

# Online Tic-Tac-Toe Multiplayer README

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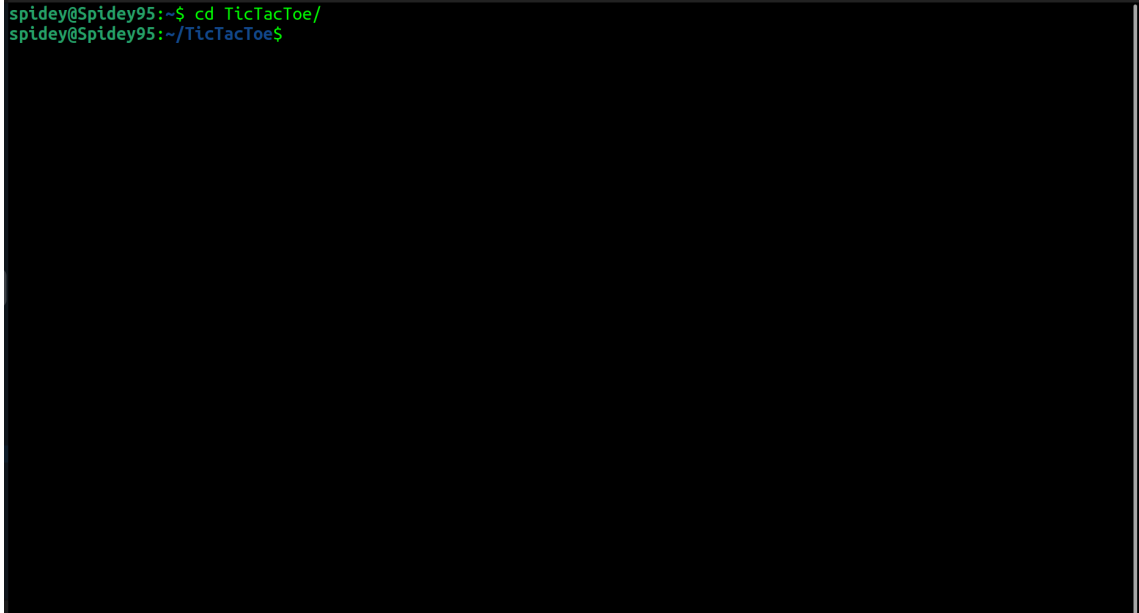
## 1 Project Overview

- This project encompasses the task of developing an online multiplayer tic-tac-toe game platform to facilitate game-playing from different user locations.
- It has been built using the following frameworks:
  - **Frontend:** React.js
  - **Backend:** Node.js with Express.js
  - **Real-Time Communication:** Socket.io
  - **Database:** MongoDB
- Each user is asked to enter their username upon starting the application. In a future update, the users shall have to login to accounts via secure authentication mechanisms.
- The application supports multiple GameRooms at a time, and each GameRoom is assigned a unique ID upon creation. For joining a particular GameRoom, the user requires access to the ID assigned to the GameRoom.
- Each GameRoom starts with an empty grid, and splits the members of the GameRoom into two teams: Team Cross and Team Circle. A list of all the online members in the GameRoom is visible to the members in the application sidebar.
- Team Cross goes first, following which the turns alternate between the two teams.

- After the completion of each match, the members of the GameRoom are given the option for resetting the grid, enabling a new match to start.

## 2 Hosting the Application

- To start / host the application, you will require the following to be installed in your system:
  - Node and Node Package Manager (npm)
  - MongoDB and MongoDB Shell (mongosh)
- Ensure that the mongod service is running on the system.
- Following are the steps for hosting the application on your local machine:
  1. Clone the git repository for this project titled Online-Tic-Tac-Toe-Multiplayer into a new directory. Now start a new terminal window and cd into the directory.

