Incremental & Regression Testing

Team 11

Austin Wirth, Emma Wynne, Evan Walsh, Harris Christiansen, Miranda Mott

---

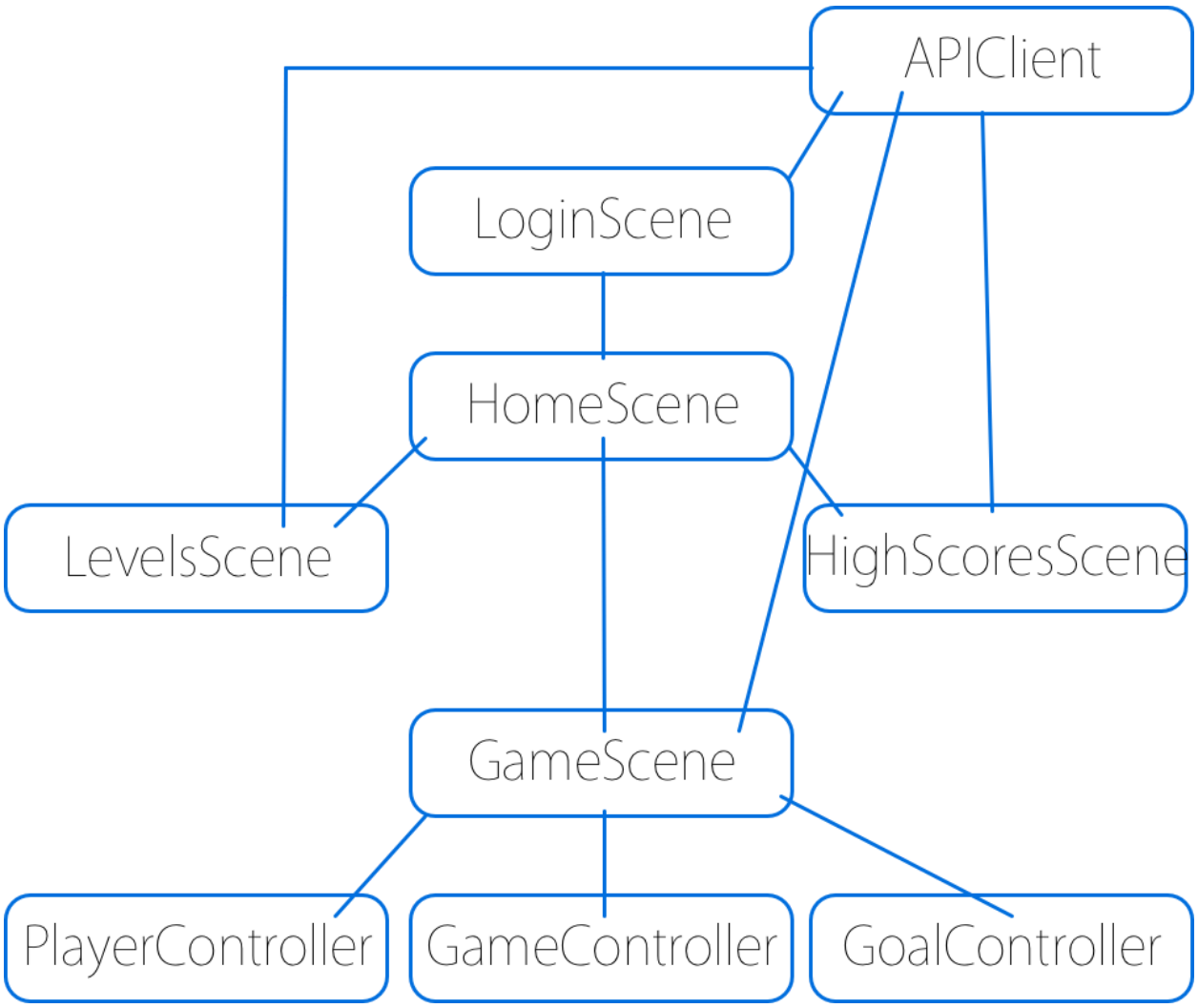
‘A-Maze-Balls’

Table of Contents

Classification of Components

Define all components – 20 points

- We expect the teams to have a diagram explaining various components in the project. You should outline the base components and other independent components and show the interaction among the components - 10 points



- Specify the input, output and the dependent components (components it calls and the components that call it) for each component - 10 points
  - Login Screen Module
    - input: Username and password text fields.
    - output: Invalid username or password displays error message, valid credentials redirects to home screen.
    - dependent components: Called on game launch. Calls on APIClient to verify login. Redirects to HomeScene

