

# **Non-Syllabus Project**

**Session 2020-2021**

## **Snake Game**



**Department of First Year**

**Poornima Institute of Engineering & Technology**  
**ISI,2-6, Riico Institutional Area, Sitapura, Jaipur-302022**

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## **Acknowledgement**

I would like to express my sincere thanks and gratitude to my N.S.P teacher for letting me work on this project. I am very grateful to him for his support and guidance in completing this project.

I am thankful to my parents as well. I was able to successfully complete this project with the help of their guidance and support. Finally, I want to thank all my dear friends as well.

## **Abstract**

The modern web has quickly become a viable platform not only for creating stunning, high quality games, but also for distributing those games.

The range of games that can be created is on par with desktop and native OS counterparts. With modern Web technologies and a recent browser, it's entirely possible to make stunning, top-notch games for the Web. And we're not talking about simple card games or multiplayer social games that have in the olden days been done using Flash. We're talking about 3D action shooters, RPGs, and more. Thanks to massive performance improvements in JavaScript just-in-time compiler technology and new APIs, you can build games that run in the browser (or on HTML5-powered devices like those based on Firefox OS) without making compromises.

And we started our journey in game development by developing the basic snake game.

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## **Introduction to Snake Game (NSP Project)**

In this project or the game we made a snake game for desktop by using HTML , CSS , Java Script. In this game we tried to copy the game which was played in older times in the keypad mobile with a little better graphics and better colours.

In the game of Snake, the player uses the arrow keys to move a "snake" around the board. As the snake finds food, it eats the food, and thereby grows larger. The game ends when the snake either moves off the screen or moves into itself. The goal is to make the snake as large as possible before that happens.

It also show the score made my the player as well as the high score of the player.

## **Basic Html Tags**

<!DOCTYPE html>

<h1>

<h2>

<h3>

<h4>

<h5>

<h6>

<p>

<a>

<img>

## **Basics of CSS**

CSS is the language we use to style a Web page.

### What is CSS?

CSS stands for Cascading Style Sheets

CSS describes how HTML elements are to be displayed on screen, paper, or in other media

CSS saves a lot of work. It can control the layout of multiple web pages all at once

External stylesheets are stored in CSS files

### Why Use CSS?

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

### CSS Solved a Big Problem

HTML was NEVER intended to contain tags for formatting a web page!

HTML was created to describe the content of a web page, like:

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

When tags like <font>, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers.

Development of large websites, where fonts and color information were added to every single page, became a long and expensive process.

To solve this problem, the World Wide Web Consortium (W3C) created CSS.

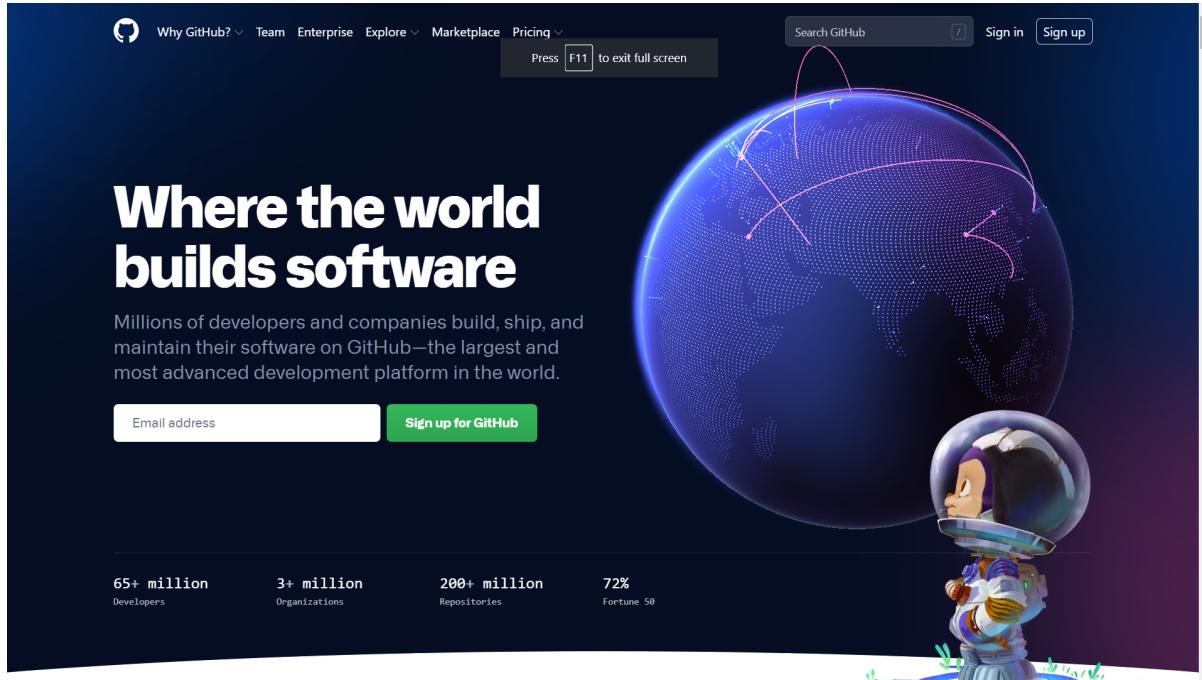
CSS removed the style formatting from the HTML page!

