MINIPROJECT

(2022-23)

‘The Game Room’

Project Report

Institute of Engineering & Technology

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DECLARATION

I hereby declare that the work which is being presented in the Bachelor of technology. Project 'The Game Room', in partial fulfilment of the requirements for the award of the Bachelor of Technology in Computer Science and Engineering and submitted to the Department of Computer Engineering and Applications of GLA University, Mathura, is an authentic record of my/our own work carried under the supervision of Md. Farmanul Haque, Technical Trainer, Dept. of CEA, GLA University.

The contents of this project report, in full or in parts, have not been submitted to any other Institute or University for the award of any degree.

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CERTIFICATE

This is to certify that the project entitled 'The Game Room', carried out in Mini Project - I Lab, is a bonafide work of Shivanand Kumar Jha , Lokesh Goswami , Aditya Gupta and is submitted in partial fulfilment of the requirements for the award of the degree Bachelor of Technology (Computer Science & Engineering).

Name of Supervisor: Md. Farmanul Haque

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ACKNOWLEDGEMENT

Presenting the ascribed project paper report in this very simple and official form, we would like to place my deep gratitude to GLA University for providing us the instructor Md. Farmanul Haque, our technical trainer and supervisor.
He has been helping me since Day 1 in this project. He provided me with the roadmap, the basic guidelines explaining on how to work on the project. He has been conducting regular meetings to check the progress of the project and providing us with the resources related to the project. Without his help, I wouldn't have been able to complete this project.

And at last but not the least we would like to thank our dear parents for helping us to grab this opportunity to get trained and also my colleagues who helped me find resources during the training.

Thanking You

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ABSTRACT

This report describes all the requirement of the project The purpose of this project is to provide a virtual for the combination of both structured and unstructured information of out project . “TheGameRoom” is a mini project specially designed for two or more friends who can join a room using room id and can start playing without any interruption. This project built by using (frontend) html CSS javascript React Technology. TheGameRoom consist of a little clicks and user are ready to play the game which is available on web due to which anyone can access it from anywhere around the globe on any system. This can enhance the creativity , analytical ability of player while playing the game.

The game play feature allows users to play tick tac toe, bingo, and other games with people online playing tic tac toe online with multiple players is a stimulating game where each player takes turns placing their own mark on a 3×3 grid the first player who reaches three in a row or diagonal wins the game.

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CHAPTER-1

INTRODUCTION

The Game Room is a web-based application that allows users to create game rooms and play multiplayer games, written in HTML, CSS, and JavaScript. The game room has two main features: room creation and game play. The room creation feature allows users to create a room by code that others can join. The game play feature allows users to play tick tac toe, bingo, and other games with people online.

Playing tic tac toe online with multiple players is a stimulating game where each player takes turns placing their own mark on a 3×3 grid. The first player who reaches three in a row or diagonal wins the game.

CHAPTER -2

PROBLEM STATEMENT

The objective of the Game room project is to allow two players to interact with each other online. The project requirements include the ability to support multiple game types, track player statistics, and provide a chat system for players to communicate with each other.

HARDWARE AND SOFTWARE REQUIREMENTS

Hardware Requirement

Processor: Intel, M1

Operating System: Any Operating System

RAM: 8 GB (or higher)

