COMP20050 – Software Engineering Project II

SPRINT 4 - DOCUMENTATION

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GROUP 20

Sprint 4- Documentation

Sprint 4 Tasks

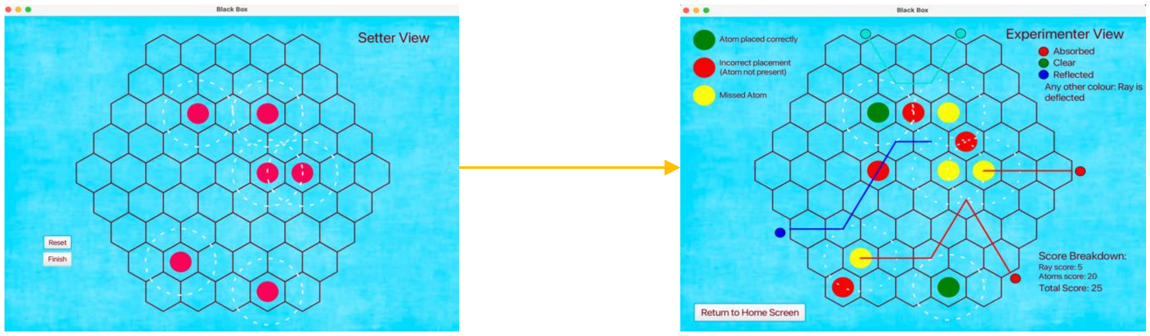
4.1 A feature that displays the full board with all rays, atoms and circles of influences.
4.2 A feature that displays the detailed breakdown of score.
4.3 A feature that displays the Welcome Screen with options.

Implementation Details

4.1 A feature that displays the full board with all rays, atoms and circles of influences.

--All path in complex case implemented successfully.

In the last sprint, a feature was developed to detect an example of a complex path based on the recursion logic we implemented to detect path of rays. Following minor corrections in the detect path function, the logic is now able to detect complex paths. Examples of the complex paths shown are below:



Implemented by Sneha Chhipa and Pallavi Thapliyal.

--Displaying rays on the board.

This feature was implemented by creating a line object which is part of the JavaFX class. It takes in the ray path when the ray button is clicked. It uses the coordinates from the ray path, creates the line and adds it to the line array. Once the check button is clicked, the line properties are set according to the ray marker colours and made visible on screen.

Implemented by Neha Abey

--Displaying atoms and circle of influences.

This feature was built by adding additional functions to the following implementations: being able to place atoms on board by setter and experimenter and calculating the number of correct/incorrect guesses. While the setter/experimenter placed atoms on the board, the location of these atoms and their corresponding circle of influences were being stored in static data structures which can be accessed from the Controller class. All functions relating to GUI are written in Controller class. Thus having the access to all atoms and their coordinates, the visibility of these atoms were set to 1, when the experimenter presses 'check' button. There are three types of atoms displayed: GREEN – shows the atoms which the experimenter guessed correctly; RED – shows atoms which the experimenter guessed incorrectly; YELLOW – shows the correct locations of the atoms that the experimenter guessed incorrectly.

Implemented by Sneha Chhipa, Neha Abey and Pallavi Thapliyal

4.2 A feature that displays the detailed breakdown of score.

--Calculating score and displaying on screen.

A function was created to detect the ray counters on the board. If the ray was absorbed or reflected/ deflected at the same point, the ray counter was incremented by 1, otherwise it was incremented by 2.

Another function was created to detect the number of incorrect atoms on the board. It multiplies the number of incorrect atoms placed on the board by 5 to obtain the atom score.

The score was calculated by adding both the ray counter score and the incorrect atom score together.

Implemented by Neha Abey

4.3 A feature that displays the Welcome Screen with options.

--In screen options.

Allows the user to play against the computer or another player. Playing against the computer, allows the user to guess the locations of randomly generated atoms. Playing against another player, allows one player to set the locations of the atoms and another to guess the locations of the atoms.

Implemented by Neha Abey

Additional Implements

A feature that allows the user to play multiple rounds.

