UNIVERSITY OF CALOOCAN CITY

Biglang Awa St Cor 11th Ave Catleya, Caloocan, 1400 Metro Manila, Philippines

Computer Studies Department • BS Entertainment and Multimedia Computing

CASE STUDY PROJECT PROPOSAL

Title: Arithmetic Animals

Description:

Arithmetic Animals is a casual educational game designed for children and young players to practice basic arithmetic (addition, subtraction, multiplication, and division) through interactive gameplay.

Set in a vibrant forest, Arithmetic Animals brings together various animal characters who embark on adventures requiring math skills to overcome challenge and discover rare animals. In this single-player game, observing animals running or walking across the screen. Each player must guess or count the number of animals that pass within a specific time-frame. Players may compete to other players through leader-board.

Objectives:

- To develop a fun and interactive game that helps players improve their arithmetic skills by counting animals on screen.
- To implement a leader-board system that encourages friendly competition among players.
- To design adjustable difficulty levels that make the game accessible to both beginners and more advanced players.

- Specific
    - Single Player where the player solves arithmetic problems by guessing or counting the number of animals passing the screen, competing other players based on leader-boards.
- Measurable
    - Progress will be tracked by the number of matches won, levels completed, and accuracy of arithmetic answers.
- Attainable
    - The game accommodates all skill levels with adjustable difficulty, ensuring that beginners and more advanced players can enjoy and succeed in the game.
- Relevant
    - Supports learning arithmetic in a fun, interactive, and competitive manner, aligning with educational goals to enhance mathematical skills.
- Time-bound objectives
    - 2 months to create

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Scopes: List all functions of what your game CAN do. (this section must answer your objectives)

- **Interactive Arithmetic Puzzles:** Incorporates addition, subtraction, multiplication, and division challenges linked to the gameplay mechanics.
- **Dynamic Gameplay Mechanics:** Players guess the number of animals passing by, with correct guesses winning the game.
- **Multiple Levels with Increasing Difficulty:** Levels progress in complexity, introducing more animals and faster-paced scenarios.
- **User-Friendly Interface:**
  Easy-to-navigate interface for setting up and managing in game sessions.

Limitation: List what your game CAN'T do.

- **No Real-Time Multiplayer Mode:**
  Focuses exclusively on single-player, a leader-board will be implement to compromise competition.
- **Limited to Basic Arithmetic:**
  Does not include advanced mathematical concepts beyond basic addition, subtraction, multiplication, and division.
- **Restricted to mobile:**
  Available only on mobile, with no support for PC or Console.
- **Limited Customization Options:**
  Players cannot extensively customize characters or game environments.

Mock-up Screens: 5-10 UI designs to visualize your game (use shapes only).

1. **Start Menu:**
   - Start Game
     - Pick Levels (1-10)
   - Settings
   - Leader-board
     Quit

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2. **Main Menu:**
    - Start Game
        - Pick Levels (1-10)
    - Settings
    - Leader-board

      Quit

3. **Gameplay Screen:**
    - Animated animals running across the screen
    - Rare animal with arithmetic question
    - Timer Countdown
    - Input Area for Guessing/Counting
    - Player Try count
    - Setting Icon/Pause Menu
4. **Settings Screen:**
    - Sound Controls
    - Additional Settings
        - Feedback
        - Cloud Save
        - Language
    - Difficulty Adjustment
        - Easy
        - Normal
        - Hard
        - Extreme
5. **Tutorial Screen:**
    - Instructions on How to Play
    - Explanation of Multiplayer Mechanics
6. **Setting Icon/Pause Menu:**
    - Resume Game
    - Restart Level
    - Settings
    - Tutorial
    - Quit to Main Menu
7. **Victory/Defeat Screen:**
    - Congratulatory Messages
    - Summary of Match Performance
    - Leader-board Screen.

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Proponents: (Sort by Surname)

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