Hard disk: 256GB

Software Requirement

Software used: Visual Studio

Language used: HTML, CSS, JS

Database: Mongo DB

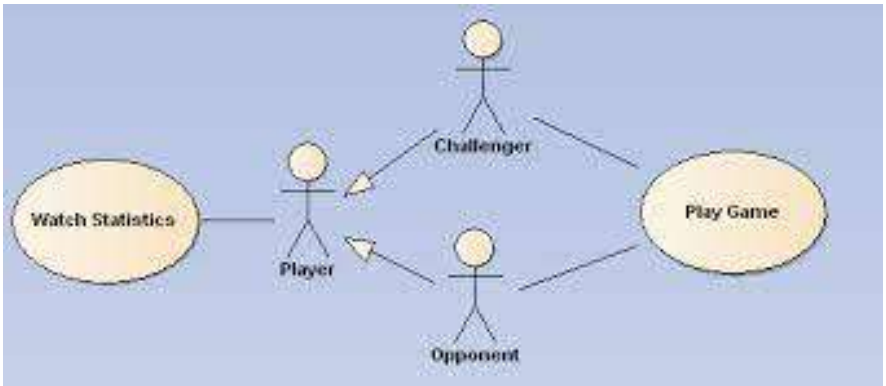
CHAPTER-3
SOFTWARE DESIGN

3.1 USE-CASE DIAGRAM:

The use case model for any system consists of "use cases. Use cases represent different ways in which the system can be used by the user. A simple way to find all the use case of a system is to ask the questions "What the user can do using the system?" The use cases partition the system behaviour into transactions such that each transaction performs some useful action from the users' point of view.

The purpose of the use case to define a piece of coherent behaviour without revealing the internal structure of the system. An use case typically represents a sequence of interaction between the user and the system. These interactions consists of one main line sequence is represent the normal interaction between the user and the system. The use case model is an important analysis and design artifact (task). Use cases can be represented by drawing a use case diagram and writing an accompany text elaborating the drawing.

In the use case diagram each use case is represented by an ellipse with the name of use case written inside the ellipse. All the ellipses of the system are enclosed with in a rectangle which represents the system boundary. The name of the system being moduled appears inside the rectangle. The different users of the system are represented by using stick person icon. The stick person icon is normally referred to as an Actor. The line connecting the actor and the use cases is called the communication relationship.



3.2 Data Flow Diagram:-

Data flow diagram is the starting point of the design phase that functionally decomposes the requirements specification. A DFD consists of a series of bubbles joined by lines. The bubbles represent data transformation and the lines represent data flows in the system. A DFD describes what data flow rather than how they are processed, so it does not hardware, software and data structure.

A data-flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. DFDs can also be used for the visualization of data processing (structured design). A data flow diagram (DFD) is a significant modelling technique for analysing and constructing information processes. DFD literally means an illustration that explains the course or movement of information in a process. DFD illustrates this flow of information in a process based on the inputs and outputs. A DFD can be referred to as a Process Model.

There are seven rules for construct a data flow diagram.

i) Arrows should not cross each other.

ii) Squares, circles and files must wear names.

iii) Decomposed data flows must be balanced.

iv) No two data flows, squares or circles can be the same names.

