Shri Swami Samarth Institute Of Management And Technology ,

Ahmednagar

Department of Computer Application

A
Project
Report On

“ Rock-Paper-Scissor game ”

Submitted to Savitribai Phule Pune University for
MCA (Computer Application Sem - II)

Submitted by

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Under the guidance of

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(2023 - 2024)

Department of Computer Application

CERTIFICATE

This is to certify that ,

1) Mr. Waghumbare Krushna Rajendra

2) Kale Prajwal Dnyaneshwar

3) Sathe Akshay Hanumant

of MCA (Computer Application) Sem- II has successfully completed project work entitled **" Rock-Paper-Scissor game "** prescribed by Savitribai Phule University, Pune during academic year 2023-24 and this report represents his bonafide work.

Date: / / 2024

Place : Ahmednagar.

Project Guide **HOD**

Prof. Awari P . B Prof. Ghosale R . A

Internal Examiner **External Examiner**

ACKNOWLEDGMENT

We would like to register our science appreciation to “Computer Application Department” of Shri Swami Samarth institute of Management And Technology , Ahmednagar for giving us an opportunity to work with them in their organization during our project on **“ Rock-Paper-Scissor game ”**.

We would like to thank our **Project Guide Prof. Awari P .B** our teacher for complete guidance, encouragement and inspiration at every stage of this task. Finally we would like to thank all our friends for contribution their valuable time for us

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INTRODUCTION

"Rock-Paper-Scissors" is a globally beloved game where two players simultaneously choose one of three gestures: rock, paper, or scissors. The winner is determined by simple rules: rock beats scissors, scissors beats paper, and paper beats rock. Despite its simplicity, the game involves psychology and strategy, making it endlessly entertaining. It's a timeless pastime enjoyed by people of all ages across cultures, transcending boundaries and finding its place in various aspects of modern life.

PURPOSE OF PROJECT

Entertainment: The primary purpose of the game is to provide entertainment and fun. It's a simple and enjoyable activity that can be played casually among friends, family members, or even strangers.

Decision Making: In some cases, rock-paper-scissors is used as a fair and unbiased method for making decisions or resolving disputes. For example, it can be used to determine who goes first in a game, who gets to choose a task or activity, or who wins a prize.

Teaching Strategy and Probability: The game can be used as an educational tool to teach basic concepts of strategy, probability, and game theory. Players must anticipate their opponents' moves and choose their own moves strategically to maximize their chances of winning.

Icebreaker or Team Building: Rock-paper-scissors can serve as an icebreaker activity to help people break the ice and get to know each other in social settings or as a team-building exercise to foster camaraderie and collaboration among group members.

Training for Reflexes and Coordination: Some people play rock-paper-scissors as a way to train their reflexes and hand-eye coordination. It can be used as a simple exercise to improve reaction time and coordination skills.

Digital Games and Apps: Rock-paper-scissors is often included as a mini-game in digital platforms, such as websites, mobile apps, and video games, adding variety and amusement to the overall experience.

SCOPE OF THE PROJECT

Casual Entertainment: The most common scope of the rock-paper-scissors game is casual entertainment. It's often played as a simple and fun game among friends, family members, or even strangers in various social settings, such as parties, gatherings, or leisure time activities.

Educational Tool: Rock-paper-scissors can serve as an educational tool to teach basic concepts of strategy, probability, and game theory. It can be used in classrooms, workshops, or educational events to engage students and demonstrate these concepts in a hands-on and interactive way.

Decision Making: In some contexts, rock-paper-scissors is used as a fair and unbiased method for making decisions or resolving disputes. It can be used to determine who goes first in a game, who gets to choose a task or activity, or who wins a prize.

Digital Games and Apps: The scope of rock-paper-scissors extends to digital platforms, where it's often included as a mini-game in websites, mobile apps, and video games. In these digital versions, the game may feature additional features, such as multiplayer modes, customizable options, and enhanced graphics.