**CSS Saves a Lot of Work!**

The style definitions are normally saved in external .css files.

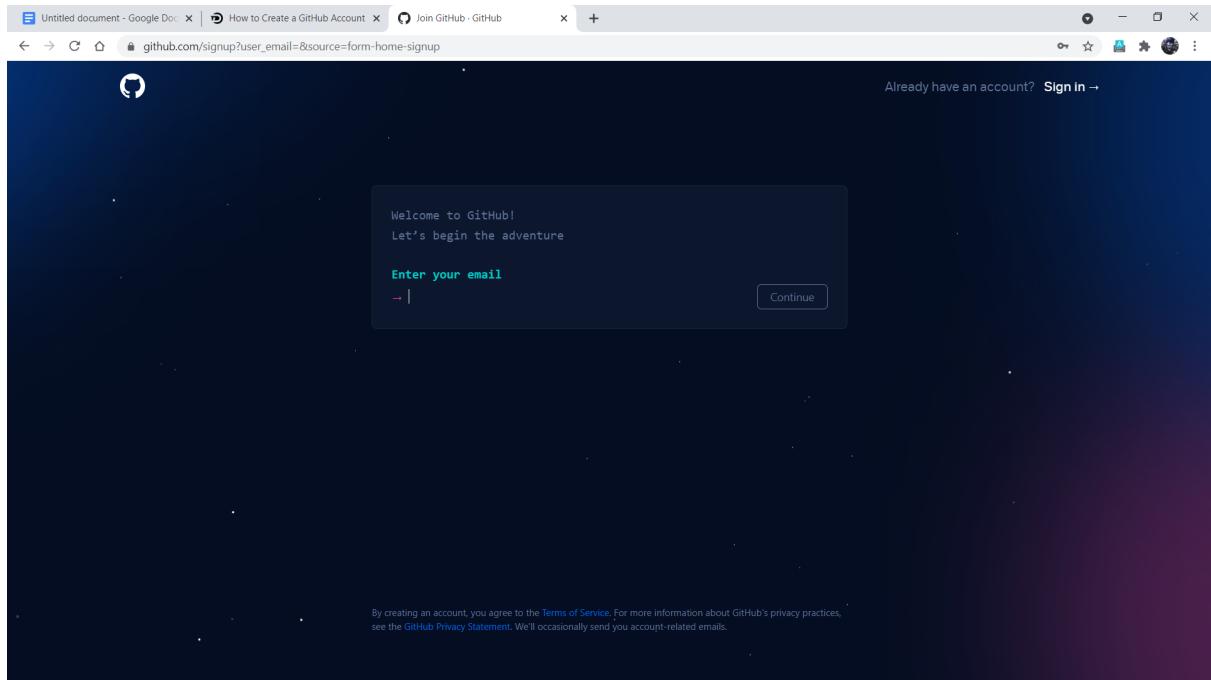
With an external stylesheet file, you can change the look of an entire website by changing just one file!

## Step to create github Account



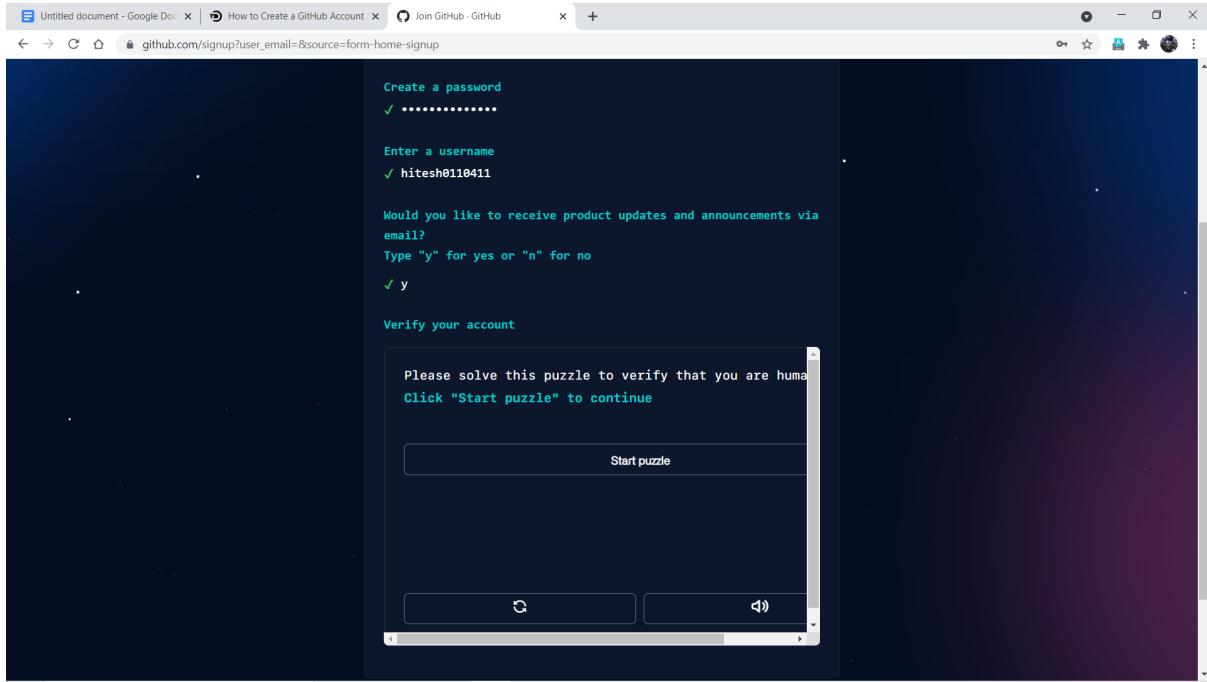
1)

