Mini Project Report: Rock Paper Scissors Game

Technology Used: HTML, CSS, JavaScript
Project Type: Mini Project
Domain: Web Development / Game Development
Duration: 1 Day
Status: Completed

1. Introduction

The Rock-Paper-Scissors game is a foundational example in learning how event handling, DOM manipulation, conditional logic, and user interaction work in web applications. This project integrates front-end web technologies (HTML for layout, CSS for styling, JavaScript for behavior) to simulate real-time interaction and scorekeeping.

The user selects an option, and the computer randomly generates a choice. Based on standard rules (Rock beats Scissors, Scissors beats Paper, Paper beats Rock), the outcome is determined and scores updated accordingly.

2. Abstract

Rock-Paper-Scissors is a simple hand game played between two players. This project replicates the same experience in a web environment where the user plays against a computer bot. The game includes clickable icons for rock, paper, and scissors, displays the score in real time, and uses logic to determine the winner for each round.

3. Technologies Used

Component	Description
HTML	Structure of the web page
CSS	Styling, layout, animations
JavaScript	Game logic, event handling, scoring

4. Objective

To build an interactive and visually engaging browser-based Rock-Paper-Scissors game that allows a human player to play against the computer. The goal is to implement game logic using JavaScript and structure/stylize it using HTML and CSS.

5. Features

- Clickable options: Rock, Paper, Scissors

- Real-time game response

- Computer generates a random move

- Scoreboard displays user and computer scores

- Message section for feedback (e.g., "You win", "Draw", etc.)

- Simple and responsive layout

- Clean and interactive design using CSS hover effects

6. Working Principle

- **User Interface:**
  Three images are shown representing Rock, Paper, and Scissors. Users click one to play.

- **Random Move Generation:**
  When a user clicks an option, JavaScript generates a random move for the computer from the three available options.

- **Game Logic:**
  The choices are compared:

  - Rock beats Scissors

  - Paper beats Rock

  - Scissors beats Paper

- **Scoreboard:**
  The score is updated based on the result, and the message section is updated with the round result.

7. Code Structure Overview

index.html

- Contains structure and layout of the game board
- Displays choices and scores

style.css

- Styles the game elements
- Sets up hover effects and responsive layout
- Colors: cadet blue background, deep blue headers, white text

app.js

- Handles user input via event listeners
- Generates random computer choices
- Compares and declares round winner
- Updates the DOM with score and messages

8. Applications

- Fun web mini-game for beginners
- Practicing DOM manipulation and logic flow
- Can be extended to multiplayer mode
- A good portfolio project to show JS skills

9. Sample Output

When the game is loaded:

- Title appears: "ROCK PAPER SCISSORS"
- Three clickable icons appear (rock, paper, scissors)
- Score starts at 0–0
- Message: "Play your move"

After a round:

- User clicks "Rock"

- Computer chooses "Scissors"

- Message: "You win!"

- User score updates: 1

10. Limitations & Future Scope

Limitations:

- No backend/database support

- No user login/session

- No sound or animation for winning/losing

Future Scope:

- Add sound effects and animations

- Store high scores using localStorage or Firebase

- Make the design responsive for all screen sizes

- Add countdown timer and lives system

- Implement multiplayer support via WebSockets

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11. Conclusion

This project demonstrates how a simple concept like Rock-Paper-Scissors can be effectively implemented using frontend technologies. It combines visual design with interactivity and is ideal for learners beginning with JavaScript and browser-based development. The project showcases the ability to work with user input, generate random outputs, manipulate the DOM, and maintain application state — all key aspects of interactive web applications.