



aMAZEingGames

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Mission Statement: Our vision is to create a fun and easy to navigate website that entertains users with a variety of games.

```
mysql> select * from users;
```

Username	Useremail	Userpassword	UserID
newUser3	newUser3@mail.com	\$2a\$10\$CJdksdGukXkrwc0m/kPnXeongsEb0hNjhF6V40pj4R6NGh.mVE5aC	56n2oo
newUser2	newUser2@mail.com	\$2a\$10\$ZxwxzaFucvVBeI0xN69NwuAKUFZG5MUHHqAswLivA1P2AfaAgmP26	1brd4
newUser4	newUser4@mail.com	\$2a\$10\$5/GjM7ZLLqNlaC5ToxJ0BuD84N5vX53kUnGjmJrXf0D2XQW950wV2	8c8ctq

3 rows in set (0.00 sec)

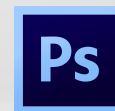
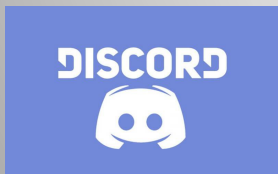
MySQL - Rating: 5
JavaScript - Rating: 3
WebPack - Rating: 4
Photoshop- Rating: 5

GitHub - Rating: 5
NodeJS - Rating: 3
Trello - Rating: 1
Discord - Rating: 5

```
mysql> select * from HighScores;
```

UserID	Snake	Maze	SpaceInvaders
56n2oo	3	18	0
1brd4	3	10000	0
8c8ctq	0	10000	0

3 rows in set (0.00 sec)



Tools/Services We Used

A graphic with a blue background featuring a white diagonal stripe and a dark blue curved stripe. The text "AGILE" is centered in white, underlined with three horizontal lines. Below it, "PROJECT MANAGEMENT" is written in a larger, bold, white sans-serif font.

AGILE

PROJECT MANAGEMENT

- Weekly Sunday meetings: Discussed accomplishments from the previous week, planned on what would get done in the next week.
- Allowed for the most independence between developers to tackle issues on their own
- Let us go back and make changes to games/website with new ideas or bug fixes