- Go to [www.github.com](https://www.github.com):



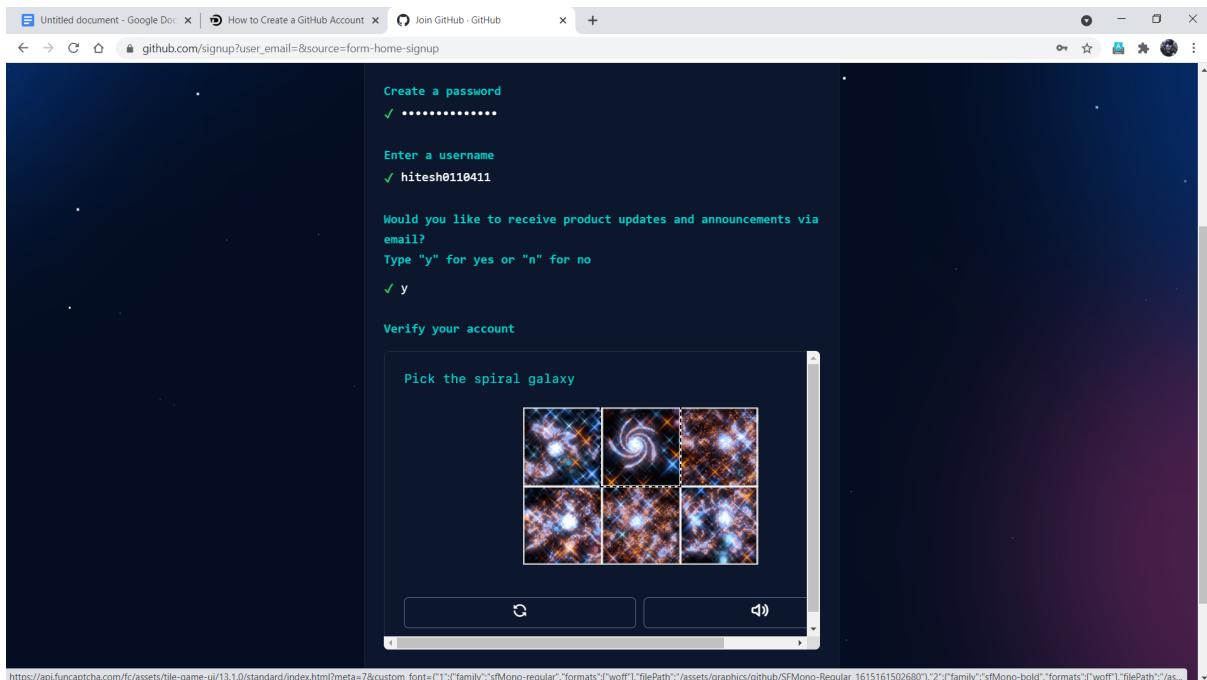
2)

- Enter Email address and click large green "Sign up for GitHub" button:



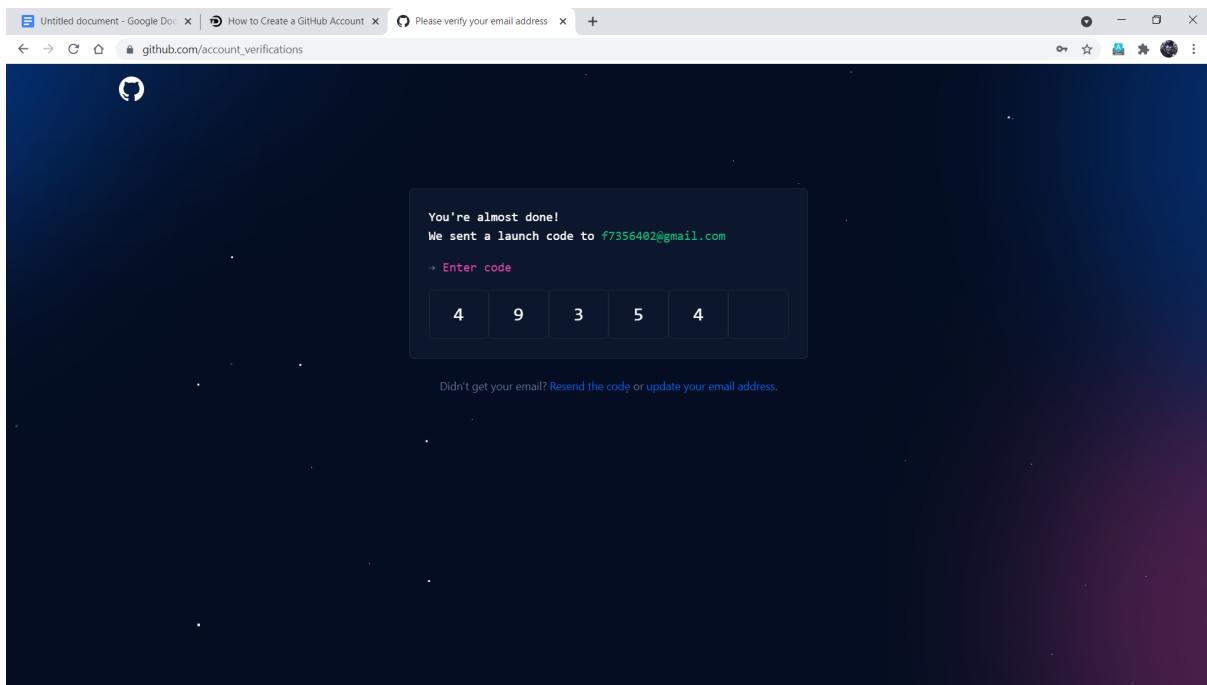
3)