A terminal window with a black background and green text. The first line shows the command 'cd TicTacToe/' being executed, and the second line shows the prompt has changed to '~ /TicTacToe\$'.

```
spidey@Spidey95:~$ cd TicTacToe/  
spidey@Spidey95:~/TicTacToe$
```

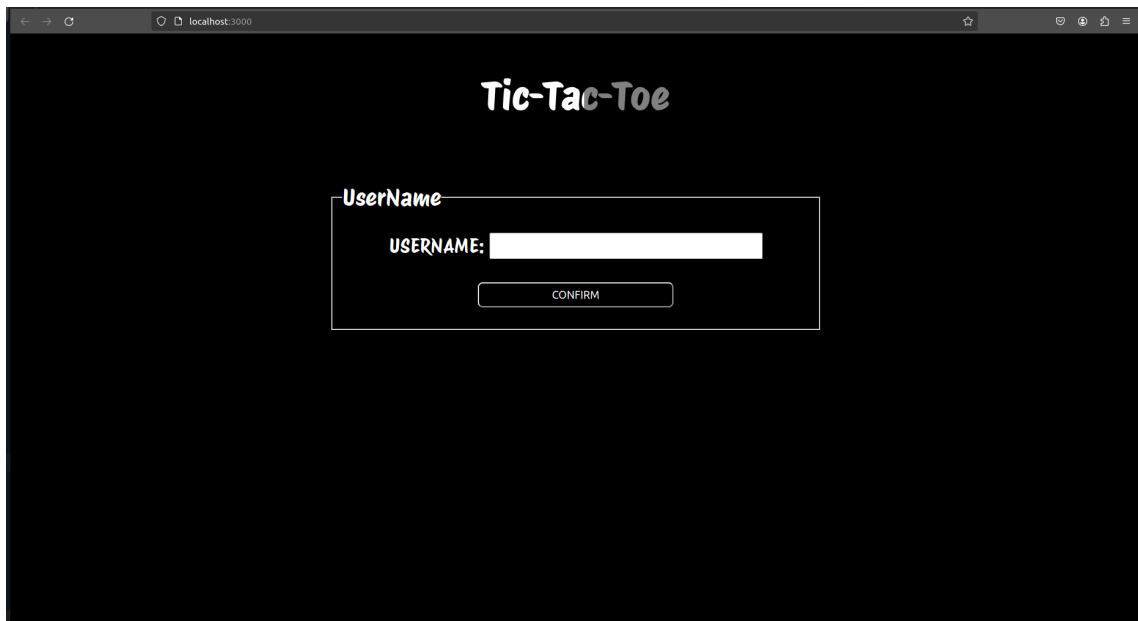
2. Navigate to the tic-tac-toe directory of the repo.
3. Install the front-end dependencies by using the command: npm install.
4. Now, navigate to the back-end directory of the repo.
5. Install the back-end dependencies by using the command: npm install.
6. Now, cd into the directory back-end and enter the command npm start. This will start up the http server at <http://localhost:3001> (default URL for the server).

```
spidey@Spidey95:~$ cd TicTacToe/  
spidey@Spidey95:~/TicTacToe$ cd back-end/  
spidey@Spidey95:~/TicTacToe/back-end$ npm start  
  
> back-end@1.0.0 start  
> node server.js  
  
HTTP server listening on 3001  
█
```

7. Keeping this terminal window open, start a new window and cd into the tic-tac-toe directory of the repo. Enter the command npm start to start up the application at <http://localhost:3000> (default URL for the application)