Competitive Tournaments: Some organizations host competitive rock-paper-scissors tournaments, where participants compete against each other for prizes or recognition. These tournaments may follow specific rules and formats, and they can range from local events to international competitions.

Training and Skill Development: Rock-paper-scissors can be used as a training exercise to improve reflexes, hand-eye coordination, and decision-making skills. It's often included in sports training programs, martial arts classes, or other activities that require quick thinking and rapid responses.

Psychological Studies: Rock-paper-scissors is sometimes used in psychological studies and experiments to explore decision-making processes, cognitive biases, and social dynamics. Researchers may use the game to examine human behavior in various contexts and draw insights into decision-making mechanisms.

OVERVIEW OF PROJECT

Rock-paper-scissors is a simple hand game usually played between two people, where each player simultaneously forms one of three shapes with their hand. The possible shapes are:

Rock: A fist.

Paper: An open hand.

Scissors: A fist with the index and middle fingers extended, forming a V.

The game follows a simple set of rules:

Rock crushes scissors (rock wins against scissors).

Scissors cuts paper (scissors win against paper).

Paper covers rock (paper wins against rock).

If both players choose the same shape, the game is a tie and is usually played again.

Rock-paper-scissors can be played for entertainment or decision-making purposes. It's often used as a quick and fair way to resolve disputes or make decisions when two individuals need to come to an agreement.

The game's simplicity, randomness, and lack of strategy make it accessible to

people of all ages and backgrounds. It's commonly played casually among friends, family members, or even strangers in various social settings.

Despite its simplicity, rock-paper-scissors has been the subject of academic study in fields such as game theory, psychology, and mathematics, exploring concepts such as decision-making strategies, probability, and social dynamics.

DEVELOPER REQUIREMENT

A) Hardware Requirement :-

The hardware requirements for an game project can vary depending on the scale and complexity of the project, as well as the expected traffic and workload. Here are some general hardware considerations for an game project:

Processor : Intel core i3

Ram : 4GB and above

Hard Disk : 256 GB & above

B) Software Requirement :-

The software requirements for an game project a range of applications and tools necessary for the development, management, and operation of the online store. Here are some essential software components typically required for an game project:

Front End : HTML5 , CSS3 , BOOTSTRAP , JAVASCRIPT ,

Tools : Visual studio code / Sublime

Platform : Windows / Linux

** SAMPLE CODE **

```
let userScore=0;
let compScore=0;

const userScorepara=document.querySelector("#user-score");
const compScorepara=document.querySelector("#comp-score");

const choices=document.querySelectorAll(".choice");
const msg=document.querySelector("#msg");

const genCompChoice=()=>{

  const options=["rock","paper","scissors"];

  const randInx=Math.floor(Math.random()*3);

  return options[randInx];
```