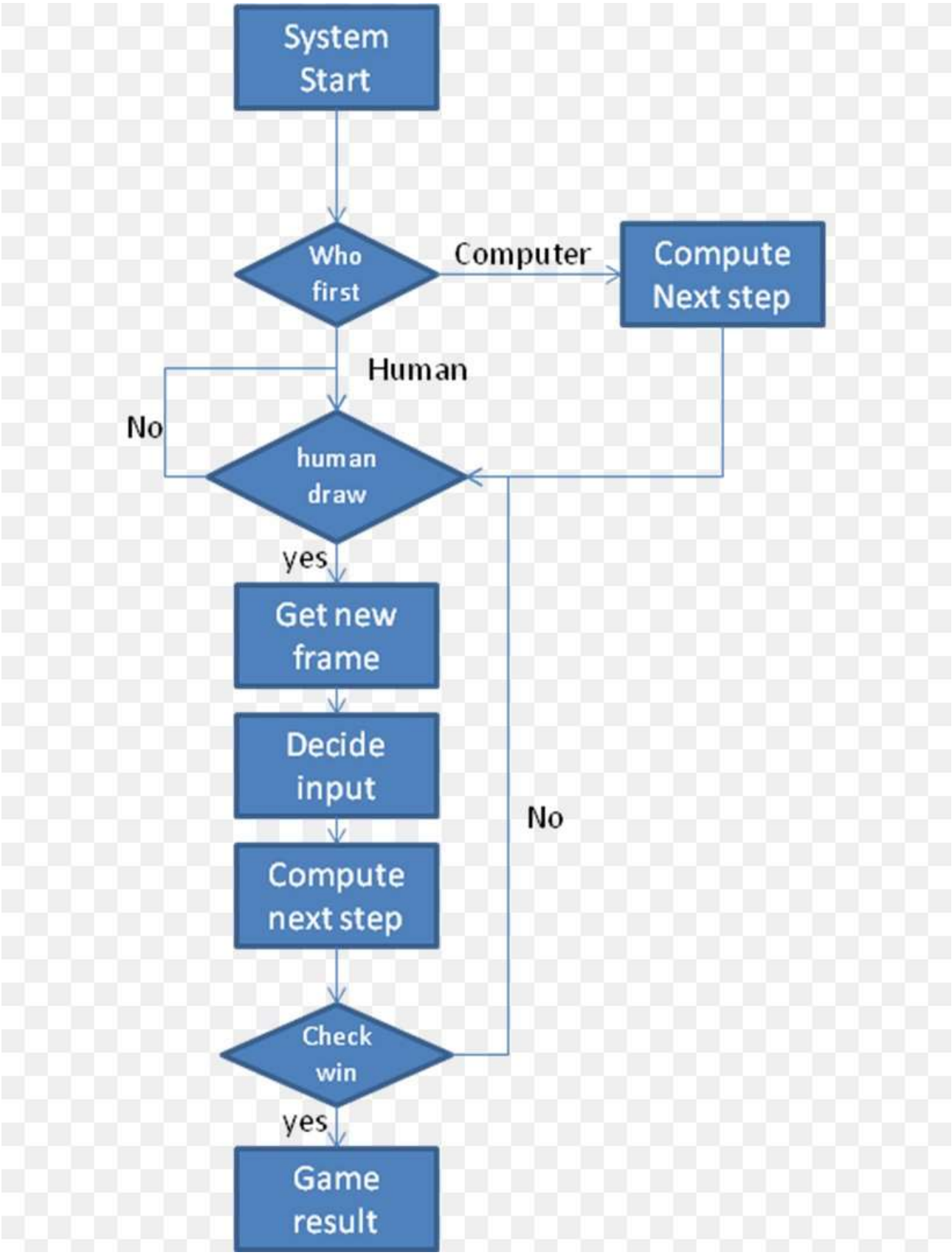
v) Draw all data flows around the outside of the diagram.

vi) Choose meaningful names for data flows, processes & data stores

vii) Control information such as record units, password and validation requirements are not penitent to a data flow diagram.

Additionally, a **DFD** can be utilized to visualize data processing or a structured design.

This basic DFD can be then disintegrated to a lower level diagram Demonstrating smaller steps exhibiting details of the system that is being modelled.


System Start
Who first
Computer
Compute Next step
Human
No
human draw
yes
Get new frame
Decide input
Compute next step
Check win
No
yes
Game result

CHAPTER-4

LANGUAGES, TECHNOLOGY AND TOOLS USED

4.1 HTML

HTML is an acronym which stands for **Hyper Text Markup Language** which is used for creating web pages and web applications. Let's see what is meant by Hypertext Markup Language, and Web page.

Hyper Text: Hyper Text simply means "Text within Text." A text has a link within it, is a hypertext. Whenever you click on a link which brings you to a new webpage, you have clicked on a hypertext. Hyper Text is a way to link two or more web pages (HTML documents) with each other.

Markup language: A markup language is a computer language that is used to apply layout and formatting conventions to a text document. Markup language makes text more interactive and dynamic. It can turn text into images, tables, links, etc.

Web Page: A web page is a document which is commonly written in HTML and translated by a web browser. A web page can be identified by entering an URL. A Web page can be of the static or dynamic type. **With the help of HTML only, we can create static web pages**.

4.1 CSS

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL.

CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.

4.2 JAVASCRIPT

JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, fullfledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

4.3 API

API is the abbreviation of the term ***Application Programming Interface.*** It is the software responsible for the connection for the communication and information exchange between two apps. API connects two devices or programs in order to facilitate the exchange of information between them. It is the interface that serves the other parts of the software. The API specifications are the standards or documents designed to describe the creation of such connections. If a computer system meets these standards, then it is said to expose an API. The specification or implementation both are known as the API.