Project Methodology



Bug Bash by Hans Bjordahl



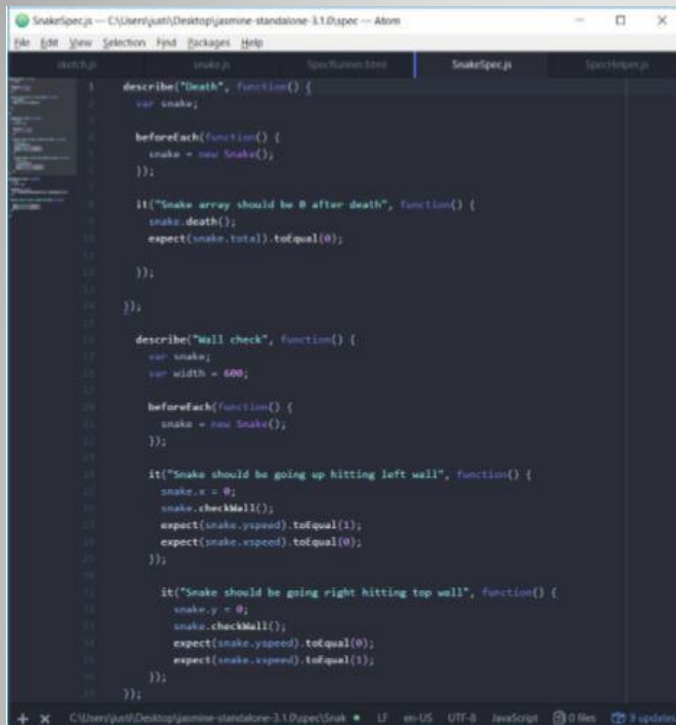
Copyright 2005 Hans Bjordahl



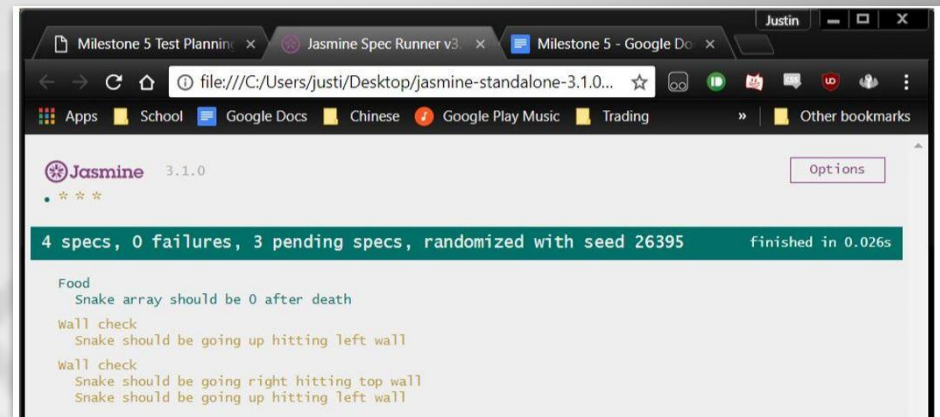
<http://www.bugbash.net/>

- Programmers easily end up in their own little bubble
- Innocence of others finds issues
- Edge case testing

User Testing - Stressful



```
1 describe("Death", function() {
2   var snake;
3
4   beforeEach(function() {
5     snake = new Snake();
6   });
7
8   it("Snake array should be 0 after death", function() {
9     snake.death();
10    expect(snake.total).toEqual(0);
11  });
12
13 });
14
15 describe("Wall check", function() {
16   var snake;
17   var width = 600;
18
19   beforeEach(function() {
20     snake = new Snake();
21   });
22
23   it("Snake should be going up hitting left wall", function() {
24     snake.x = 0;
25     snake.checkWall();
26     expect(snake.yspeed).toEqual(1);
27     expect(snake.xspeed).toEqual(0);
28   });
29
30   it("Snake should be going right hitting top wall", function() {
31     snake.y = 0;
32     snake.checkWall();
33     expect(snake.yspeed).toEqual(0);
34     expect(snake.xspeed).toEqual(1);
35   });
36 });
```



- Jasmine is a development framework JS library for testing Javascript code
- Has clean, obvious syntax
- Describe (grouping of cases)
 - it (specific test)
 - expect(result == result)

Unit Testing - Jasmine

Registration Rules:

- Username:
 - 4-15 characters
 - field cannot be empty
- Password:
 - 8-100 characters
 - Must match
- Email Address:
 - Email invalid
 - 4-100 characters

Registration

aMAZEing Games Registration

Username

bRiCkGaMeBeStGaMe

Email

sol.pazos@gmail.com

Password

...

Re-Enter Password

...

Submit

Registration Error

Username must be between 4-15 characters long.

Password must be between 8-100 characters long.

Username

bRiCkGaMeBeStGaMe

Email

sol.pazos@gmail.com

Password

...

Re-Enter Password

...