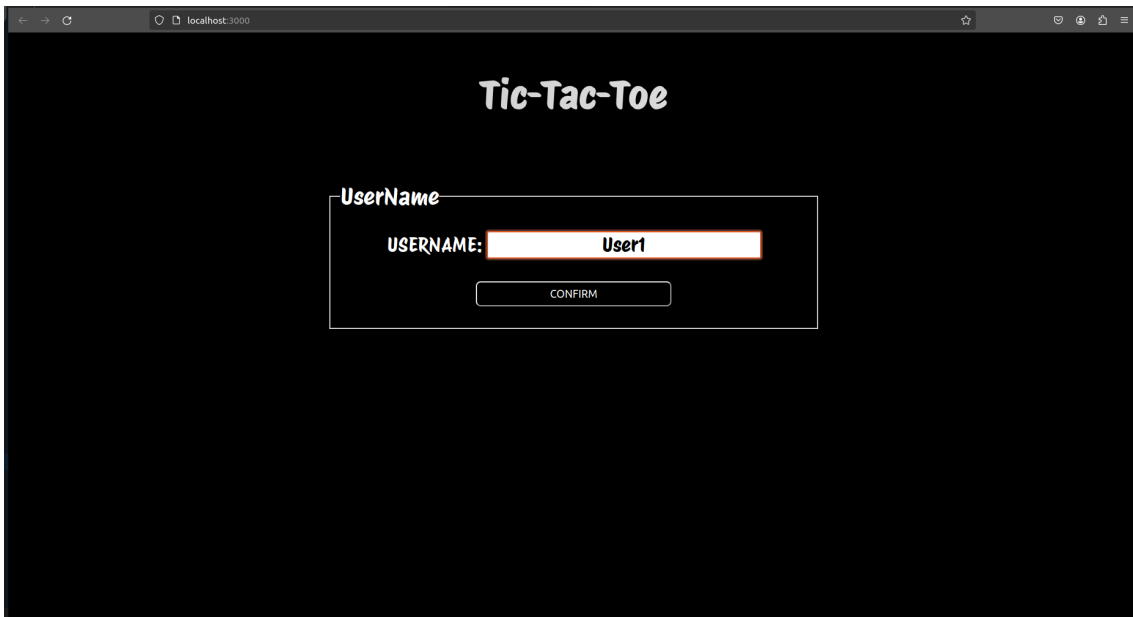
```
spidey@Spidey95:~$ cd TicTacToe/  
spidey@Spidey95:~/TicTacToe$ cd tic-tac-toe/  
spidey@Spidey95:~/TicTacToe/tic-tac-toe$ npm start█
```

8. You should be able to view the home page of the application at the mentioned URL. Congratulations! You have successfully hosted the application.

