Design and Gamification of Assessments – 4th Submission

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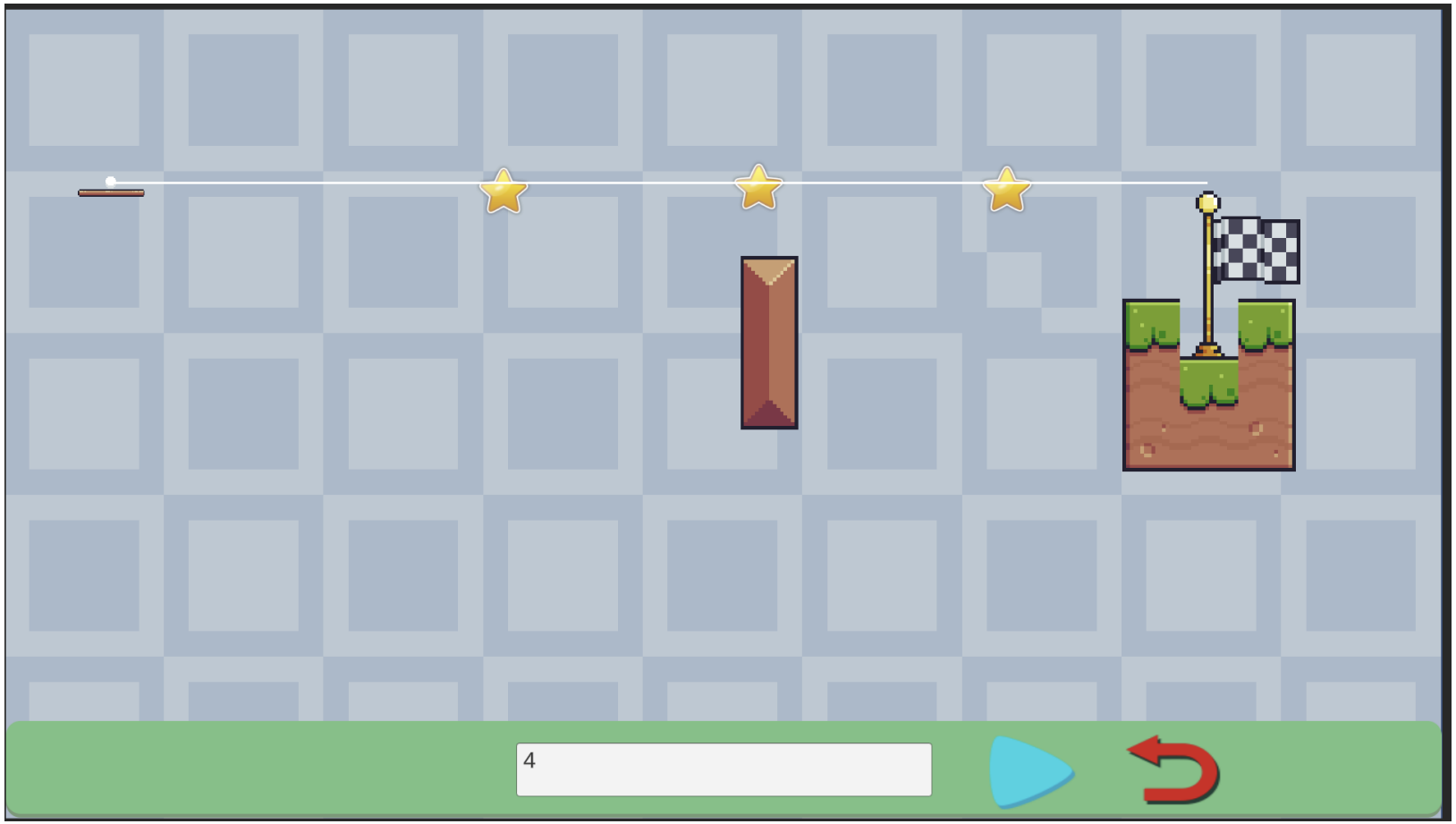
Progress Update - Initial state of level

