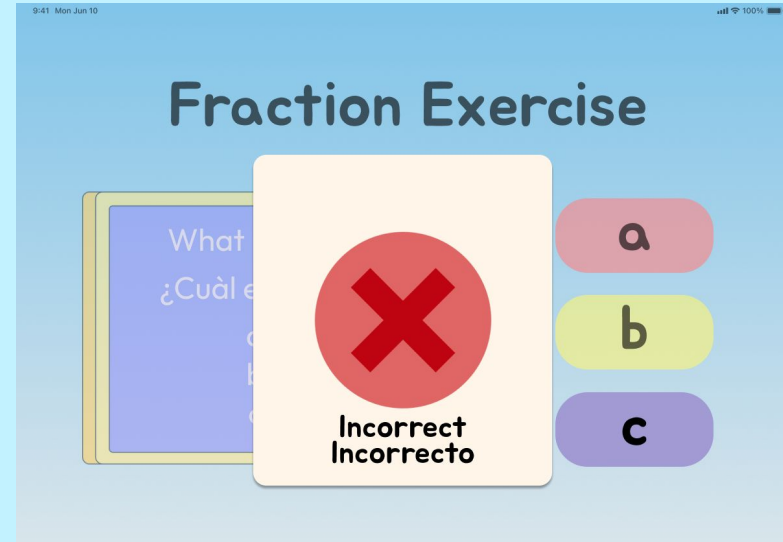
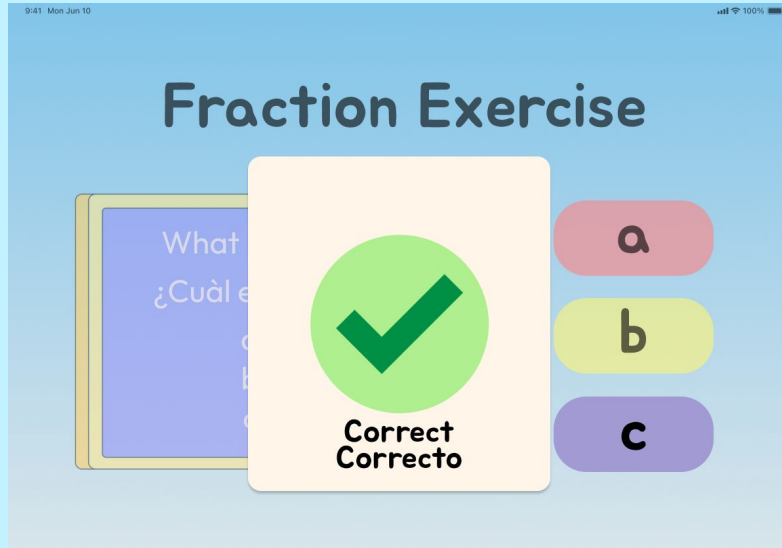
Resta: $0.8 - 0.3 = ?$

- a. cero punto tres
- b. cero punto cinco
- c. cero punto dos

a

b

c



Word Problems



Una pizza se corta en 8 partes iguales. Si Sara come $\frac{3}{8}$ de la pizza y Carlos come $\frac{2}{8}$, ¿cuánta pizza queda?

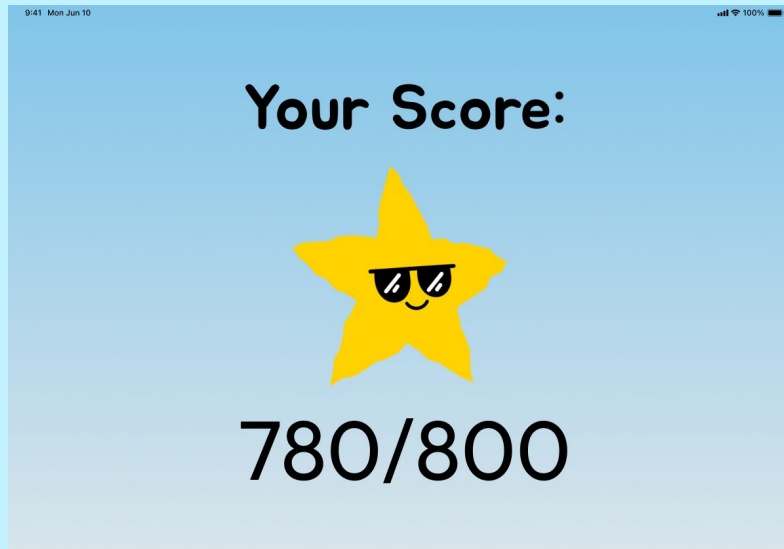
un
octavo

un
cuarto

Decimal Guide

Ejemplo:
0.3
cero punto tres

Fórmula
"numero" punto "numero"



PROTOTYPE FEATURES

SIMPLISTIC USER INTERFACE 👍

PRIMARY SKILLS 👍

INTERACTIVE EXERCISES 👍

GAMIFICATION 👍

EASY ACCESSIBILITY 👍

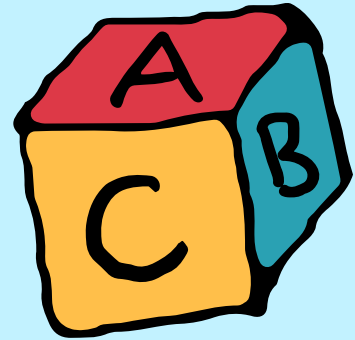


SUMMARY

MAIN GOAL:

Bilingual Buddy is an educational app designed to help children transition from Spanish to English through interactive math exercises focusing on concepts like fractions and decimals. The user interface is intentionally simplistic and it prioritizes kid-friendly designs to make it engaging.

Language barriers create challenges in understanding foundational subjects like math which is essential for academic and personal development.





Q & A