- Home Screen Module
  - input: Click “Play”, “Create Level”, “High Scores” or “Logout”
  - output: Redirect to the Level Selection Menu, the Game Creation screen, the Leaderboard, or the Login page respectively.
  - dependent components: Calls on Level Selection Menu, Game Creation screen, Scores screen, and Login page. Called by Level Menu, Game page, Game creation page, login page, and Score board page
- Level Selection Module
  - input: click/select a level, “Back” button
  - output: redirect user to game screen, redirect user to home screen
  - dependent components: Calls on Game Module and Home Module. Called by Home Screen Module. Calls APIClient to get list of levels
- Game Module
  - input: “Pause” Button
  - output: Bring up pause menu
  - dependent components: Called by LevelSelectionModule, Communicates with game components, including (PlayerController, GameController, and GoalController). Calls APIClient to get level layout.
- Player Controller
  - input: Arrow Keys (debugging), Direction Vector (game play), Shoot button
  - output: Controls player movement and interactions
  - dependent components: Called by GameModule, Communicates with Game Module
- Game Controller
  - input: “Restart” Button, “Quit” Button
  - output: Reload current level, Redirect to Home Scene
  - dependent components: Called by GameModule, Communicates with Game Module, Loads HomeScene
- Goal Controller
  - input: Collisions with player
  - output: Bring up game over menu
  - dependent components: Called by GameModule, Communicates with Game Module
- High Scores Module
  - input: “Home” Button
  - output: Redirects to HomeScene
  - dependent components: Called by HomeScene, Loads HomeScene, Calls APIClient to get high scores.

Which form of incremental testing did you follow? – 5 points

- Top-down

- We wanted to test the larger pieces of our product first, since those, such as the game board, are essential for gameplay.
- We also wanted to have a demo-ready product sooner, which is one benefit of top-down incremental testing.

Module	Login Screen Module

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Login screen should display correct error message when username or password is incorrect	3	Update login screen to correctly notify user if the username or password is incorrect
2	Application should not crash when username or password field is left blank	2	Add error handling for case when either of the fields is blank
3	Confirm password field on sign up page does not correctly verify that the passwords match	1	Update text handling to correctly verify password

Regression Testing

Defect #	Description	Severity	How To Correct
1	Fixing confirm password field can freeze sign up form	2	Update user sign up form to ensure it does not freeze

Module	Home Screen Module

Incremental Testing

Defect #	Description	Severity	How To Correct
1	User Should be prompted “Would you like to logout?” if they choose to log out	3	Add onClick reaction to produce the button options “yes” or “no” after logout is clicked.
2	Logout button falls beneath the other buttons when the screen size is too small to contain the scene features	2	Migrate the logout button onto the list of buttons to guarantee that it does not get hidden by the other buttons.
3	Button borders do not scale well when the screen size alters. Text size determines the screen minimum.	3	Make the button borders have a mandatory margin between the screen edges.
4	Game Title does not scale to screen size and the letters are cut off.	2	Make the title text scale with screen size and enforce the margins.

Regression Testing

Defect #	Description	Severity	How To Correct
1	Making the title scale to screen size causes it to overlap with the buttons at 21x9 aspect ratio and wider.	2	Add vertical margins in addition to horizontal margins.

Module	Level Selection Module

Incremental Testing

Defect #	Description	Severity	How To Correct
1	User should be prompted with a “You have not unlocked this level yet.” dialog when attempting to select a locked level.	2	Add check and display dialog if level is locked to user.
2	Unlocked levels should appear visually different from locked levels.	2	Grey out levels that are still locked to user.
3	“Best Score: ” should not be displayed for unplayed levels.	2	Add check and do not display “Best Score: ” text for unplayed levels.

Regression Testing

Defect #	Description	Severity	How To Correct
1	“Best score: 0” should still be displayed on game screen for levels being played for the first time.	2	Statically display best score of zero on game screen instead of getting best score from database.

Module	Game Module

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Ball speed should not change on collision with wall.	2	Set ball speed after collision to speed prior to collision.
2	Ball should stop moving after completing level.	2	Set ball velocity to 0 after collision with goal.
3	Restart button should reset entire level, not just set ball position back to original.	1	Reset entire level upon clicking “restart”.

Regression Testing

Defect #	Description	Severity	How To Correct
1	Fixing ball speed in component (PlayerController) after collisions with component (Wall)	2	Saved ball (PlayerController) speed prior to collision with component (Wall) and used to set speed in correct direction after collision.
2	Ball (PlayerController) should stop moving after colliding with component (Goal)	2	Set ball (PlayerController) velocity to 0 after collision with component (Goal)
3	Restart button (GameController) should cause level (GameScene) to be reloaded	1	Restart button (GameController) now ends the current level, and reloads the same level (GameScene).

Module	High Scores Module

Incremental Testing

Defect #	Description	Severity	How To Correct
1	Scores from other levels should not persist when viewing scores from new levels	2	Clear the display whenever the user requests scores from a different level
2	Formatting gets warped with scores higher than 999.	3	Adjusted text box size to accommodate larger scores.
3	SQL injection vulnerability when selecting a level to read scores from.	1	Escape the user inputted string before constructed the SQL query to prevent malicious code injection.

Regression Testing

Defect #	Description	Severity	How To Correct
1	Clearing the display when the level is changed eliminates the error message if communication with the database is interrupted.	3	Perform this check whenever the text is changed, rather than only the first time accessing the database.