At the end of each round, when all the components of the game are displayed, the user has an option to return back to the "home screen" of the game. The home/welcome screen is displayed once again, which allows to user to play a new game by clicking either the Computer or the Player mode; or they can also just click 'exit' which closes the game window and allows safe termination of the game!

Implemented by Neha Abey

A feature that allows the user to access the game instructions

Added a button to the home screen which allows the user to see the game instructions on how to play the game.

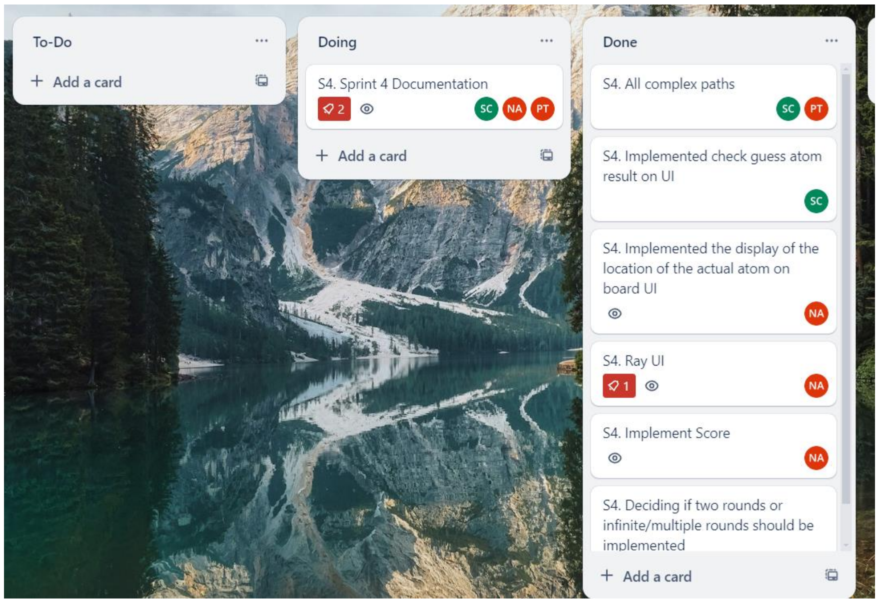
Implemented by Neha Abey

Testing

According to the project plan, the completed features include features relating to the ray logic features, and features that are related to implementing the graphical user interface components. The ray logic and correct storage of game data is tested in the file TestGame.java. The testing of the functions is implemented using J-Unit 4. Some of the data structures and logic were also tested using print statements on the command line, to see the coordinates of the ray and if its collision points (where it hit a circle of influence) was right.

Trello

Link to Trello Board:
https://trello.com/invite/b/Pzp4HSxK/ATTI03a5fb51b606b3d9661fb5bd078c2c5d99A9B9EC/sprint-3-blackbox