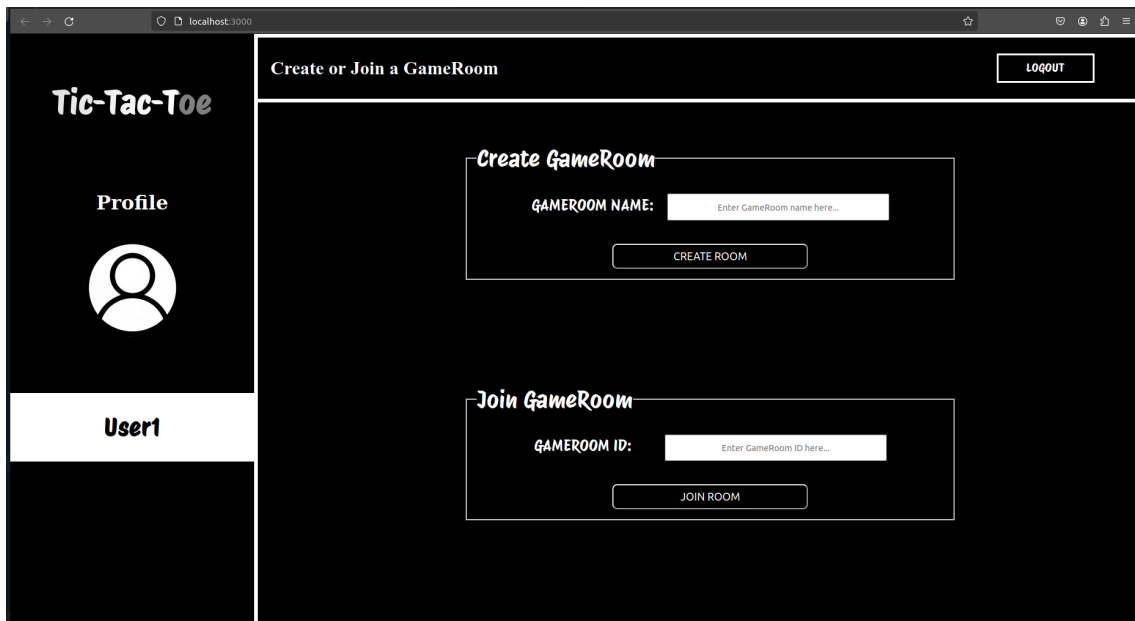


### 3 Using the Application

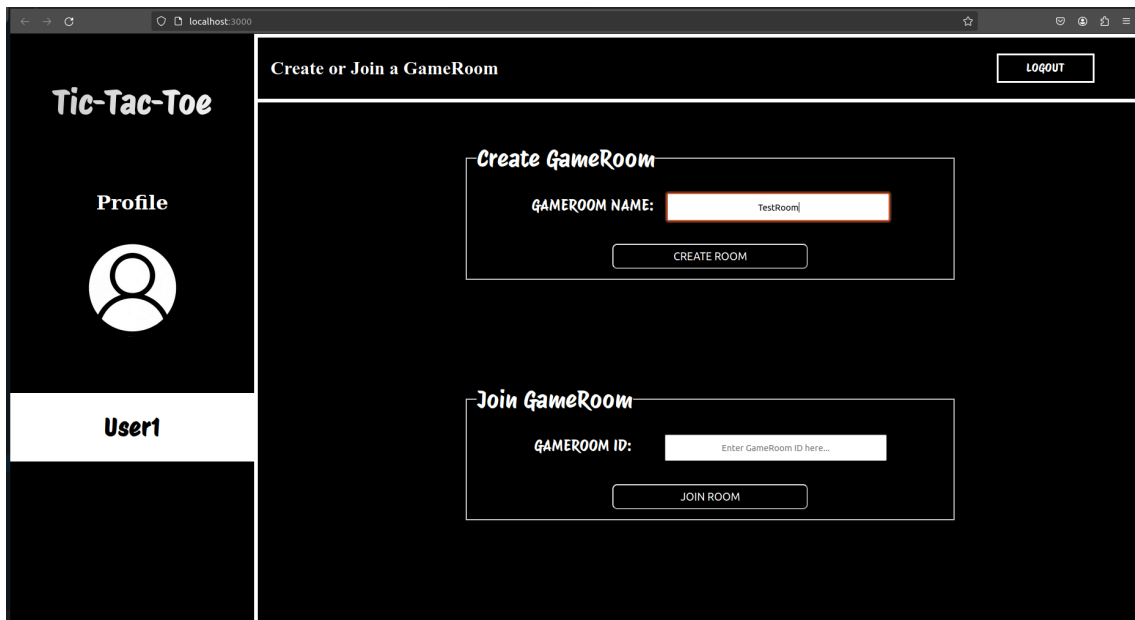
- While the application is quite user-friendly and easy to work with, this shall act as a small demonstration on using it.
- Enter your preferred username in the field given.



