

R1 The application shall contain tutorials to teach various mathematical concepts

R1.1 Each tutorial shall be comprised of five attributes: name, category, difficulty, content, completion

R1.1.1 A tutorial's name shall describe the material to be learned in the content

R1.1.2 A tutorial's category shall describe which mathematical subject the content falls under

R1.1.3 A tutorial's difficulty shall display the level of difficulty of the tutorial

R1.1.3.1 A tutorial's difficulty is relative to that of another

R1.1.4 A tutorial's content shall be comprised of learning material and example problems

R1.1.4.1 Learning material shall be described in steps

R1.1.4.2 Example problems shall be worked out and solved within the content

R1.1.5 A tutorial's completion shall display how much of a tutorial has been completed

R1.2 All tutorials shall be sorted by name, category, and difficulty

R1.2.1 Tutorials shall be sorted by category

R1.2.2 Tutorials of the same category shall then be sorted by difficulty

R1.2.3 Tutorials of the same difficulty shall then be sorted by name

R2 The application shall contain games to reinforce learning of mathematical concepts

R2.1 A game shall be composed of a series of randomly generated mathematical problems for the user to solve

R2.1.1 Each problem shall be composed of two operands and an operator

R2.2 The operator used in generating a game's problems shall be selected by the user

R2.2.1 The possible operators shall be addition, subtraction, multiplication and division

R2.3 The games' operands shall be randomly generated

R2.4 Each game shall have user-configurable parameters

R2.4.1 The game duration shall be configurable by the user

R2.4.2 The number of problems shall be configurable by the user

R2.4.3 The range of numbers shall be configurable by the user

R2.4.3.1 The specified range shall limit the operands when the operator is addition, subtraction or multiplication

R2.4.3.2 The specified range shall limit the dividend when the game type is division

R2.5 A game shall end when the specified duration or number of questions has been met or if the game is manually ended by the user

R3 The application shall generate feedback for the user

R3.1 Data regarding the user's performance shall be collected during each game

R3.1.1 The number of problems answered correctly during a game shall be recorded

R3.1.2 The number of problems answered incorrectly during a game shall be recorded

R3.1.3 The amount of a user spent in a game shall be recorded

R3.2 Each game's collected data shall be analyzed

R3.2.1 The user's accuracy shall be calculated

R3.2.2 The user's speed shall be calculated

R3.3 The user's performance shall be tracked over time

R4 The application shall store feedback in a user profile

R5 The application shall implement a graphical user interface (GUI)

R5.1 The application shall show a main menu on initial launch

R5.1.1 The main menu shall contain buttons to user profile, games, and tutorials

R5.2 The GUI shall contain a tutorial section

R5.2.1 The tutorial screen shall display high-level tutorial categories for the user to choose from

R5.2.2 The tutorial categories shall display drop-downs of their contained tutorials upon being tapped

R5.2.3 The user shall be taken to the appropriate tutorial upon tapping a contained tutorial

R5.2.3.1 The tutorial shall be a text-based activity with scrolling

R5.2.3.2 The user shall be able to navigate back to other menus from the tutorial

R5.3 The GUI shall contain a games section

R5.3.1 The GUI shall provide a game select screen for the user to select from the application's games

R5.3.1.1 The game select screen shall display categories for the user to chose from

R5.3.1.2 The user shall be taken to the game options screen upon tapping a catagory

R5.3.2 The GUI shall provide a game options screen for user to configure the game parameters

R5.3.2.1 The game options screen shall display options for the user to manipulate game time duration

R5.3.2.2 The game options screen shall display options for the user to specify the number of questions

R5.3.2.3 The game options screen shall display options for the user to specify whether or not scores will be shown during the game

R5.3.2.4 The user shall be taken to the appropriate game upon tapping a game start button

R5.3.3 The GUI shall provide a way for the user to play the application's games

R5.3.3.1 The in-game screens shall contain a button to end the current game

R5.4 The GUI shall contain a section for viewing the user's statistics

R5.4.1 The statistics screen shall display high-level statistics categories for the user to view

R5.4.1.1 The high-level categories shall be displayed in a scrollable, horizontal bar

R5.4.2 The information within each category shall be presented graphically