Kyle Hamlin

John Paul

CAP3032 Final Report

**Work Distribution**

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| --- | --- | --- |
| **Group Members** | Kyle Hamlin | John Paul |
| **Tasks** | * Main Class * Brick Class * PowerUps Class * WreckingBall Class * Testing & Debugging | * Paddle Class * Timer Class * Documentation * Testing & Debugging |
| **Work Distribution**  **(Combined Total of 100)** | 60% | 40% |
| **Participation**  **(Individually Total of 100)** | 100% | 100% |
| **Group Grade**  **(Individually Total of 100)** | 100% | 100% |

As a team, we think that the project was distributed fairly and we worked together in person every time. This really helped the progress on this project allowing us to create our version of the game Brick Breaker.

**User Manual**

**Starting the Game & The Menu**

Once running the program, the user will be brought to the menu. Once at the menu, there is three options for the user, the first option is to play the game, the second is to exit the game, and the third is to choose the difficulty. The user may select either of these options by clicking with the mouse.

**Selecting the Difficulty**

If the user selects the difficulty button on the home menu, the application will then load another screen where the user can select from Easy, Medium, or Hard. The user may select either of these options by clicking with the mouse.

**Playing the Game**

Once the user enters clicks on the play button on the home screen, the game screen will load. The game will start by randomly generating a play ball on the screen in motion. From here the user can control the paddle at the bottom of the screen to use it to deflect the ball back the other direction toward the bricks. The user can control the paddle by moving it left by using the “A” or “Left Arrow” keys and moving the paddle right by using the “D” or “Right Arrow” keys. The user needs to use the paddle to stop the ball from getting past the paddle otherwise this will cost the user one of their five starting lives. If there is at least one ball in the play area, then a life will not be lost (see blue-ball power-ups for getting extra balls). If a life is lost, a ball will then be randomly generated in the play area again until all lives are lost and the user is returned to the menu.

The difficulty that the user has selected will determine the size of the paddle, the rate at which bricks spawn, and the speed of the ball. Bricks in the game will have different levels of health these will be represented by the color of the bricks. The lighter the color, the more hits they will take to break. When breaking bricks there will be a random chance for a power-up to spawn that the use can claim.

**Power-Ups**

Within the game the user can receive power-ups for killing bricks, these power-ups will fall from the top of the game screen, straight through without any collision, and can be activated by the user hitting them with their paddle, like a normal ball. These power-ups include:

Blue-Ball: This will grant the user an extra ball in the play area, it will randomly be generated in motion like a normal ball.

Green-Ball: This will increase the speed and the width of the paddle for five seconds, making it easier for the user to move to the incoming ball.

Gold-Ball: This will expand the paddle the width of the play area for ten seconds. Allowing the user to take a quick break and not have to worry about losing any lives.

Red-Ball (Bad Power-Up): This will decrease the speed of the paddle for five seconds, making it tougher for the user to move to the incoming ball.

**Pausing the Game**

At any time, the user may use the “P” key to pause the game. From here the user can resume the game, go back to the main menu or quit the game by using the mouse or using the “P” key to resume the game.

**Scoring the Game**

The user can score five points for every hit of a brick and one hundred points for every brick that is broken.

**Ending the Game**

The game will end when the user runs out of lives and then be returned to the menu. The game can also be ended by the user if the exit button is clicked when at the main menu or the exit button is clicked while the user has the game paused.

**Difficulties**

* Hitboxes and collision detection was very glitchy and still kind of is now around the bricks and paddle. There are still some edge cases that happen.
  + We tried to overcome them by doing careful tuning with trial and error. They are not perfect but are useable.
* The timer within our game was a little bit difficult to keep accurate.
  + Fixed it by using the millimeter command within processing.
* The sound of our background song would not initially loop because it was not a mono sound file.
  + Found a work around online that allows the sound file to start, stop, then loop.
* In general, there were many bugs and glitches that needed to be fine-tuned and they were.