

Assembly Project: Breakout

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1 Instruction and Summary

1. Which milestones were implemented? 1, 2, 3, 4, 5
2. How to view the game:
 - (a) Launch compiler of choice
 - (b) View bitmap and connect keyboard (depending on compiler)
 - (c) Compile and run! 'a' moves left, 'd' moves right, 'q' exits, 'p' pauses/unpauses the game. Enjoy!

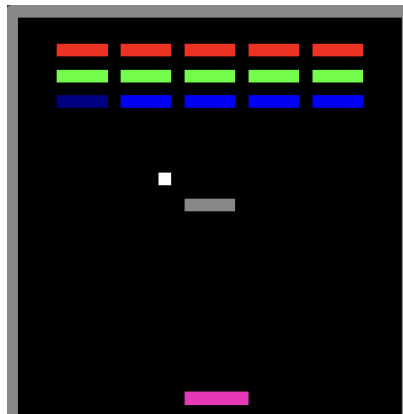


Figure 1: Level 1

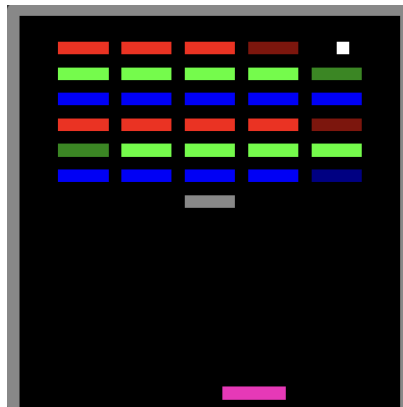


Figure 2: Level 2

3. Game Summary:
 - Paddle moves left and right

- Hit the ball to bounce on the blocks
- The edges of the paddle bounce the ball to the left or right respectively. The middle bounces the ball upwards.
- The more bricks you hit, the faster the ball gets!
- Once you reach a certain progress in the first stage, you move on to the next.
- Clear all the blocks! Good Luck!

2 Attribution Table

| | |
|------------------------|------------------------|
| Charlie Tao 1008251589 | Clark Zhang 1008423421 |
| Drawing paddle | Drawing walls |
| Drawing bricks | Keyboard input |
| Keyboard response | Game loop |
| Moving Ball | Breaking Blocks |
| Collision | Refactoring |
| Milestone 5 | Milestone 4 |

3 Notable features

1. 5 EASY FEATURES DONE: Unbreakable brick, Ball speed up, Game pausing, Sounds, 3 Lives (amount is changeable in code)
2. 3 HARD FEATURES DONE: Differing paddle bounce, Second level, Multiple hits to break bricks.
3. COLLISION: Collision was definitely the most challenging part of this project compared to what it seemed. After many trials and differing attempts to implement collision, I finally came to a working method.

This method was to check only 3 pixels instead of all 8 pixels. This way, only the pixels that the ball passes through are checked, and the bounce is properly calculated upon hitting the block. The velocity of the bounce as well as its x and y positions were stored in a global Ball struct. By finding the negative of the velocity, the ball was able to bounce. Creating a robust collision system is what allowed the other features to be implemented easier.