- Enter a Username, Password, solve verification puzzle then click blue "Create Account":



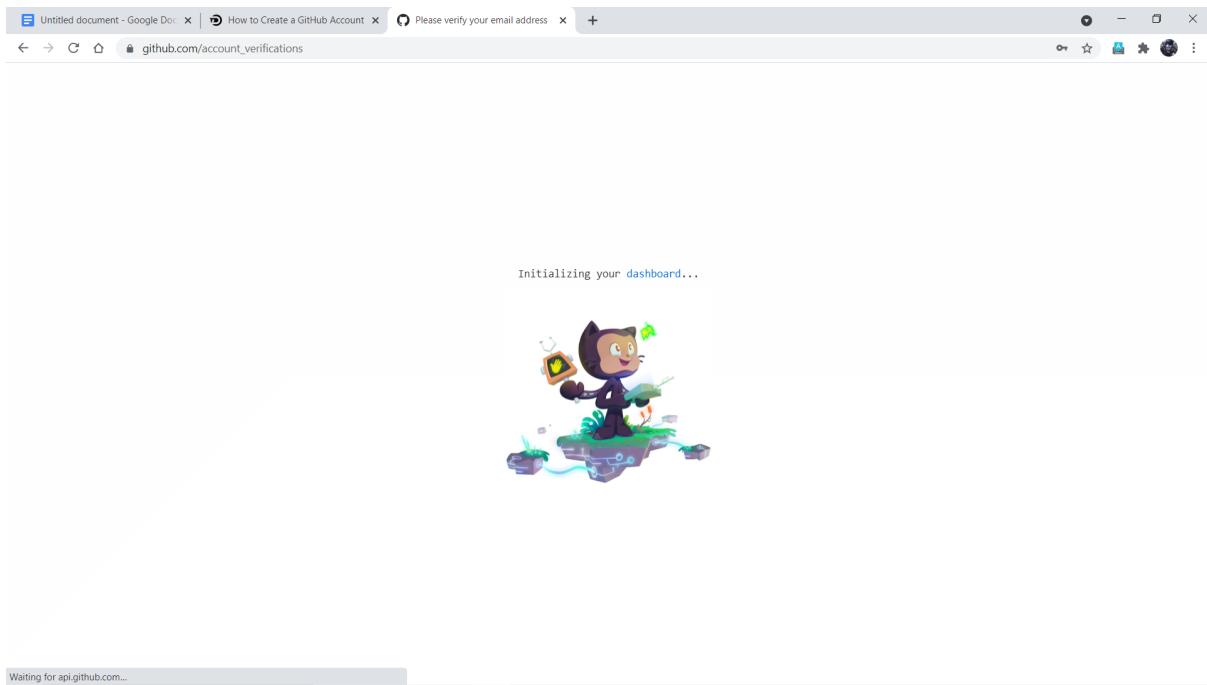
4)

- Answer the questions that ask for more information about you and click blue "Complete setup" button:

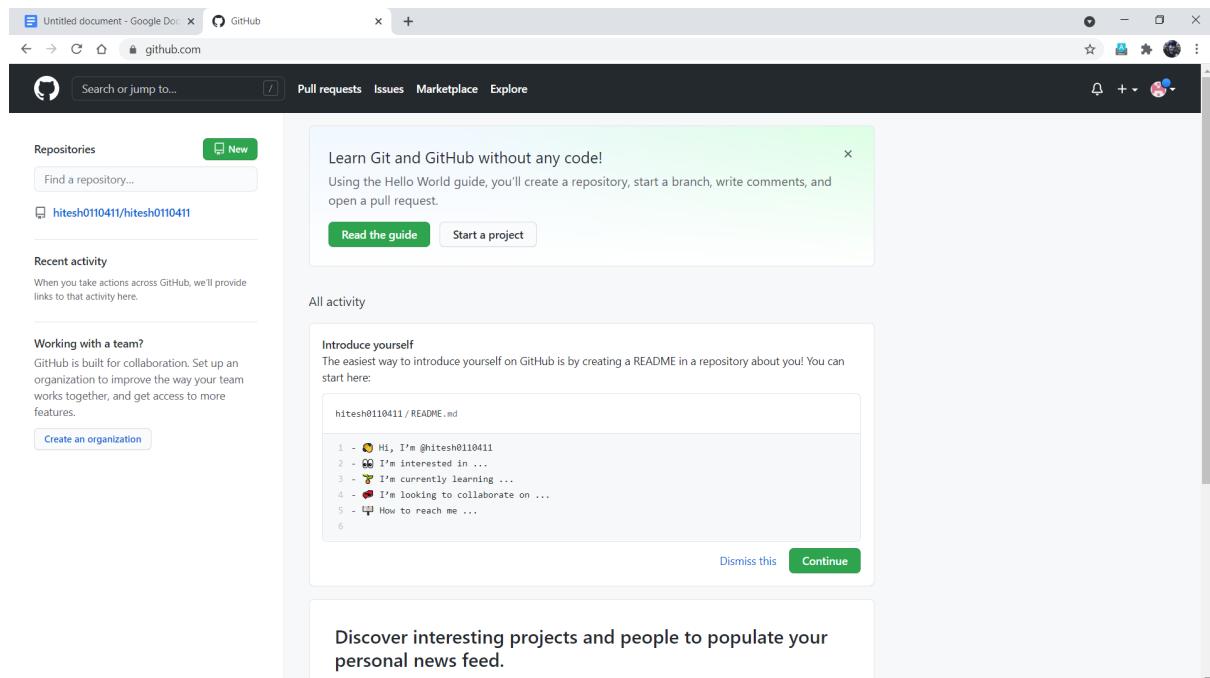


5)

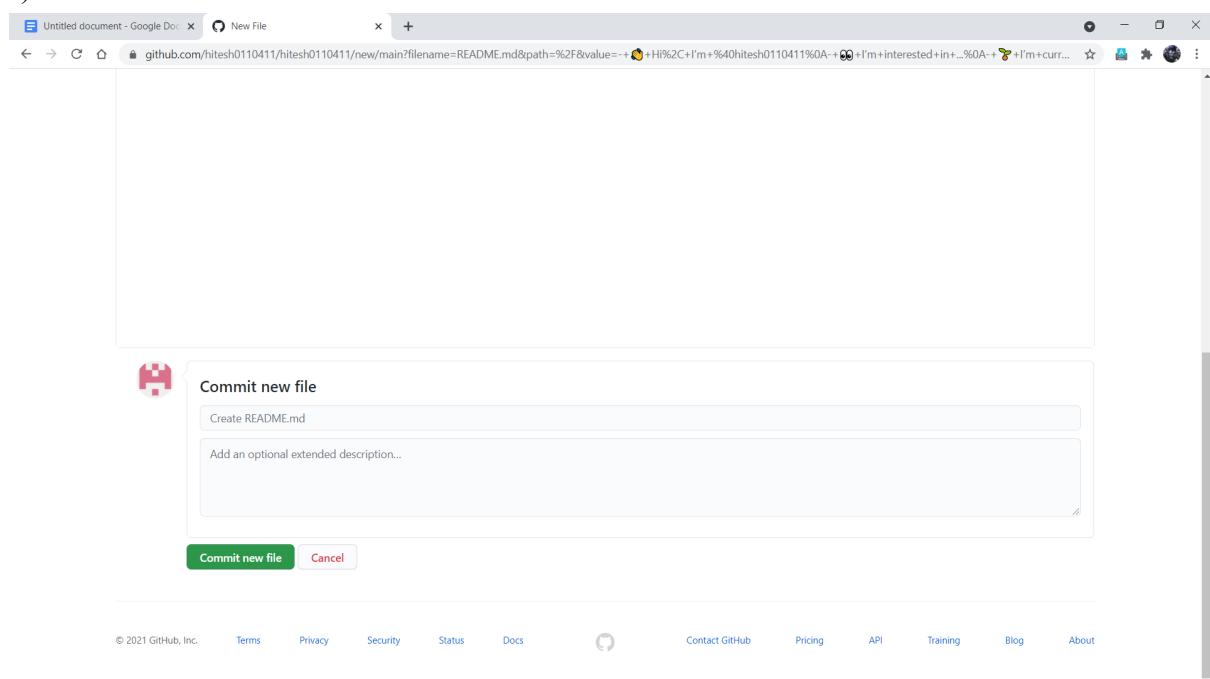
- Verify Your Email Address:



6)



7)



8)

- Congratulations! You are officially on GitHub!
- Choose what you want to do and have fun!:)

The screenshot shows a GitHub repository page for the user 'hitesh0110411'. The repository name is 'hitesh0110411/hitesh0110411'. The main content is the 'README.md' file, which contains the following text:

```
Hi, I'm @hitesh0110411
I'm interested in ...
I'm currently learning ...
I'm looking to collaborate on ...
How to reach me ...
```

At the top right, there is a green box stating: "hitesh0110411/hitesh0110411 is a special repository. Its README.md will appear on your public profile!" with buttons for "Edit README" and "Visit profile".

Below the README, there are sections for "About", "Config files for my GitHub profile.", "Releases", and "Packages".