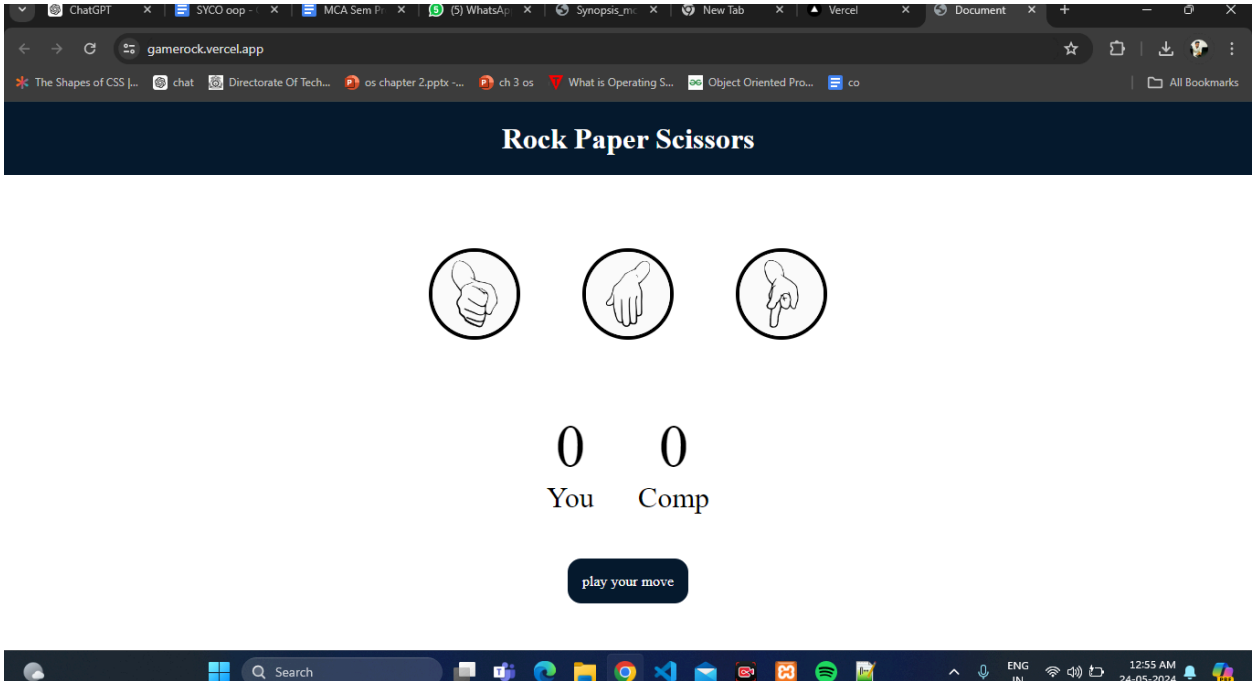
```
}

const showWinner=( userWin, userChoice , compChoice) =>{

    if(userWin)
    {
        userScore++;
        userScorepara.innerText=userScore;
        msg.innerText=`You Win !  your ${userChoice} beats ${compChoice}`;
        msg.style.backgroundColor="green";
        if(userScore==11)
        {
            alert(`You are Win the Game !`);
            location.reload(true);
        }



    }
    else
    {
        compScore++;
        compScorepara.innerText=compScore;
```