4.5 GITHUB

GitHub is an immense platform for code hosting. It supports version controlling and collaboration and allows developers to work together on projects. It offers both distributed version control and source code management (SCM) functionality of Git.

It also facilitates collaboration features such as bug tracking, feature requests, task management for every project.

Essential components of the GitHub are:

- Repositories, Branches, Commits,
  Pull Requests
- Git (the version control tool GitHub is
  built on

4.6 VSCode

Visual Studio Code (famously known as **VS Code**) is a free open source text editor by Microsoft. VS Code is available for Windows, Linux, and macOS. Although the editor is relatively lightweight, it includes some powerful features that have made VS Code one of the most popular development environment tools in recent times.

VS Code supports a wide array of programming languages from Java, C++, and Python to CSS, Go, and Dockerfile. Moreover, VS Code allows you to add on and even creating new extensions including code linters, debuggers, and cloud and web development support.

CHAPTER-5
IMPLEMENTATION AND INTERFACE

5.1 IMPLEMENTATION

JavaScript is a scripting language used to enhance the functionality of the browser. JavaS cript is integrated with HTML and navigator 2.02. JavaScript facilitates the developer with properties related to document windows, frames, loaded documents, and links.

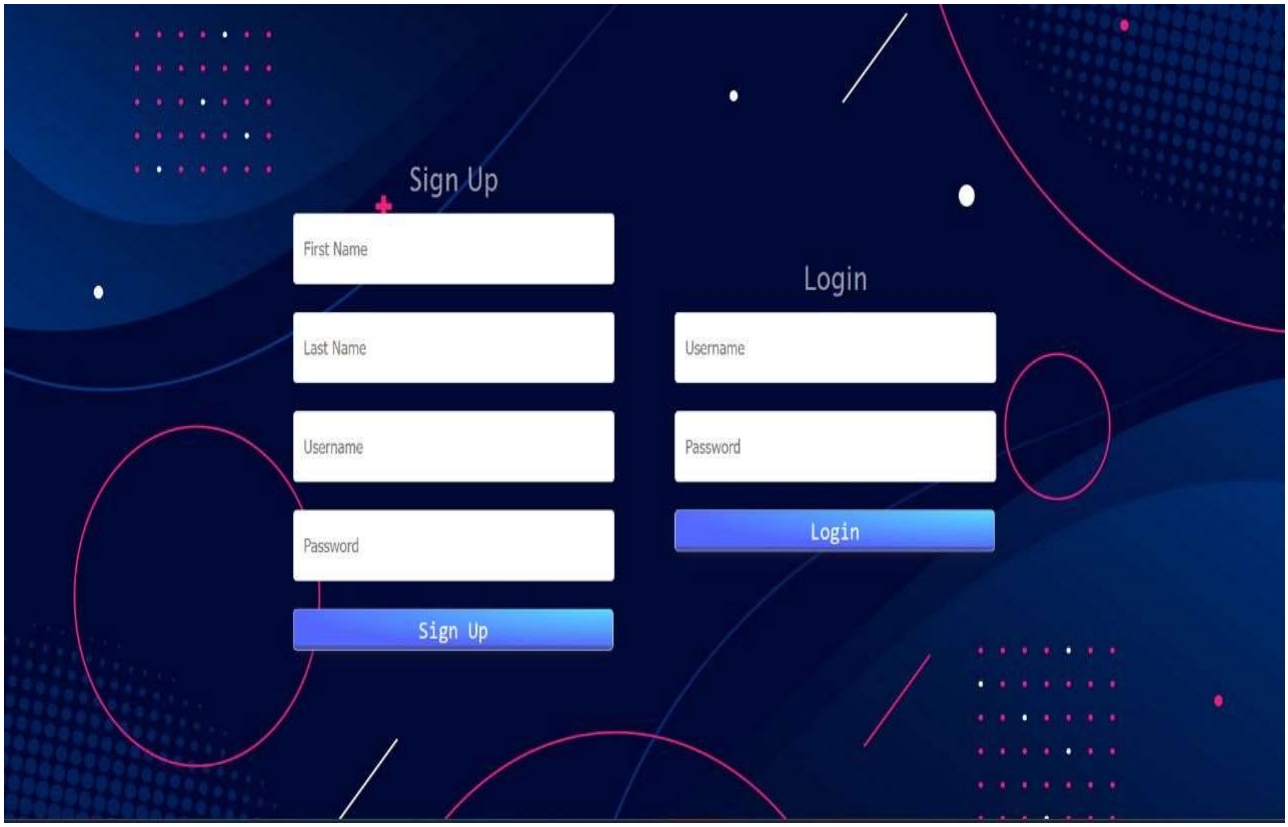
5.2 USER INTERFACE DESIGN

User Interface Design is concerned with the dialogue between a user and the computer. It is concerned with everything from starting the system or logging into the system to the eventually presentation of desired inputs and outputs. The overall flow of screens and messages is called a dialogue.

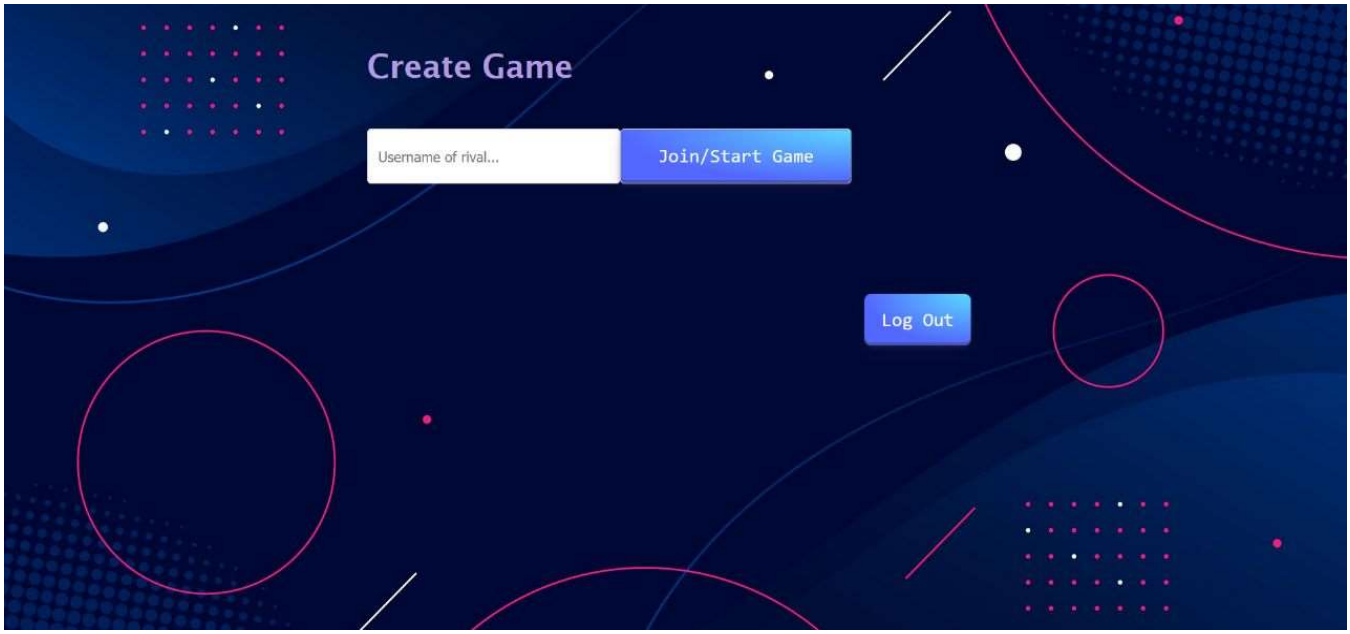
The following steps are various guidelines for User Interface Design:

1. The system user should always be aware of what to do next.
2. The screen should be formatted so that various types of information, instructions and messages always appear in the same general display area.
3. Message, instructions or information should be displayed long enough to allow the system user to read them.
4. Use display attributes sparingly.
5. Default values for fields and answers to be entered by the user should be specified.
6. A user should not be allowed to proceed without correcting an error.
7. The system user should never get an operating system message or fatal error.