Submit

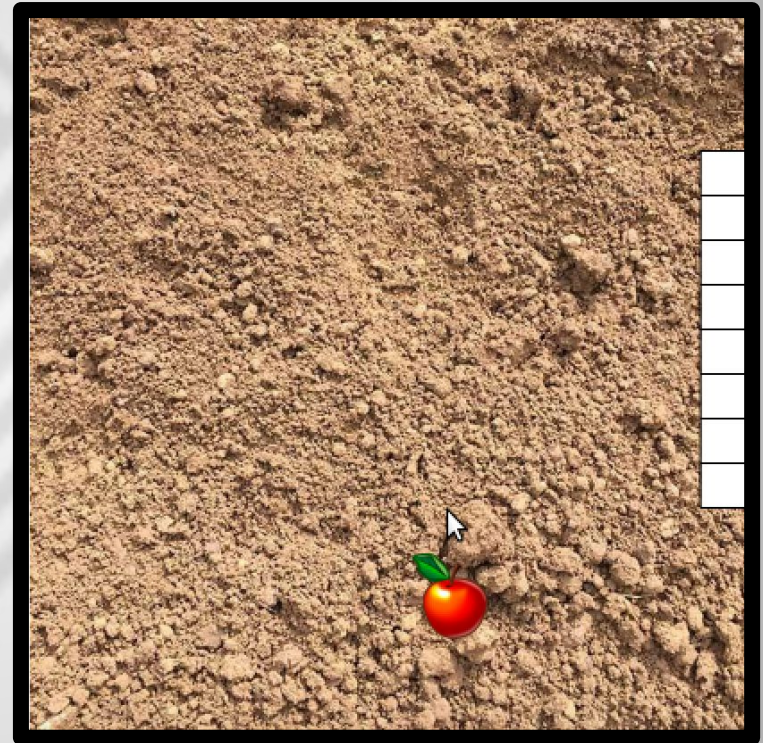
Snake Game

The Snake:

- An array of boxes
- Each box's position is updated to the position of the index before
- Checks if intersected with self

The Apple:

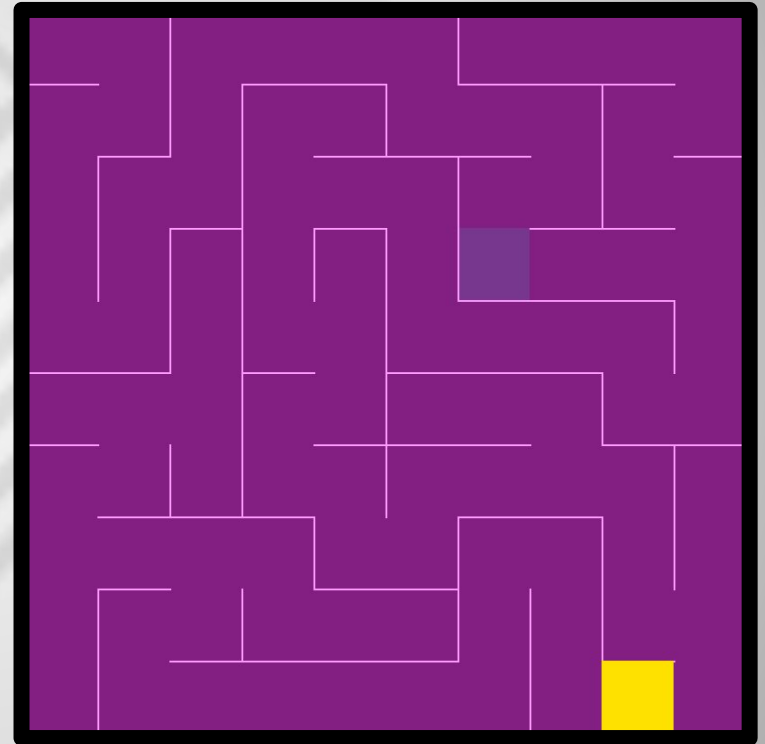
- A randomly chosen vector
- Checks every frame if it has intersected with the `index[0]` box of the snake array



Maze Game

How the maze generation works:

- Pick a random unvisited neighbor
- Push it to the stack
- Continue until stuck
- Pop off the stack until an unvisited neighbor is found
- Continue until popping off gives an empty stack (return to start)



Space Invaders

The Enemies:

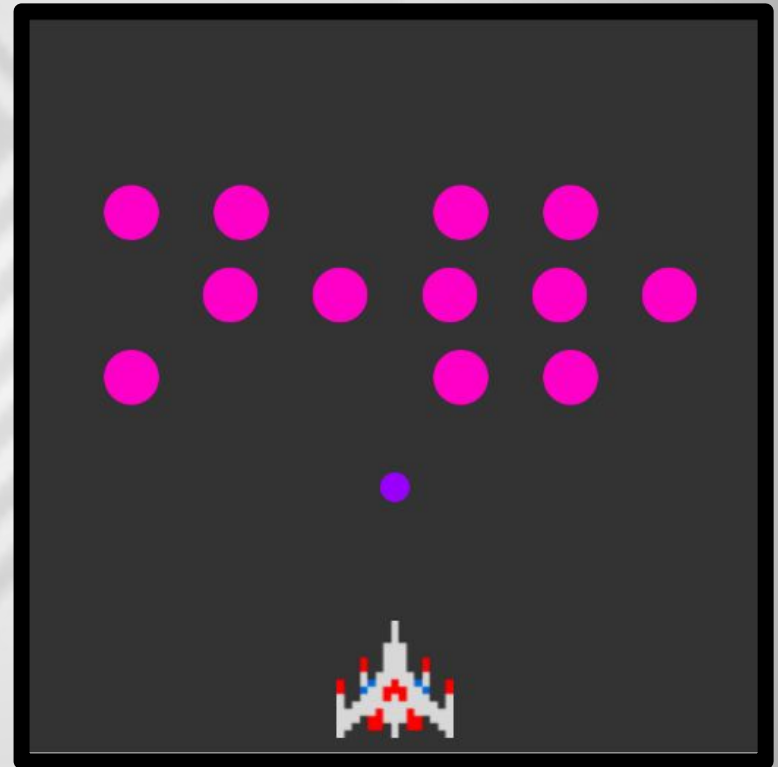
- A simple array
- Checks when any enemy hits an edge, shifts down & switches direction