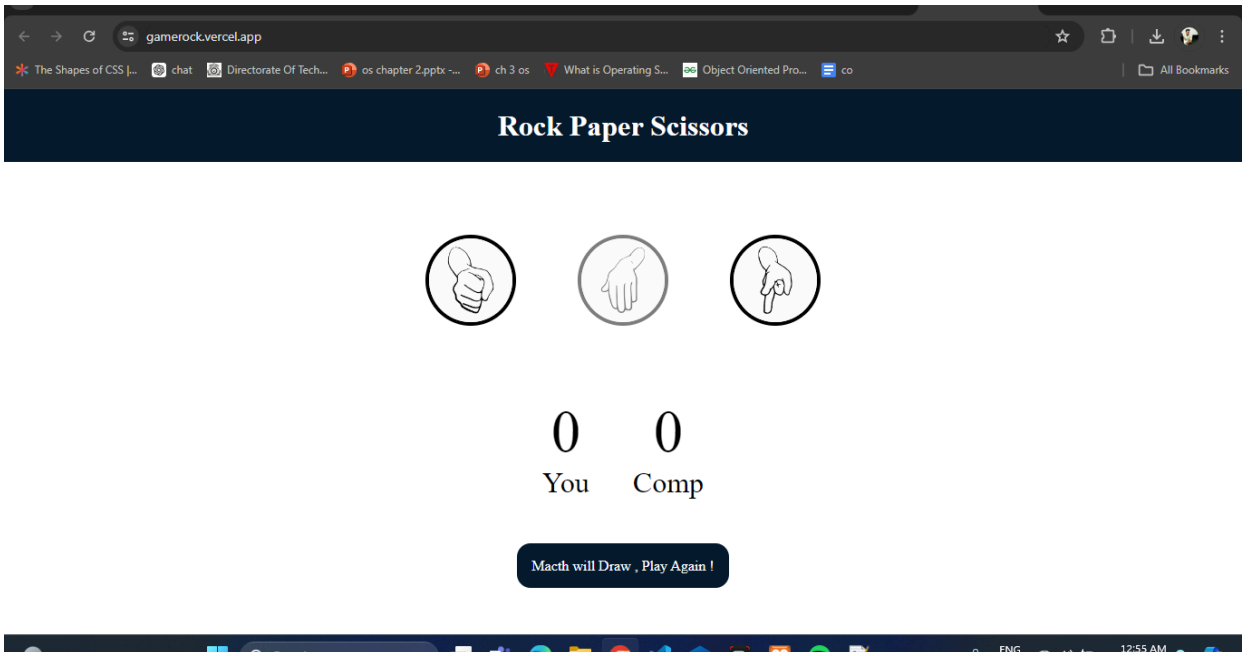
```
        msg.innerText=`You Loose   ${compChoice} beats your ${userChoice}`;
        msg.style.backgroundColor="red";
        if(compScore==11)
        {
            alert("You are Loose the Game, Play Again!");
            location.reload(true);
        }

    }
}

const drawGame=()=>{

    // console.log("game was Draw");
    msg.innerText="Macth will Draw ,  Play Again !";
    msg.style.backgroundColor=" #081B31 ";


}
const playGame=(userChoice)=>{

    // console.log("user choice is = ",userChoice);
```

```
const compChoice=genCompChoice();


// console.log("Comp choice is = ",compChoice);


if(userChoice === compChoice)
{
    drawGame();
}
else
{
   let userWin=true;
   if(userChoice==="rock")
   {
      userWin = compChoice === "paper" ? false : true;
   }
   else if(userChoice === "paper")
   {
      userWin = compChoice === "scissors" ? false : true;
   }


   else
   {
      userWin = compChoice === "rock" ? false : true;
```

```
        }
        showWinner(userWin,userChoice,compChoice);
    }



}

choices.forEach((choice)=>{

    // console.log(choice);
    choice.addEventListener("click",()=>{

        const userChoice=choice.getAttribute("id");
        playGame(userChoice);



    })
})
```

