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Snake Game Tutorial

How to Set Up and Run the Game

Prerequisites:

- Node.js installed on your system.

- MySQL Server set up for the database.

- A modern web browser.

Setup Instructions:

1. **Clone/Download the Code:**

   - Obtain the project files (HTML, CSS, JavaScript, and any Node.js files).

2. **Database Setup:**

   - Create a MySQL database and import the provided SQL dump file to set up the required tables.

3. **Node.js Setup:**

   - Navigate to the project directory in the command line.

   - Run **npm install** to install dependencies (if a **package.json** file is provided).

4. **Starting the Server:**

   - Run **node index.js** to start the Node.js server.

5. **Accessing the Game:**

   - Open a web browser and go to **http://localhost:[port]** (replace **[port]** with the port number your server is running on, typically **3000** for Node.js applications).

Steps to Create Similar Code (Summarized)

HTML Structure:

- Create an HTML file with a **canvas** element for the game, buttons for controls, and sections for score display and instructions.

Styling with CSS:

- Style the HTML elements for a neat layout and visual appeal.

JavaScript Game Logic:

- Write JavaScript to handle game mechanics such as:

    - Drawing elements (snake, apple, obstacles) on the canvas.

    - Handling user inputs for snake movement.

    - Implementing game rules (eating apples, growing snake, game over conditions).

Special Features:

- Code additional features like golden apples and reverse controls, ensuring they integrate seamlessly with the basic game mechanics.

Back-End Setup (Node.js and MySQL):

- Set up a Node.js server to handle HTTP requests.

- Connect to a MySQL database for storing and retrieving high scores.

Testing and Debugging:

- Test the game thoroughly, fix bugs, and refine the user experience.

Deployment:

- Prepare the game for deployment by ensuring it runs smoothly in different environments and browsers.

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Gameplay Instructions

Objective

Your goal is to control the snake to eat as many apples as possible, increasing its length and your score with each apple. Avoid colliding with the walls, obstacles, or the snake's own body.

Controls

- **Movement:** Use the arrow keys (↑, ↓, ←, →) or WASD keys to control the direction of the snake.

- **Start Game:** Press the "Start" button to begin the game.

- **Pause Game:** Press the "Pause" button to pause the game. Press start to resume.

- **Restart Game:** Press the "Restart" button to start a new game after a game over.

Game Elements

Regular Apple

- Eating a regular apple increases your score by 1 and adds one segment to the snake's length.

- Apples appear randomly on the grid.

Golden Apple

- The golden apple appears occasionally with a 10% chance.

- Eating a golden apple increases your score by 3 and adds three segments to the snake.

- It provides a higher reward but is less frequent.

Reverse Power-Down

- This item appears with a 20% chance after eating a regular apple.

- It temporarily reverses the control scheme for 1.5 seconds.

- Navigating the snake becomes more challenging during this period.

Obstacles (Saw Blades)

- Fixed obstacles that result in a game over upon collision.

- The snake must navigate around these to survive.

Scoring and High Scores

- Your score increases with each apple eaten.

- The game tracks high scores and stores them in a database.

- Try to beat your high score with each new game!

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Strategies

- Plan your movements to avoid trapping the snake.

- Be cautious when the reverse power-down is active.

- Prioritize regular apples for steady growth but take risks for golden apples for a higher score.

Video Demo of the Game