9)

## **Basic Git and GitHub Command**

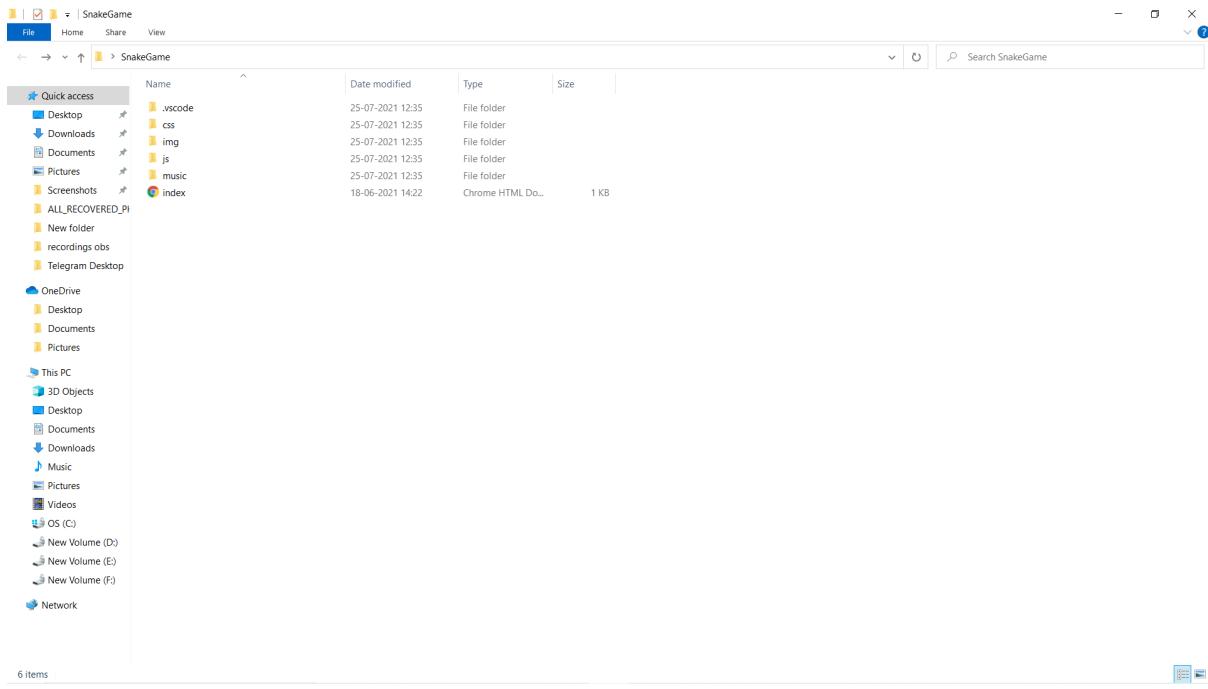
### **Commands for getting existing projects and create one new GITHUB projects:**

1. Git init: Suppose developer needs to prepare one new repository in his local environment. For initializing the same they have to use init commands, which helps them for initializing the GitHub project repository locally.
2. Git clone ssh://something.com/[username]/[repository\_name].git: Suppose developer needs to create one specific repository of GITHUB in their local copy from the specific remote location. Then they have to execute a clone command for copying the same remote repository in the local environment in a specific location.

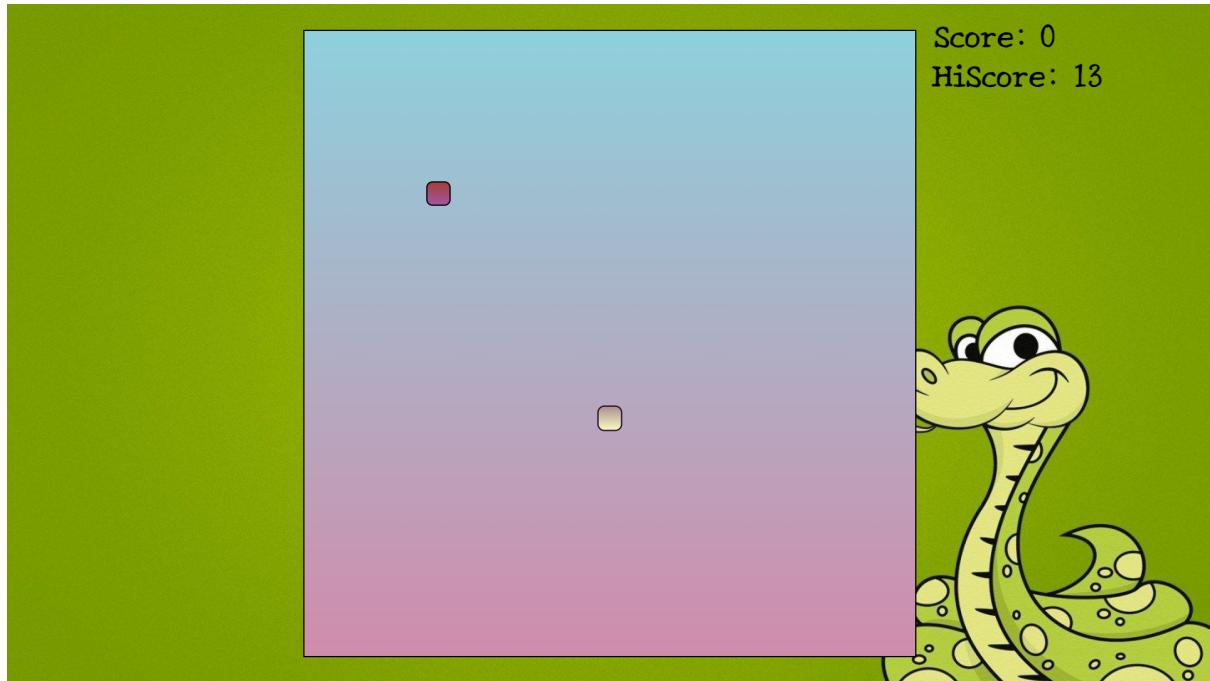
## **Some of the basic commands for continuing with GITHUB:**

1. Git status: This GitHub command is mainly used for identifying GIT created status in local repositories. It provides proper information between a syncing status of local and GITHUB repository to the end user.
2. Git add [file\_name.doc]: Used for adding one specific file in the staging area.
3. Git add –A: Adding all the files whether it is new or modified will be added in the staging area.
4. Git commits –m [“message for commit”]: Commit all the required changes.
5. Git rm –r [file\_name.doc]: Helping for removing the file or any defined folder.