** SNAPSHOT **


gamerock.vercel.app
Rock Paper Scissors
0
You
0
Comp
play your move


gamerock.vercel.app
Rock Paper Scissors
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You
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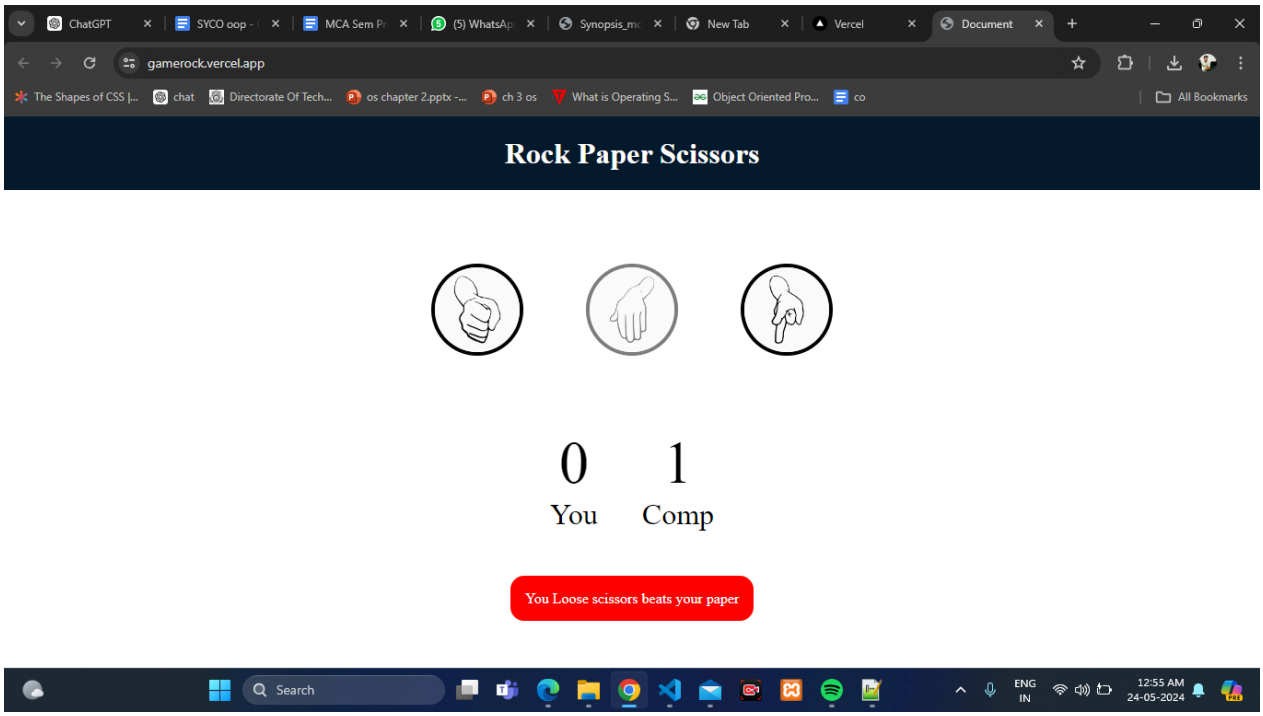
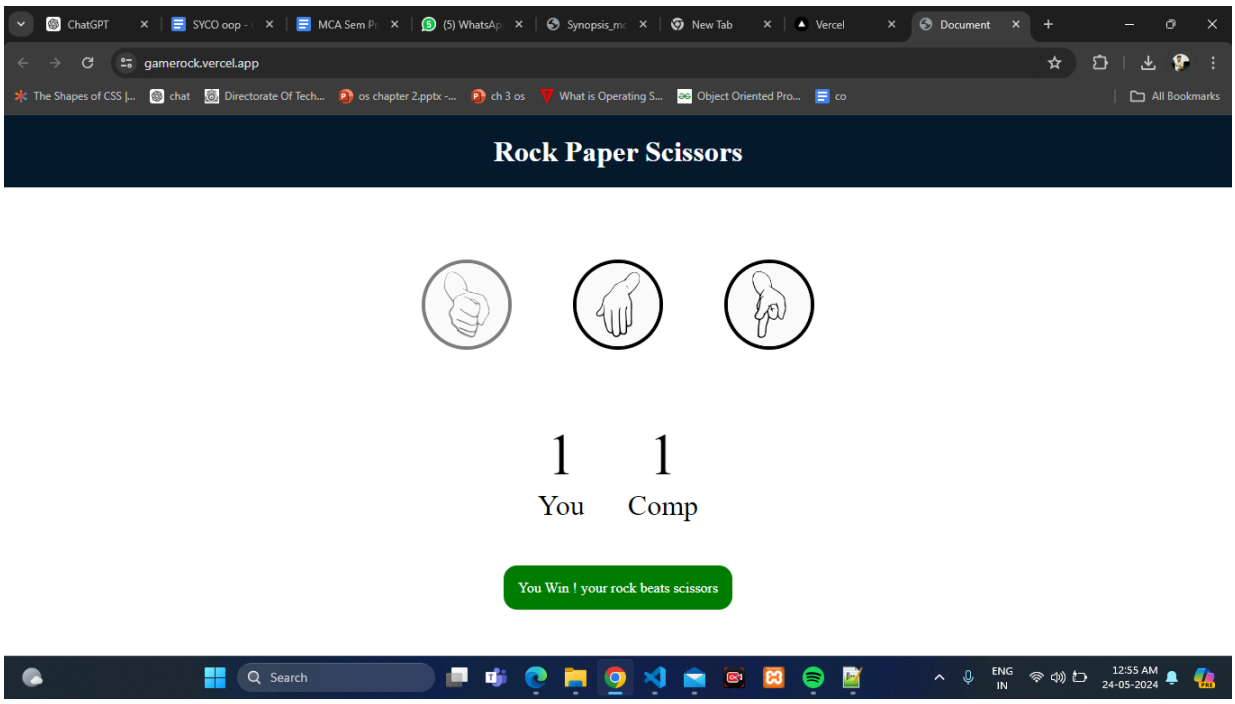
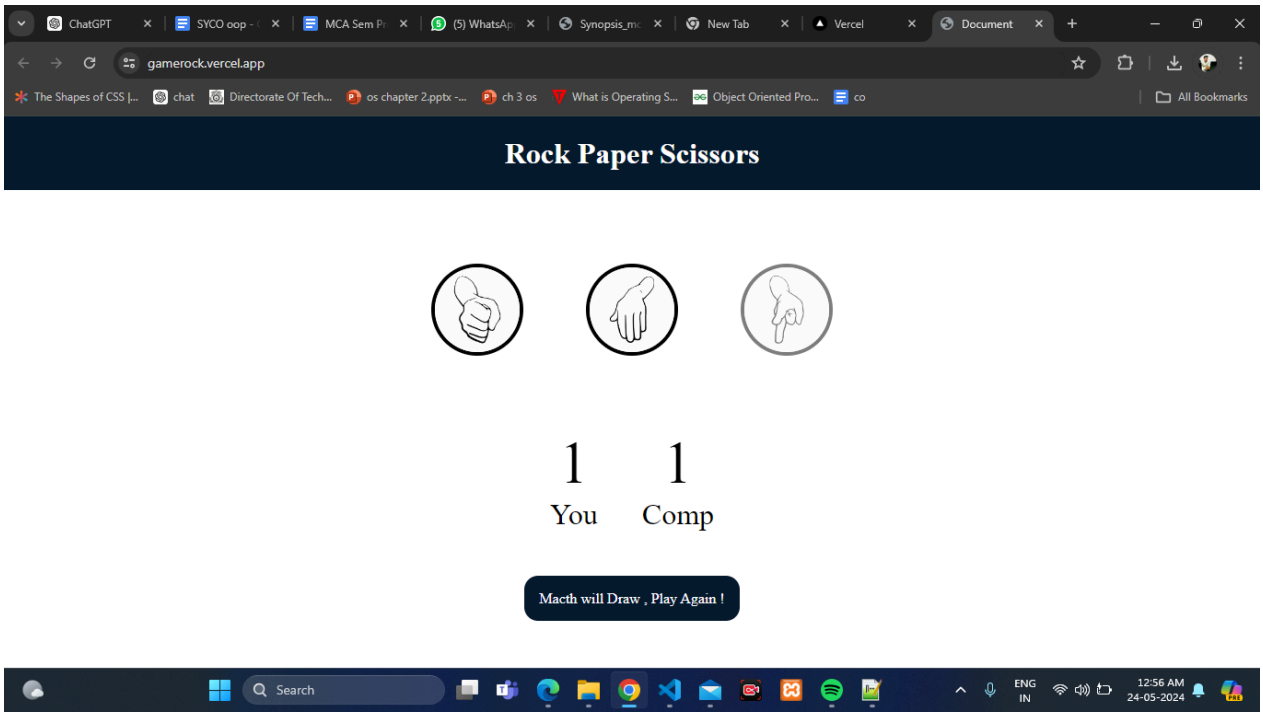
Comp
Macth will Draw , Play Again !