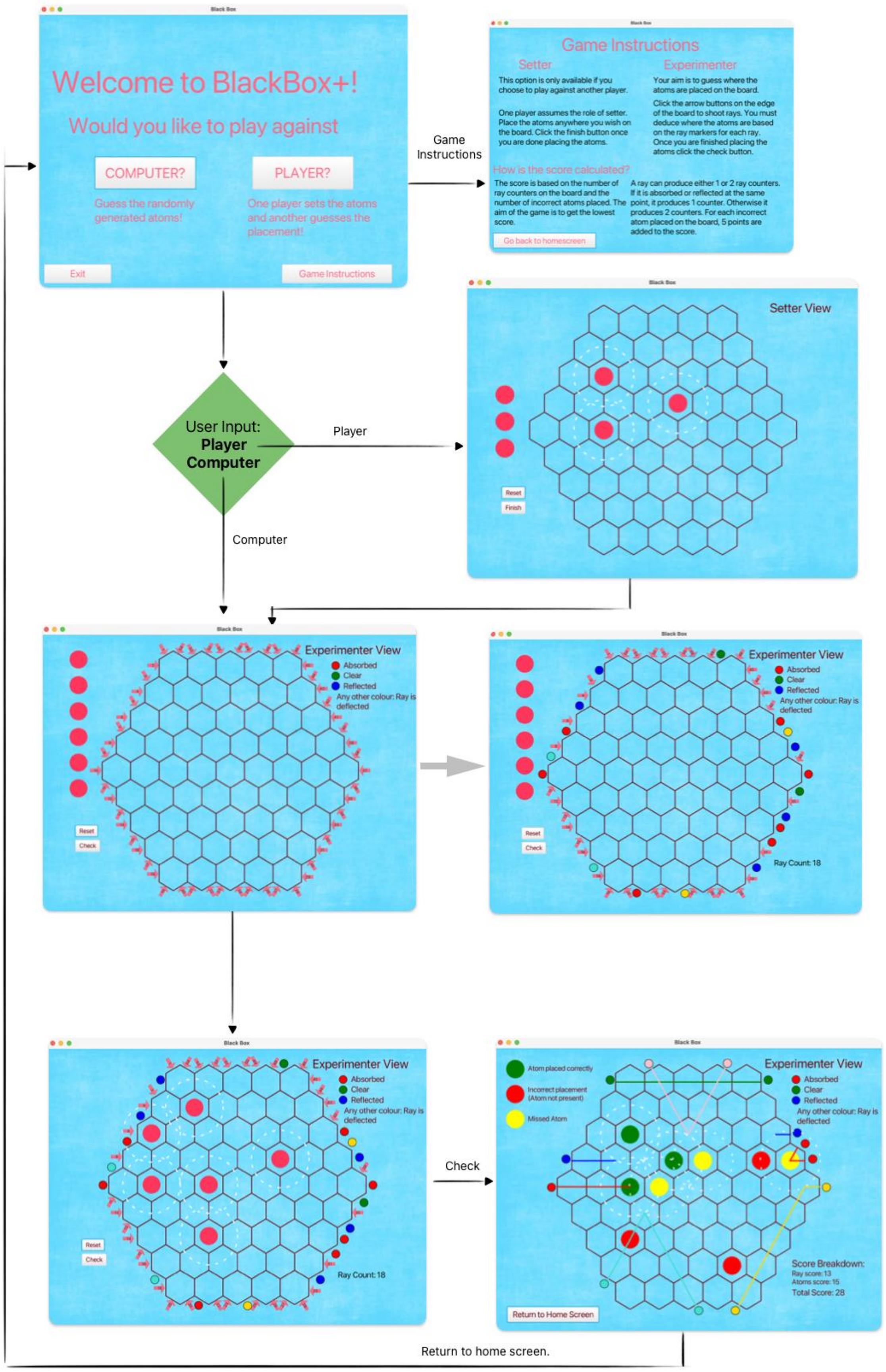


To-Do
+ Add a card

Doing
S4. Sprint 4 Documentation — 2 — SC NA PT
+ Add a card

Done
S4. All complex paths — SC PT
S4. Implemented check guess atom result on UI — SC
S4. Implemented the display of the location of the actual atom on board UI — NA
S4. Ray UI — 1 — NA
S4. Implement Score — NA
S4. Deciding if two rounds or infinite/multiple rounds should be implemented
+ Add a card

Game Model



Game Instructions

Setter

This option is only available if you choose to play against another player.

One player assumes the role of setter. Place the atoms anywhere you wish on the board. Click the finish button once you are done placing the atoms.

Experimenter

Your aim is to guess where the atoms are placed on the board.

Click the arrow buttons on the edge of the board to shoot rays. You must deduce where the atoms are based on the ray markers for each ray. Once you are finished placing the atoms click the check button.

How is the score calculated?

The score is based on the number of ray counters on the board and the number of incorrect atoms placed. The aim of the game is to get the lowest score.

A ray can produce either 1 or 2 ray counters. If it is absorbed or reflected at the same point, it produces 1 counter. Otherwise it produces 2 counters. For each incorrect atom placed on the board, 5 points are added to the score.

Go back to homescreen