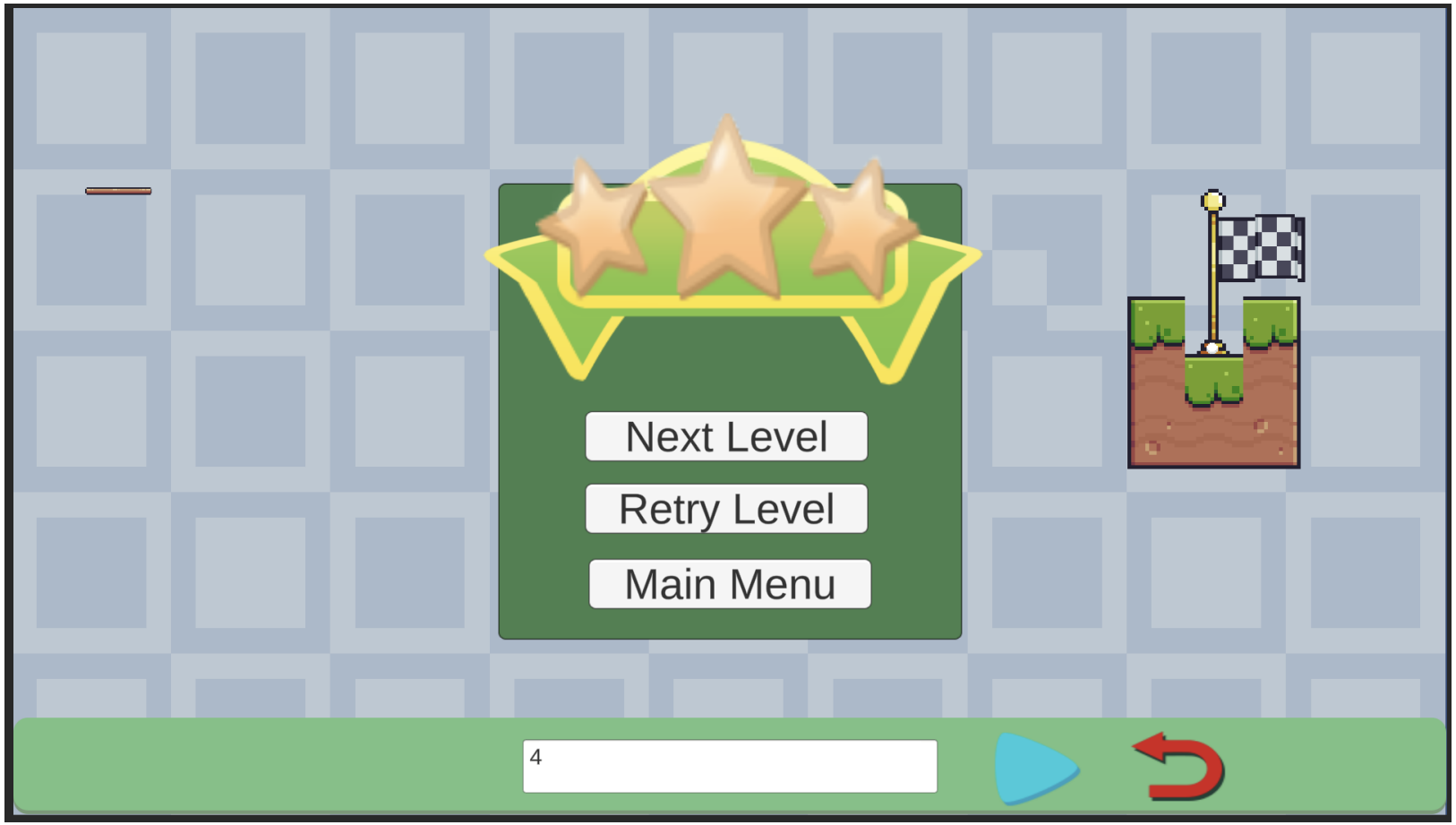
- Initial state of the level without the target equation.
- On the left-hand side is the ball on a platform.
- On the right-hand side is the hole that the ball is trying to reach.
- The center portion of the level has the terrain the user is meant to navigate, and the stars that the user can collect.
- Bottom section has three components – text box for the equation, a play button and a level reset button.