gamerock.vercel.app
Rock Paper Scissors
0
1
You
Comp
You Loose scissors beats your paper


gamerock.vercel.app
Rock Paper Scissors
1
1
You
Comp
You Win ! your rock beats scissors


gamerock.vercel.app
Rock Paper Scissors
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You Comp
Macth will Draw , Play Again !
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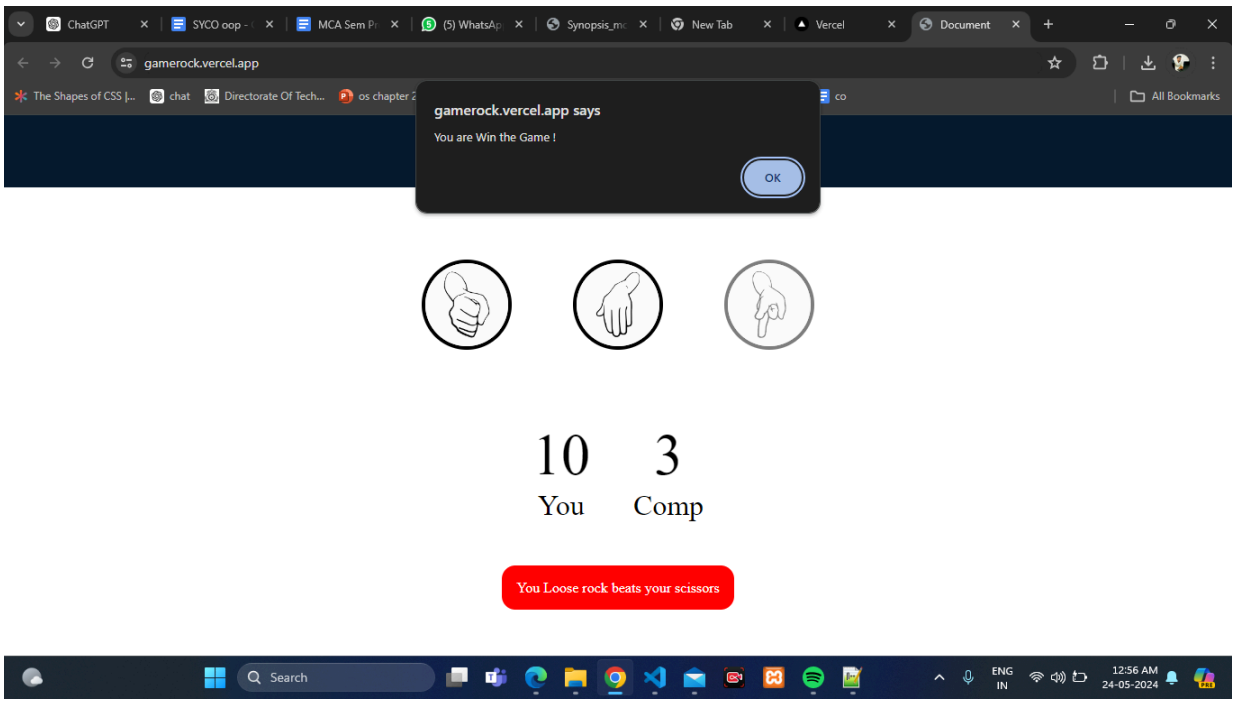
24-05-2024


gamerock.vercel.app
gamerock.vercel.app says
You are Win the Game !
OK
10 3
You Comp
You Loose rock beats your scissors
Search
ENG
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24-05-2024

** TESTING **

Functionality Testing:

Test each game element (rock, paper, scissors) to ensure they function correctly when selected.

Verify that the game correctly determines the winner based on the rules (rock crushes scissors, scissors cuts paper, paper covers rock).

Test for ties to ensure the game handles them appropriately.

Check for error handling, such as invalid inputs or unexpected behavior.

User Interface Testing:

Ensure that the user interface is intuitive and easy to use.

Test the layout and design to ensure it is visually appealing and responsive on different devices and screen sizes.

Verify that all game elements (buttons, images, text) are displayed correctly and aligned properly.

Multiplayer Testing:

If the game supports multiplayer mode, test the functionality to ensure that players can connect, play against each other, and communicate effectively.