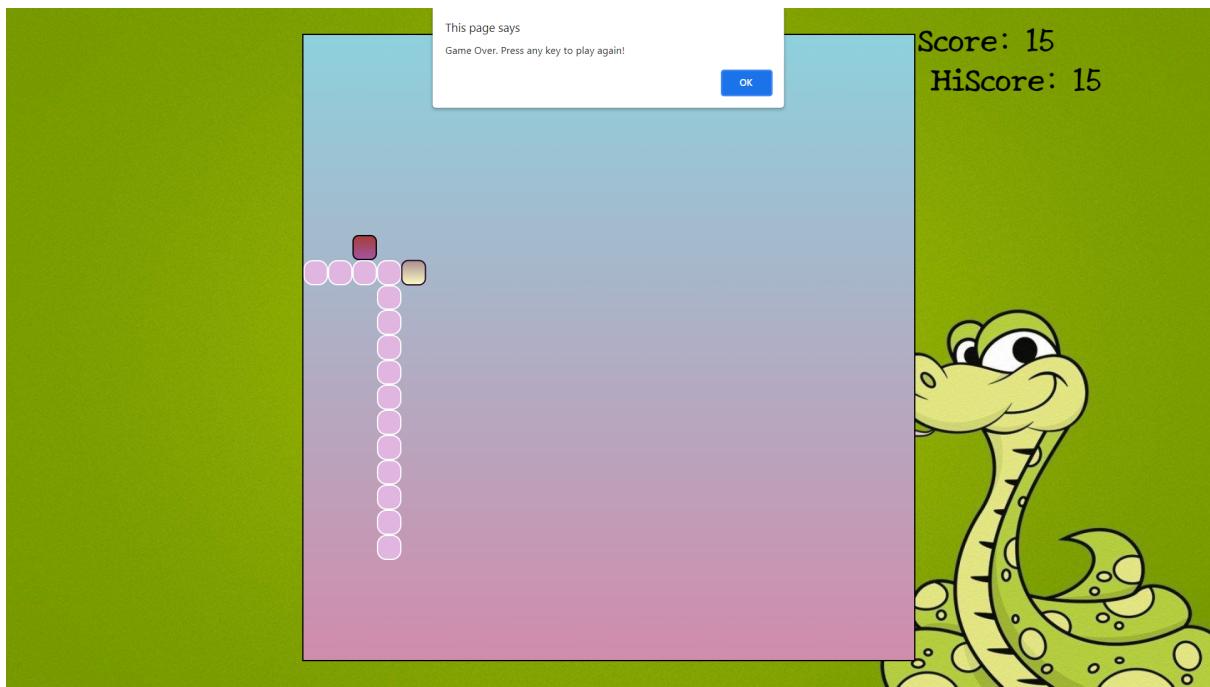
## Some details and screenshots of the project



10) All files of snake game



11) Before pressing any key



12)When a player gets hit by the wall or gets into itself.

## HTML CODE

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>SnakeMania - Ek Gaming Katha</title>
    <link rel="stylesheet" href="css/style.css">
</head>
<body>
    <div class="body">
        <div id="scoreBox">Score: 0</div>
        <div id="hiscoreBox">HiScore: 0</div>
        <div id="board"></div>
    </div>
</body>
<script src="js/index.js"></script>
</html>
```

## CSS CODE

```
@import url('https://fonts.googleapis.com/css2?family=New+Tegomin&display=swap');
*{
    padding: 0;
    margin: 0;
}

body{
    background: url("../img/bg.jpg");
    min-height: 100vh;
    background-size: 100vw 100vh;
    background-repeat: no-repeat;
    display: flex;
    justify-content: center;
    align-items: center;
}

#scoreBox{
    position: absolute;
    top: 9px;
    right: 200px;
    font-size: 39px;
    font-weight: bold;
    font-family: 'New Tegomin', serif;
}

#hiscoreBox{
    position: absolute;
    top: 59px;
    right: 140px;
    font-size: 39px;
    font-weight: bold;
    font-family: 'New Tegomin', serif;
}

#board{
    background: linear-gradient(rgb(142, 209, 221), rgb(209, 140, 172));
    width: 90vmin;
    height: 92vmin;
    border: 2px solid rgb(0, 0, 0);
    display: grid;
    grid-template-rows: repeat(25, 1fr);
```

```
grid-template-columns: repeat(25, 1fr);  
}  
  
.head{  
background: linear-gradient(rgb(173, 145, 145), rgb(253, 253, 198));  
border: 2px solid rgb(34, 4, 34);  
transform: scale(1.02);  
border-radius: 9px;  
}  
  
.snake{  
background-color: rgb(224, 182, 224);  
border: .25vmin solid white;  
border-radius: 12px;  
}  
  
.food{  
background: linear-gradient(rgb(165, 62, 62), rgb(163, 86, 163));  
border: .25vmin solid black;  
border-radius: 8px;  
}
```

## JAVASCRIPT CODE