The Ship:

- Speed changed via arrow keys

This code runs once a frame to limit fire rate to 1 second:

```
if(cooldown){  
    framecount += 1; //add one for each  
    frame that passes  
    framecount = framecount%(framerate);  
    //won't be 0 until framecount hits framerate  
    if(framecount == 0){ //after a second  
        cooldown = false;  
    }  
}
```



Brick Game

Paddle:

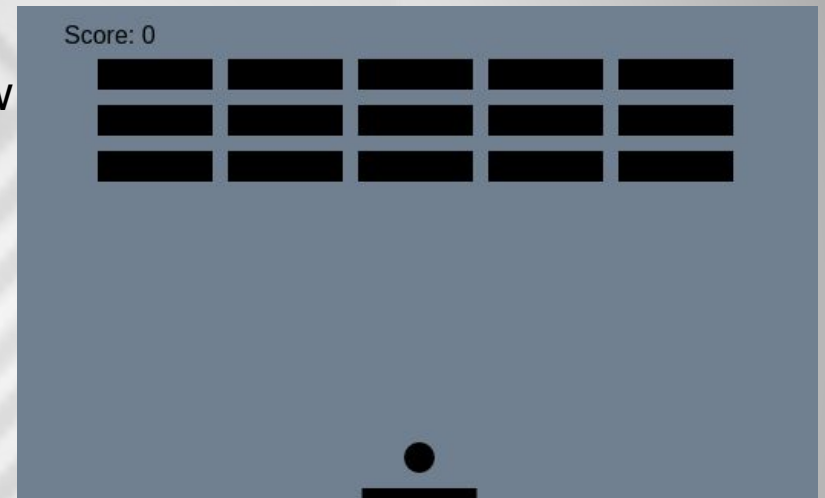
- Controlled by the left and right arrow keys
- Continuously accepts input

Ball:

- Bounces off all four walls
- If ball is contained within the x-coordinates of either side of the paddle, ball continues bounces off bottom wall
- If ball is not contained within paddle, game over

Bricks:

- Array, if ball hits brick, existence value set to 0 and brick not drawn.



- Log-in features
 - Registration
 - Making sure required fields are correct
 - Login
 - NodeJS
 - Confirms username and password with database
 - Creates a user session
 - Displays users highest score for each game
 - Blocked website access for unregistered users
- User high score saving
- HTML forms saved to Database
- Javascript games embedded into the website

Features of website

- Login System integration
 - multiple packages needed to install
 - hard to get working on all computers
- Multiple changes to website structure
 - lots of restarts put us behind
- Figuring out best solution
 - PHP?
 - JS?
 - HTML to NodeJS to Mysql back to HTML?
 - Handlebars?
- Lots of README's
- Creating a website based of multiple coding skill sets and styles
- And the biggest challenge: putting everything together

Challenges Faced

Website

- Create custom web page design for each game
- Add ability to change profile info and picture
- Move from local to online

Games

- Make screen size same for varying resolutions
- Graphics and sounds for the games
- Adjust game difficulty/challenge to make them more exciting to play
- Consistency in starts/stops/controls for all of the games

Database

- Display scores of other games on the main page
- Save amount of times a user played the game to figure out popular games
- Move from local to online

Things to improve

A quick showcase of our working website

Demo