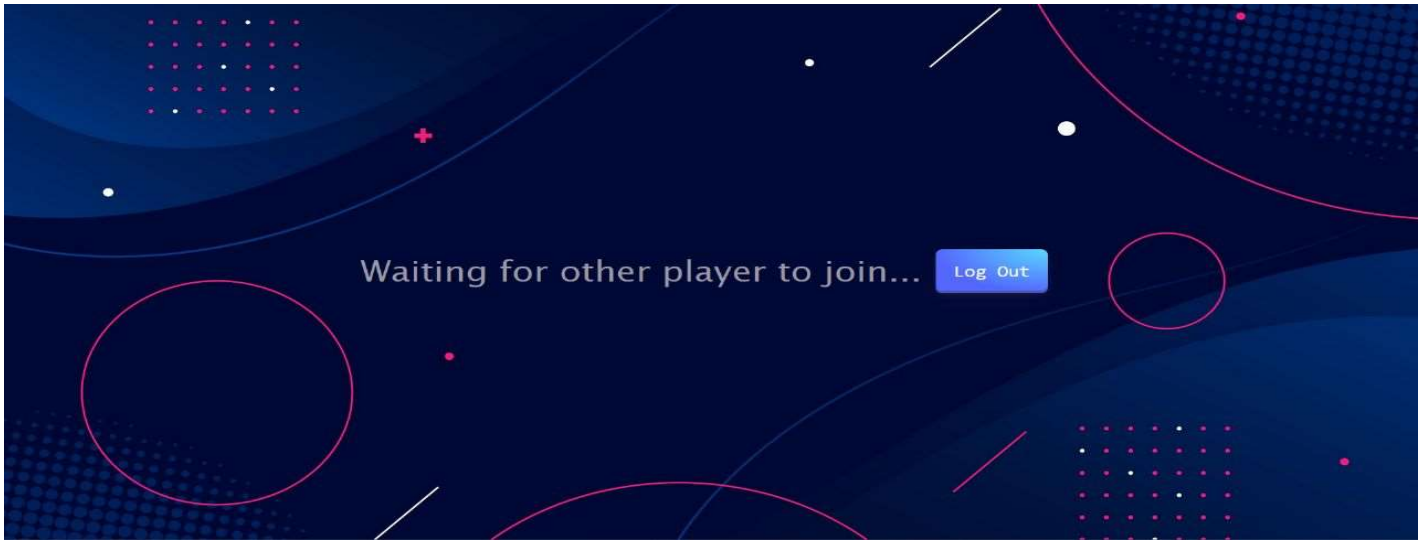
Login Page


Sign Up
First Name
Last Name
Username
Password
Sign Up
Login
Username
Password
Login

