Assembly Project: Breakout

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1   Instruction and Summary

1. Which milestones were implemented? milestone 1. milestone 2 with minor errors

2. How to view the game:

   - Unit width in pixels: 16
   - Unit height in pixels: 16
   - Display width in pixels: 512
   - Display height in pixels: 512
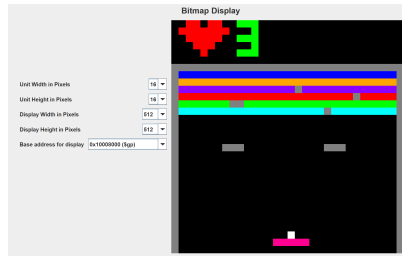   - Base Address for Display: 0x10008000

Figure 1: start game

Figure 2: game over

3. Game Summary:

   - breakout game where the player control the paddle to bounce the ball and break the blocks

4. features:

   - easy:

   - 1 Multiple lives

   - 2 Gameover, retry

   - 4 sound effects

- 5 game pause
- 7 unbreakable bricks
- 9 ball launch
- hard:
- 3 different paddle bounce off angles
- 4 bricks require multiple hits before breaking
- 7 animation

5. interactions

- ball moving upwards bounce straight down when it hits a block or a wall
- leftside of the paddle bounces the ball left, rightside of the paddle bounces the ball right, centre of the paddle bounces the ball straight up.
- two unbreakable bricks close to the paddle: if the ball hits the top of the brick, the ball bounces to the left.
- the paddle blinks yellow when the ball hits.
- when the ball hits sidewalls, the ball flashes yellow (alternate yellow and white)
- sound is produced when the ball hits an object
- number of lives decrease by 1 when a ball is lost. game is over when you lose the ball 3 times.
- if the ball's move is straight up before hitting the brick, the brick requires 2 hits to be completely destroyed. the second layer of the brick is yellow. if the the corner of the ball and the brick collide, hit from the side, or the bottom of the ball, the second layer do not exist; the brick only requires 1 hit to be completely destroyed. Go for unique moves/bounces to clear the game faster!

6. How to Play:

- after running the program, press space bar to start the game
- press 'a' to move the paddle left, 'd' to move right
- press 'p' to pause the game
- press 'p' again to resume the game
- press 'q' to quit the game
- when the ball falls out of the screen, the ball and the paddle automatically recentres to the default position. press space bar to continue.
- you are given 3 lives. if you run out of lives, you will see the game over screen. press 'r' to start the game over, or press q to exit.