Check for synchronization issues and latency in multiplayer games to ensure a smooth gaming experience.

Performance Testing:

Test the game's performance to ensure it runs smoothly without lags or delays, especially during gameplay.

Measure the game's response time and loading times to ensure optimal performance.

Cross-Browser and Cross-Device Testing:

Test the game on different web browsers (Chrome, Firefox, Safari, Edge, etc.) to ensure compatibility.

Verify that the game works well on various devices, including desktops, laptops, tablets, and smartphones.

Accessibility Testing:

Ensure that the game is accessible to users with disabilities, including those using screen readers or assistive technologies.

Check for color contrast, font size, and keyboard navigation to ensure accessibility compliance.

Localization and Internationalization Testing:

If the game is available in multiple languages, test for localization issues, such as text truncation, language-specific characters, and cultural appropriateness.

Verify that the game's interface adapts correctly to different languages and locales.

Security Testing:

Test for security vulnerabilities, such as input validation flaws or potential

exploits, to ensure the game is secure against attacks.

Implement measures to protect user data and prevent cheating or manipulation of the game.

FUTURE SCOPE

Advanced AI Algorithms: Enhance the game by implementing more sophisticated artificial intelligence algorithms for single-player mode. This could involve machine learning techniques to train AI opponents that adapt their strategies based on the player's behavior.

Online Multiplayer: Expand the game to support online multiplayer functionality, allowing players to compete against each other in real-time over the internet. This could include matchmaking systems, leaderboards, and social features to enhance the multiplayer experience.

Customization Options: Introduce customization options for players to personalize their gameplay experience. This could include customizable avatars, themes, and animations, allowing players to express their personality while playing the game.

Tournaments and Events: Organize regular tournaments and events where players can compete against each other for prizes and recognition. This could foster a competitive community around the game and attract players of all skill levels.

Integration with Voice Assistants: Integrate the game with voice assistant platforms like Amazon Alexa or Google Assistant, allowing users to play the game using voice commands. This could provide a new and interactive way to engage with the game.

Augmented Reality (AR): Develop an augmented reality version of the game that allows players to play in real-world environments using their smartphones or AR devices. This could add a new level of immersion and excitement to the gameplay experience.

Educational Applications: Explore educational applications of the game to teach concepts such as probability, strategy, and decision-making. This could include developing educational modules or gamified learning experiences based on the game's mechanics.

Integration with Social Platforms: Integrate the game with social media platforms to allow players to challenge their friends, share their achievements, and participate in social gaming communities. This could help increase the game's reach and engagement.

Cross-Platform Compatibility: Ensure that the game is compatible with a wide range of devices and platforms, including desktops, mobile devices, and gaming consoles. This could involve developing native apps for different platforms or using cross-platform frameworks for seamless integration.

Continuous Updates and Improvements: Regularly update the game with new features, content, and optimizations based on user feedback and emerging trends. This will help keep the game fresh and engaging for players over time.

CONCLUSION

As we've explored, the game's future scope is vast and diverse. From advanced AI algorithms and online multiplayer functionality to educational applications and integration with emerging technologies like augmented reality, there are numerous avenues for innovation and expansion.

By embracing these future possibilities and continuously refining the game with updates and improvements, developers can ensure that the rock-paper-scissors game remains a timeless favorite, captivating players around the world for generations to come.

Ultimately, whether played for leisure, decision-making, or learning, rock-paper-scissors continues to hold its place as a beloved pastime, bringing joy, camaraderie, and excitement to players of all walks of life.

REFERENCES

As an AI language model, I don't have direct access to external sources or the internet to provide specific references. However, the information provided in the responses is based on general knowledge and common practices in the field. If you're looking for references on a particular topic mentioned in our discussion, I recommend consulting reliable sources such as academic papers, textbooks on game theory or software development, online tutorials, or official documentation related to game development and artificial intelligence. These sources can provide more in-depth information and references to support further exploration of the subject.

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