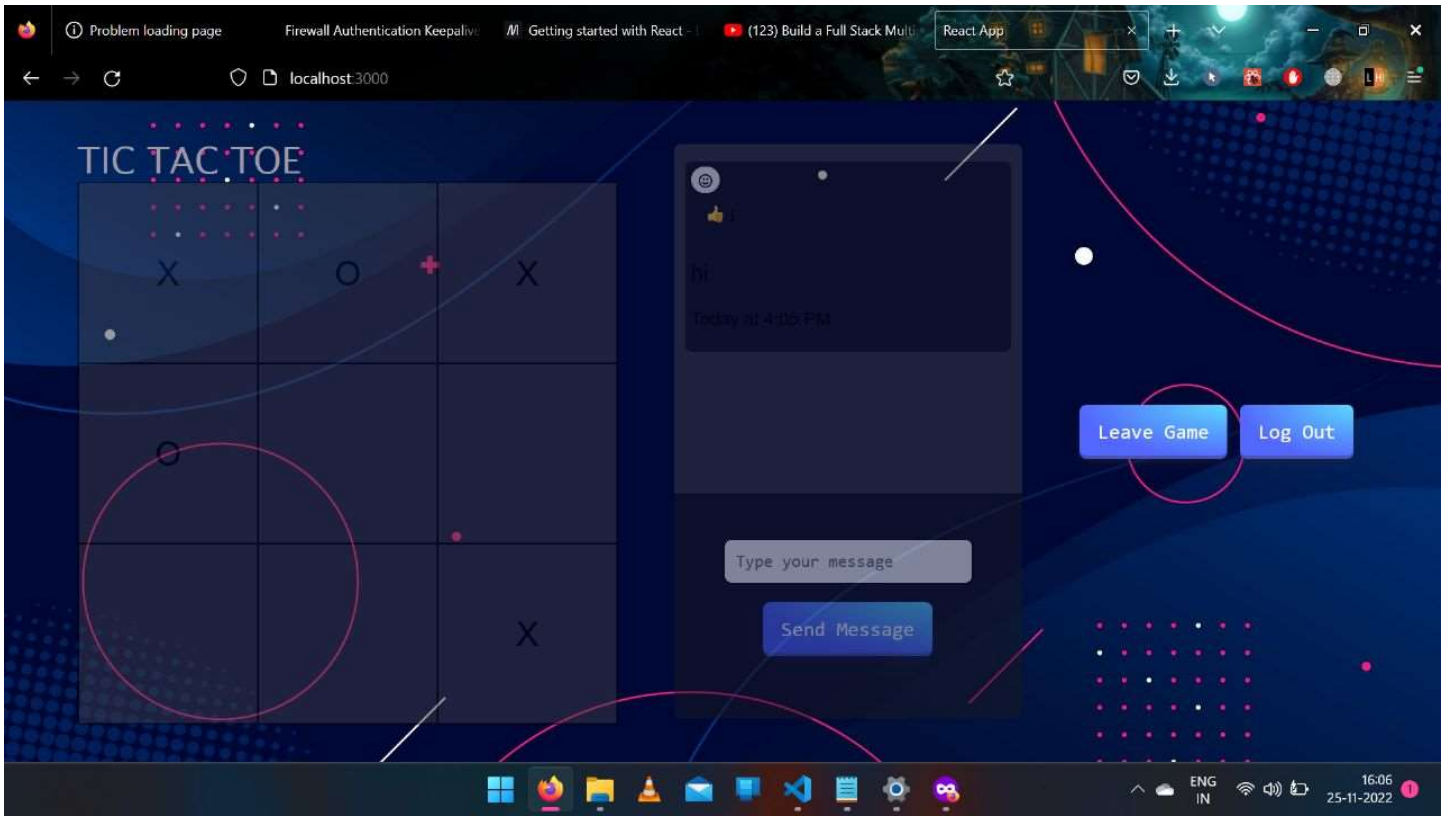
Game Creation



Waiting Page



Game Lobby


Problem loading page
Firewall Authentication Keepalive
Getting started with React
(123) Build a Full Stack Multi
React App
localhost:3000
TIC TAC TOE
X
O
X
O
X
hi
Today at 4:05 PM
Leave Game
Log Out
Type your message
Send Message
ENG
IN
16:06
25-11-2022

CHAPTER-6

TESTING

Implementation and Software Specification Testing

Detailed Design of Implementation

This phase of the systems development life cycle refines hardware and software specifications, establishes programming plans, trains users and implements extensive testing procedures, to evaluate design and operating specifications and/or provide the basis for further modification.

Technical Design

This activity builds upon specifications produced during new system design, adding detailed technical specifications and documentation.

Test Specifications and Planning

This activity prepares detailed test specifications for individual modules and programs, job streams, subsystems, and for the system as a whole.

Programming and Testing

This activity encompasses actual development, writing, and testing of program units or modules.

