

# DICE ARCADE

## PROJECT SYNOPSIS

OF MINI PROJECT

**BACHELOR OF TECHNOLOGY**  
Computer Science and Engineering



लखनऊ विश्वविद्यालय  
**University of Lucknow**  
(Accredited A++ by NAAC)

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**Proposed Topic:**  
DICE ARCADE

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## Introduction

Our mini-project seeks to develop a dynamic web page where individuals can engage in six distinct games, each determined by the roll of virtual dice. By leveraging the principles of computer science, we aim to create an interactive platform that merges probability theory, algorithmic logic, and web development techniques. This project epitomizes computer science in action by incorporating various computational concepts:

1. **Algorithm Design:** The generation of random dice rolls and the implementation of game logic require the design and implementation of algorithms. These algorithms dictate the rules and mechanics of each game, showcasing computational problem-solving skills.
2. **Data Structures:** Storing and managing game states, user inputs, and outcomes necessitates the use of appropriate data structures. Whether it's arrays, objects, or other data structures, selecting the right ones optimizes efficiency and enhances the user experience.
3. **Web Development:** Building a functional and aesthetically pleasing web page involves proficiency in HTML, CSS, and JavaScript. Understanding web technologies and their interactions is fundamental to creating a seamless user interface and ensuring cross-browser compatibility.
4. **User Interaction:** Implementing user interfaces and handling user interactions are crucial aspects of this project. Through event-driven programming and DOM manipulation, users can interact with the games intuitively, showcasing the integration of computer science principles into user experience design.
5. **Testing and Debugging:** The iterative process of testing and debugging is inherent to computer science projects. Identifying and resolving errors, optimizing code efficiency, and ensuring reliability contribute to the quality and robustness of the final product.

### RATIONALE :

By embarking on this project, we not only aim to provide entertainment through gaming but also demonstrate the practical application of computer science concepts in developing real-world solutions. From algorithmic thinking to web development proficiency, this project encapsulates the essence of computer science as a multifaceted discipline driving innovation and creativity in the digital age.

# **Methodology**

## **1. Planning and Requirements Gathering:**

- Define the scope of the project and the specific requirements for each game.
- Identify the target audience and consider their preferences and needs.
- Decide on the technology stack to be used for frontend and backend development.

## **2. Designing the User Interface:**

- Create wireframes or mockups to visualize the layout and design of the web page.
- Design intuitive user interfaces for each game, ensuring ease of navigation and gameplay.
- Incorporate elements such as dice graphics, game boards, and interactive buttons.

## **3. Implementing Frontend Development:**

- Set up the project structure using HTML, CSS, and JavaScript.
- Develop separate modules or components for each game.
- Implement dice rolling functionality using JavaScript `Math.random()` or similar methods.
- Integrate game logic to determine outcomes based on dice rolls.
- Ensure responsive design to support various screen sizes and devices.

## **4. Backend Development:**

- If required, set up a backend server using technologies like Node.js, Express.js, or Django.
- Implement APIs to handle user authentication, game data storage, and communication between frontend and backend.

## **5. Game Development:**

- Develop each of the six games using JavaScript, HTML, and CSS.
- Write game logic to define rules, gameplay mechanics, and win/lose conditions.
- Create interactive elements such as game boards, player pieces, and scoring systems.

**6. Testing and Debugging:**

- Conduct thorough testing to identify and fix any bugs or errors.
- Test the functionality of each game module individually as well as in combination.
- Perform usability testing to ensure intuitive gameplay and user experience.

**7. Deployment and Maintenance:**

- Deploy the web page on a hosting platform or server accessible to users.
- Regularly monitor and maintain the web page to address any issues or updates.
- Gather feedback from users and incorporate any suggested improvements or new features.

# Software And Hardware Requirements

## Software requirements:

- **Visual Studio 2010:** Microsoft Visual Studio is a powerful IDE that ensures quality code throughout the entire application lifecycle, from design to deployment. Whether you're developing applications for SharePoint, the web, Windows, Windows Phone, and beyond, Visual Studio is your ultimate all-in-one solution.
- **GitHub:** GitHub is an online software development platform. It's used for storing, tracking, and collaborating on software projects. It makes it easy for developers to share code files and collaborate with fellow developers on open-source projects.
- **HTML:** It is used for giving eye catching look to the website. And also providing easy to use GUI.
- **CSS:** CSS is cascading style sheet which is used to give designer look to HTML using the external file.
- **Java script:** - Java script is used for client side scripting which can help in using validation on the website and many more other functions.
- **Python:** Python is a general-purpose, object-oriented programming language that has several implications across the software, web development, data science and automation environments. The language's dynamic semantics, high-level built in data structures, dynamic typing and dynamic binding make it one of the most useful languages for rapid application development.

## Hardware requirements:

<b>CPU Cores</b>	2 x 1.8 GHz 32-bit (x86)
<b>RAM</b>	4 GB of usable system memory
<b>Disk Space</b>	3.5 GB for new installations, 5 GB for upgrades (including temporary files required during installation)

**Expected Outcome:**

Overall, "Dice Arcade" offers a simple yet engaging web experience that encourages users to embrace spontaneity and discover new games through the roll of the dice. Whether playing solo or with friends, the project promises moments of excitement and enjoyment as users explore the diverse selection of games available to them.

**References:**

<https://www.geeksforgeeks.org/>

<https://github.com/>

<https://www.javatpoint.com/>