Progress Update – Player inputs equation



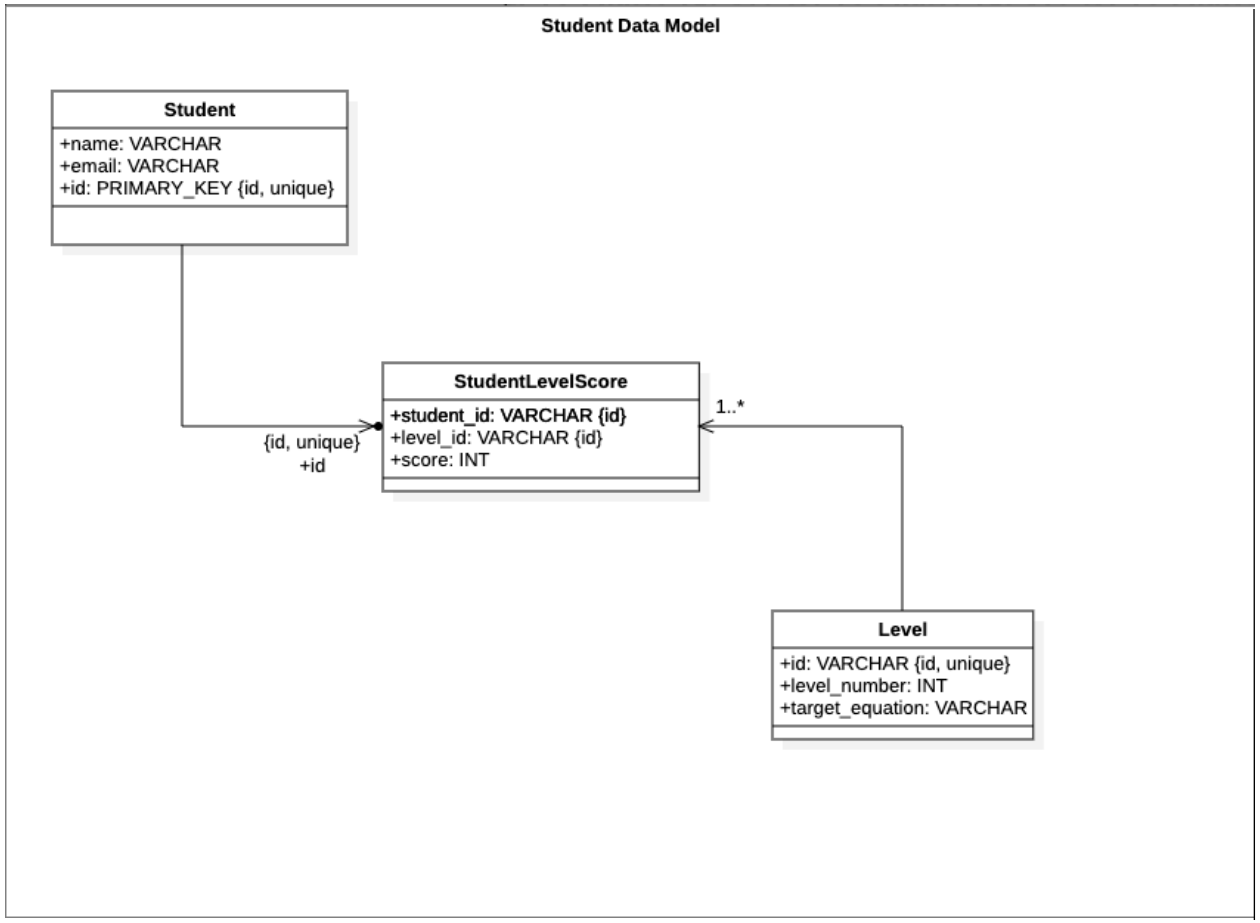
- The input box accepts an equation for f(x), with the line representing the equation being y = f(x).
- For the first level, the solution is y = 4.
- The white line shows the player the trajectory the ball is going to take. The player can subsequently change this equation any number of times to collect all the stars.

Progress Update – Level Completed screen



- Once the player hits play, the ball follows the trajectory, after which gravity is activated and it falls straight down (without velocity in any direction).
- The level completed pop up shows up if the player reaches the hole successfully, and shows the number of stars collected.

Progress Update – Student progress DB



- Class diagram of the database used to store the student's progress.
- The database used is MySQL since the data is structured and easily normalized.
- The Score table is updated when a user finishes a level.
- This database will be used to render the main menu and provide the teacher with the student's progress.

Next steps

- Design of subsequent levels.
- Design of menu UI, such as Login screen and Main Menu.
- API integration to update level score.
- Performance improvements where possible.

Thank You