User Training

This activity encompasses writing user procedure manuals, preparation of user training materials, conducting training programs, and testing procedures.

Acceptance Test

A final procedural review to demonstrate a system and secure user approval before a system becomes operational.

Installation Phase

In this phase the new Computerized system is installed, the conversion to new procedures is fully implemented, and the potential of the new system is explored.

System Installation

The process of starting the actual use of a system and training user personnel in its operation.

Review Phase

This phase evaluates the successes and failures during a systems development project, and to measure the results of a new Computerized Transystem in terms of benefits and savings projected at the start of the project.

Development Recap

A review of a project immediately after completion to find successes and potential problems in future work.

Post-Implementation Review

A review, conducted after a new system has been in operation for some time, to evaluate actual system performance against original expectations and projections for cost-benefit improvements. Also identifies maintenance projects to enhance or improve the system.

THE STEPS IN THE SOFTWARE TESTING

The steps involved during Unit testing are as follows:

a. Preparation of the test cases.

b. Preparation of the possible test data with all the validation checks.

c. Complete code review of the module.

d. Actual testing done manually.

e. Modifications done for the errors found during testing.

f. Prepared the test result scripts.

The unit testing done included the testing of the following items:

1. Functionality of the entire module/forms.
2. Validations for user input.
3. Checking of the Coding standards to be maintained during coding.
4. Testing the module with all the possible test data.
5. Testing of the functionality involving all type of calculations etc.
6. Commenting standard in the source files.

After completing the Unit testing of all the modules, the whole system is integrated with all its dependencies in that module. While System Integration,we integrated the modules one by one and tested the system at each step. This helped in reduction of errors at the time of the system testing.

The steps involved during System testing are as follows:

- Integration of all the modules/forms in the system.
- Preparation of the test cases.
- Preparation of the possible test data with all the validation checks.
- Actual testing done manually.
- Recording of all the reproduced errors. Modifications done for the errors found during testing.
- Prepared the test result scripts after rectification of the errors.

The System Testing done included the testing of the following items:

1. Functionality of the entire system as a whole.

2. User Interface of the system.

3. Testing the dependent modules together with all the possible test data scripts.

4. Verification and Validation testing.

5. Testing the reports with all its functionality.

After the completion of system testing, the next following phase was the Acceptance Testing. Clients at their end did this and accepted the system with application. Thus, we reached the final phase of the project.

There are other six tests, which fall under special category.They are described below:

- **Peak Load Test:** It determines whether the system will handle the volume of handles of activities that occur when the system is at the peak of its processing demand. For example, test the system by activating all terminals at the same time.
- **Storage Testing:** It determines the capacity of the system to store transaction data on a disk or in other files.
- **Performance Time Testing:** It determines the length of time system used by the system to process transaction data. This test is conducted prior to implementation to determine how long it takes to get a response to an inquiry, make a backup copy of a file, or send a transmission and get a response.
- **Recovery Testing:** This testing determines the ability of user to recover data or re-start system after failure. For example, load backup copy of data and resume processing without data or integrity loss.
- **Procedure Testing:** It determines the clarity of documentation on operation and uses of system by having users do exactly what manuals request. For example, powering down system at the end of week or responding to paper-out light on printer. Human Factors Testing: It determines how users will use the system when processing data or preparing reports.

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CONCLUSION

The Game Room Project provides a great way for friends to connect and play online games , chat, and play tic tac toe. The only problem is that it doesn't provide a good user interface. Hopefully, this will be fixed in a future update.

The Game Room Project is a great way for friends to connect and play online games together. However, there are a few problems that need to be addressed is that it is difficult to find friends who are online and available to play. Second, the game selection is limited to a few popular games that may not be everyone's favorite.

Future Work

For better performance, we plan to judiciously design deep learning network structures, there can be improvements in the user Interface and user authentication , the number of games in the game room has to be improved also the room lobby creation with a login code has to be implemented.

REFERENCES

Websites:

- www.google.com
- www.mdn.com
- www.javatpoint.com
- www.youtube.com
- www.w3schools.com