```
// Game Constants & Variables
let inputDir = {x: 0, y: 0};
const foodSound = new Audio('music/food.mp3');
const gameOverSound = new Audio('music/gameover.mp3');
const moveSound = new Audio('music/move.mp3');
const musicSound = new Audio('music/music.mp3');
let speed = 10;
let score = 0;
let lastPaintTime = 0;
let snakeArr = [
    {x: 13, y: 15}
];
food = {x: 6, y: 7};

// Game Functions
function main(ctime) {
    window.requestAnimationFrame(main);
    // console.log(ctime)
    if((ctime - lastPaintTime)/1000 < 1/speed){
        return;
    }
    lastPaintTime = ctime;
    gameEngine();
}

function isCollide(snake) {
    // If you bump into yourself
    for (let i = 1; i < snakeArr.length; i++) {
        if(snake[i].x === snake[0].x && snake[i].y === snake[0].y){
            return true;
        }
    }
    // If you bump into the wall
    if(snake[0].x >= 25 || snake[0].x <=0 || snake[0].y >= 25 || snake[0].y <=0){
        return true;
    }
    return false;
}
```

```

function gameEngine(){
    // Part 1: Updating the snake array & Food
    if(isCollide(snakeArr)){
        gameOverSound.play();
        musicSound.pause();
        inputDir = {x: 0, y: 0};
        alert("Game Over. Press any key to play again!");
        snakeArr = [{x: 13, y: 15}];
        musicSound.play();
        score = 0;
    }

    // If you have eaten the food, increment the score and regenerate the food
    if(snakeArr[0].y === food.y && snakeArr[0].x === food.x){
        foodSound.play();
        score += 1;
        if(score>hiscoreval){
            hiscoreval = score;
            localStorage.setItem("hiscore", JSON.stringify(hiscoreval));
            hiscoreBox.innerHTML = "HiScore: " + hiscoreval;
        }
        scoreBox.innerHTML = "Score: " + score;
        snakeArr.unshift({x: snakeArr[0].x + inputDir.x, y: snakeArr[0].y + inputDir.y});
        let a = 2;
        let b = 16;
        food = {x: Math.round(a + (b-a)* Math.random()), y: Math.round(a + (b-a)*
Math.random())}
    }

    // Moving the snake
    for(let i = snakeArr.length - 2; i>=0; i--) {
        snakeArr[i+1] = {...snakeArr[i]};
    }

    snakeArr[0].x += inputDir.x;
    snakeArr[0].y += inputDir.y;

    // Part 2: Display the snake and Food
    // Display the snake
    board.innerHTML = "";
    snakeArr.forEach((e, index)=>{
        snakeElement = document.createElement('div');
        snakeElement.style.gridColumnStart = e.y;
        snakeElement.style.gridRowStart = e.x;

```

```

        if(index === 0){
            snakeElement.classList.add('head');
        }
        else{
            snakeElement.classList.add('snake');
        }
        board.appendChild(snakeElement);
    });

    // Display the food
    foodElement = document.createElement('div');
    foodElement.style.gridRowStart = food.y;
    foodElement.style.gridColumnStart = food.x;
    foodElement.classList.add('food')
    board.appendChild(foodElement);

}

// Main logic starts here
musicSound.play();
let hiscore = localStorage.getItem("hiscore");
if(hiscore === null){
    hiscoreval = 0;
    localStorage.setItem("hiscore", JSON.stringify(hiscoreval))
}
else{
    hiscoreval = JSON.parse(hiscore);
    hiscoreBox.innerHTML = "HiScore: " + hiscore;
}

window.requestAnimationFrame(main);
window.addEventListener('keydown', e =>{
    inputDir = {x: 0, y: 1} // Start the game
    moveSound.play();
    switch (e.key) {
        case "ArrowUp":
            console.log("ArrowUp");
            inputDir.x = 0;
            inputDir.y = -1;
            break;

        case "ArrowDown":

```

```
        console.log("ArrowDown");
        inputDir.x = 0;
        inputDir.y = 1;
        break;

    case "ArrowLeft":
        console.log("ArrowLeft");
        inputDir.x = -1;
        inputDir.y = 0;
        break;

    case "ArrowRight":
        console.log("ArrowRight");
        inputDir.x = 1;
        inputDir.y = 0;
        break;
    default:
        break;
    }

});
```

## **Repository link of github of the project**

<https://github.com/Ishu214214/Snake-game>

## **Future Scope of work**

As I know this project does not consist of future scope as much but we can just make its graphics and controls better so it will be more effective to play.

## **References**

We learn the html,css,javascript from youtube from codewithharry

Link of his channel: [https://www.youtube.com/channel/UCeVMnSShP\\_Iviwkknt83cww](https://www.youtube.com/channel/UCeVMnSShP_Iviwkknt83cww)

## **Certificate**



**POORNIMA**  
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Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NAAC and NBA

## E-Certificate for Participation

This is to certify that Ishu kumar from First Year, B.Tech has attended Workshop on "World Environment Day" and successfully completed Quiz competition on the theme "Eco-system Restoration" held on Saturday, June 05, 2021 organized by Department of Applied Science, PIET, Jaipur.

Dr. Sama Jain  
Coordinator

Dr. Gautam Singh  
Registrar

Dr. Dinesh Goyal  
Director

June 5<sup>th</sup>