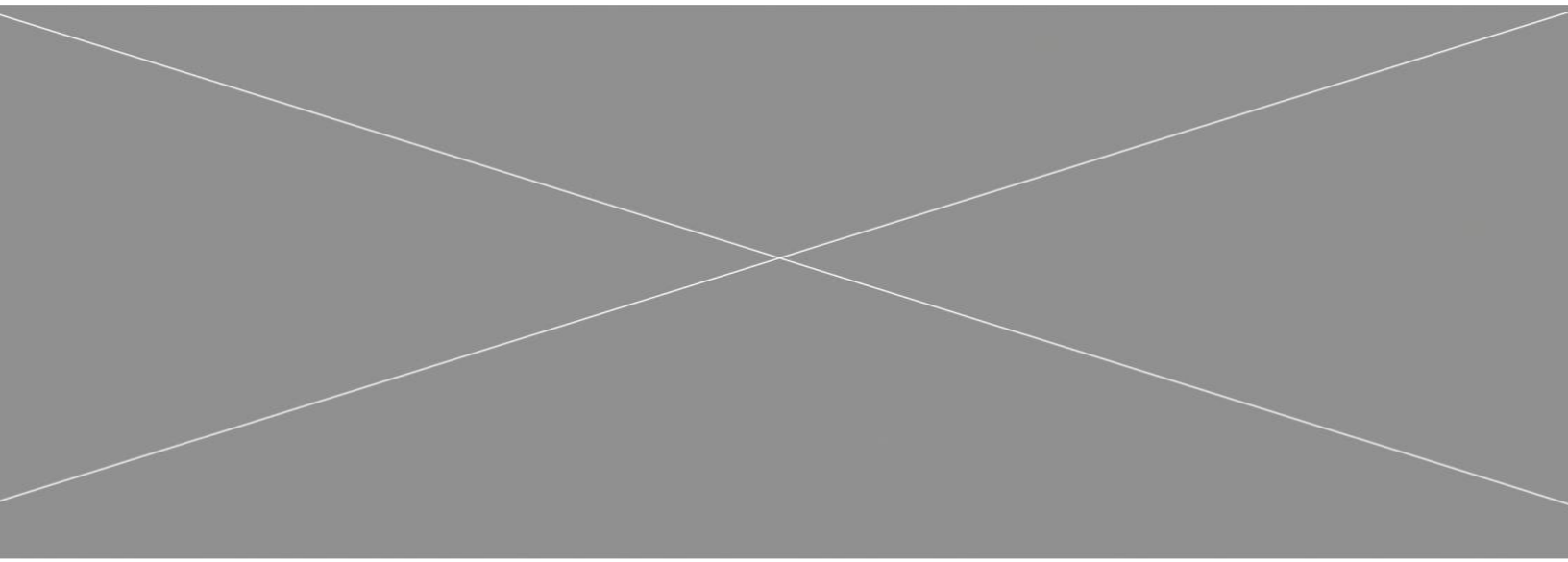
GAME DESIGN DOCUMENT



I AM In My World

Math is Everywhere

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Last Updated:
2/17/2021

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Overview

I AM is an educational game aimed to try and combat math anxiety in children, with a focus on encouraging Hispanic children in particular. Students get the space to have fun while learning and this game ideally makes math practice accessible and entertaining to do. It is meant to be supplementary to a child's education and is meant to teach them that math is everywhere. The game adapts to the skill level of the player and also provides lessons for students that may be struggling. Furthermore, based on previous and ongoing research by our client, we are finding that children who engage in this form of learning tend to develop more confidence and more successful later on in their mathematical abilities. Our target audience is 4^{th} and 5^{th} grade students.

Mission Statement

In 1-2 sentences, explain the game as if you were pitching it to potential players. This should be very intriguing. It typically includes the title, genre, platform, and brief idea of what the player does or has to overcome.

Genre

Role-Playing Game (RPG), Simulation, Puzzle

Platforms

Web-Based (Google Chrome and most modern Chromium-based browsers)

Target Audience

4^{th} and 5^{th} grade students of Latinx backgrounds

Storyline & Characters

Character starts out at home and then gets to go around an explore new locations such as school, grocery store, and restaurant. By going to these different locations, the narrator is acquainted (or reacquainted) with the different characters mentioned above. Other minor characters such as classmates may also exist, but do not have a significant role in the overall gameplay. No concrete storyline will be present in the game, rather it will be more of an open-ended gameplay with a variety of 'quests' that require the character to go to certain locations and interact with characters.

The story will essentially consist of the player being a 4th-5th grade student using math in different ways (like picking food from a restaurant) in their life. There are no needed cutscenes, but every location is different and can be played in any order, so each location contains something of a "mini story." It is an episodic game.

Character	Description	Characteristics	Location(s)
Main Character	Only playable character.	Customizable name and appearance. Abilities develop as character completes challenges.	N/A
Mother	Mother of main character.	Helpful and kind. Encourages character to excel in school.	Seen in household during gameplay.
Father	Father of main character.	Supportive but also encourages character to go out and explore new things on top of school.	Seen at park during gameplay.
Elena	Best friend of main character.	Cheerful and rowdy. Struggles with math, but main character helps her out.	Appears at restaurant.
Waiter	Waiter at restaurant.	Friendly and talkative.	Appears at restaurant.
Clerk	Clerk at local grocery store.	Acquaintance of main character. Greets narrator by name and asks about family, etc	Appears at grocery store.

World

IAM is set in the small fictitious town of Sunnyville, which consists of a school, grocery store, restaurant, and a set of houses (as well as other buildings which the player is unable to explore). The player can move between different parts of the world by clicking on the desired destination on the map. The game world is designed to be in cartoon-style in hopes that it evokes the childishness of the players and encourages them to focus on the gameplay rather than be wary of the math. Each location teaches the player a different mathematical concept.

Gameplay

Ultimate objective of the game is to achieve a high score on the leaderboard, which can be accomplished by consistently exceling at a variety of challenges that the game presents. However, in order to decrease competitive pressure and math anxiety, we intend on the leaderboard to be an objective only for skilled players. Setting aside the leaderboard, the objective of the player is to achieve high math fluency by successfully completing the quests that the game provides, such as calculating tips, tax, etc.

The game progresses so that there are a certain number of locations accessible from a map. Each location is a scenario (grocery store, restaurant, etc.) that applies a math skill such as multiplication or fraction. As the player progresses within each scenario, the questions become more difficult. An increase in difficulty in one location will not affect the difficulty in another since each location teaches a different mathematical concept.

The player must therefore use math skills to complete levels of the game in each location. The challenge structure takes note of how well a player is doing and increases/decreases the difficulty as needed.

Mechanics

The player begins at the house location with no money. Through various tasks, such as errands and chores, the player will begin to earn money. Some of the money earned will be necessary to complete the current quest (ex. Mother asks character to get groceries from grocery store) while the remaining can be spent on special upgrades for the character's avatar (ex. fancy hat, new shirt, etc.). Player may also sell these new items albeit at a lower price than the purchase cost.

The player is able to explore the map using the mouse, described further in the User Interface section. Game is autosaved every 10 minutes in the event that player accidentally closes game and forgets to do so.

Level Design

Levels are meant to be re-playable, and increase in difficulty each time the player progresses through the various challenges of the game. When the player is able to get around 85% of the questions correct in a particular location, the difficulty of these questions will begin to increase.

Example Difficulty Levels in Restaurant:

1. Menu prices are simple round numbers ($1, $2, …)
2. Menu prices include decimals ($1.50, $2.75, …)
3. Tip must be included with cost (add 17% tip to total bill)
4. Tax must be included with cost (add 7% tax to total cost)

Each level is meant to improve the math skills of the player by adding onto existing abilities. Furthermore, clicking on the player's cat will trigger a tutorial on how to solve the type of math problem that the player is being presented with. The example presented in the tutorial will be one appropriate to the current difficulty level of the player. The player's progress is assessed at the end of the level by showing a comparison between the accuracy of the player during the first 10 questions they chose as opposed to the last 10 (ex. 30% correct to 90% correct. Great Job!). Players that excel and are able to achieve the 85% benchmark within 10 questions may be presented with additional rewards (ex. avatar add-ons).

Control Scheme

Click-based control scheme. Player uses mouse to navigate around game.

User Interface

A typical screen shows money and player level in top right corner. A mini map exists in the top left corner that can be clicked to expand. By expanding the map, the player can choose specific locations to go to by clicking them on the map. Additionally, a leaderboard icon and settings icon are also present in the top right corners. Choosing the leaderboard icon shows a sorted list of the top players. The settings icon can be clicked to display a menu to control aspects of the game such as volume, language toggle (English/Spanish), competition, among others. The top right corner will also contain a streak bar, which shows how many correct answers the player has received in a row within a specific location.

The control system of the game is click-based with a 2D camera model. In addition to the map described above, the player will be presented with a variety of scenarios where he or she will be able to choose from several options. The math questions in this game will also be multiple choice to keep the click-based theme consistent. A help system is also present in the form of the player's main companion: his pet cat. The player is able to click on the cat during scenes for tutorials on math/gameplay.

Content Additions

We plan to have a map that has different locations. We will try to implement two areas with different math skills, but more places can be created as wanted around the community with their own scenarios.

Player Feedback

- When a player answers a question there will be immediate feedback if it is right or wrong.
- A streak of correct answers will be displayed for streaks above 3
- Multiple wrong answers in a row will direct them to click on the cat for help. Clicking on the cat will lead to a brief math lesson/example on the subject of the game

Deployment

Web-based. All modern Chromium web browsers should be able to support the game.

Screenshots

Restaurant Quest

Map