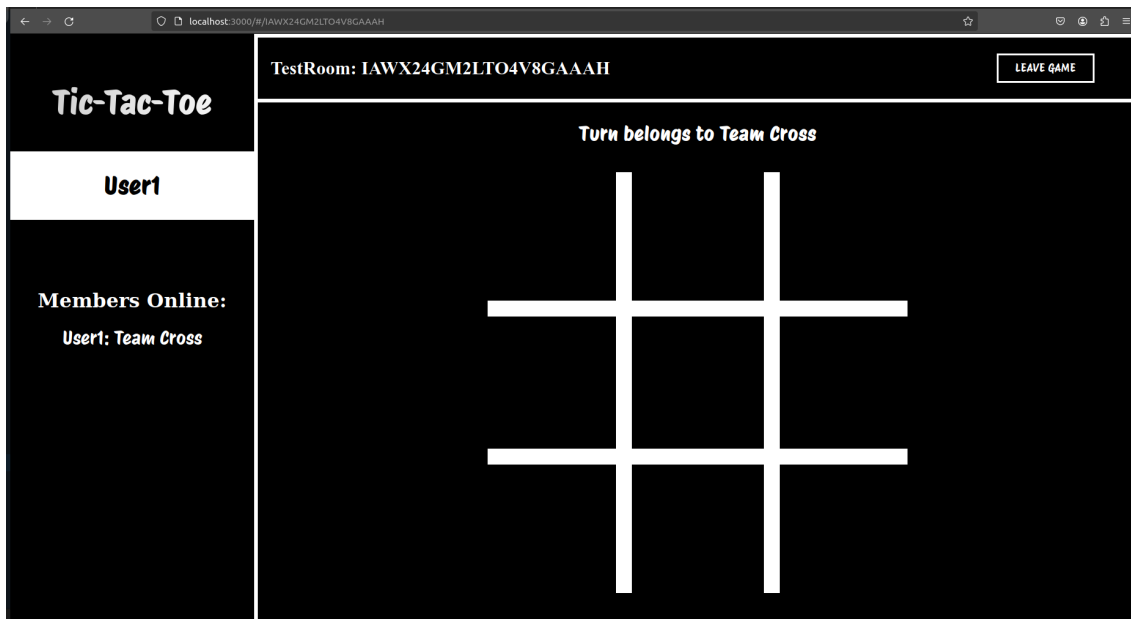
- Click on the CONFIRM button once you're done to get to the main page of the application.



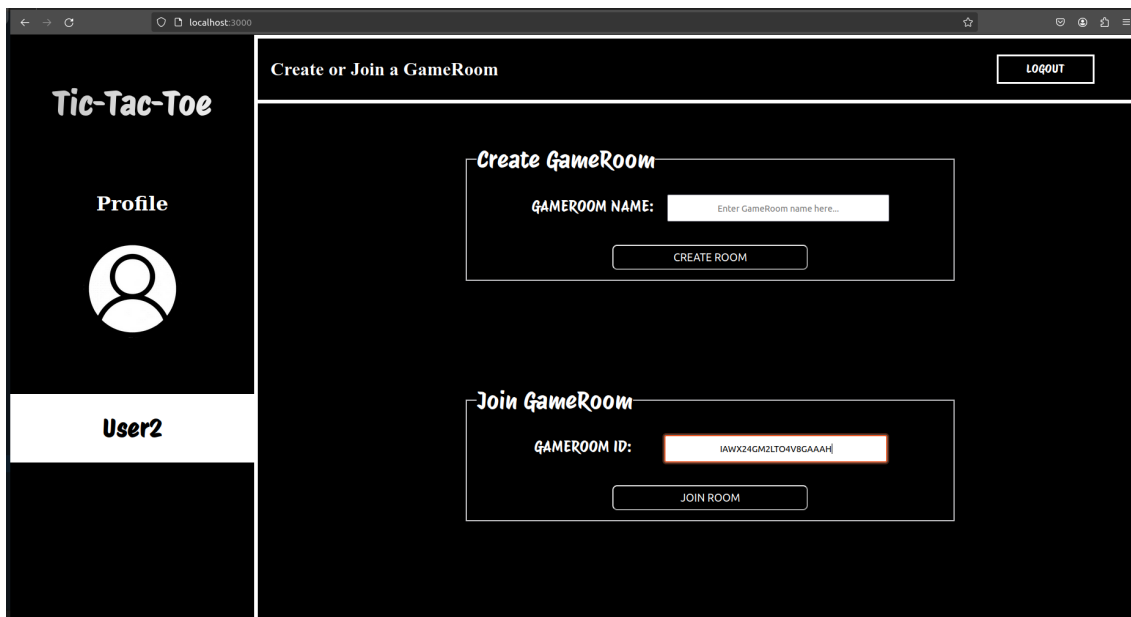
- To start a new GameRoom, enter the name of the GameRoom in the field given.



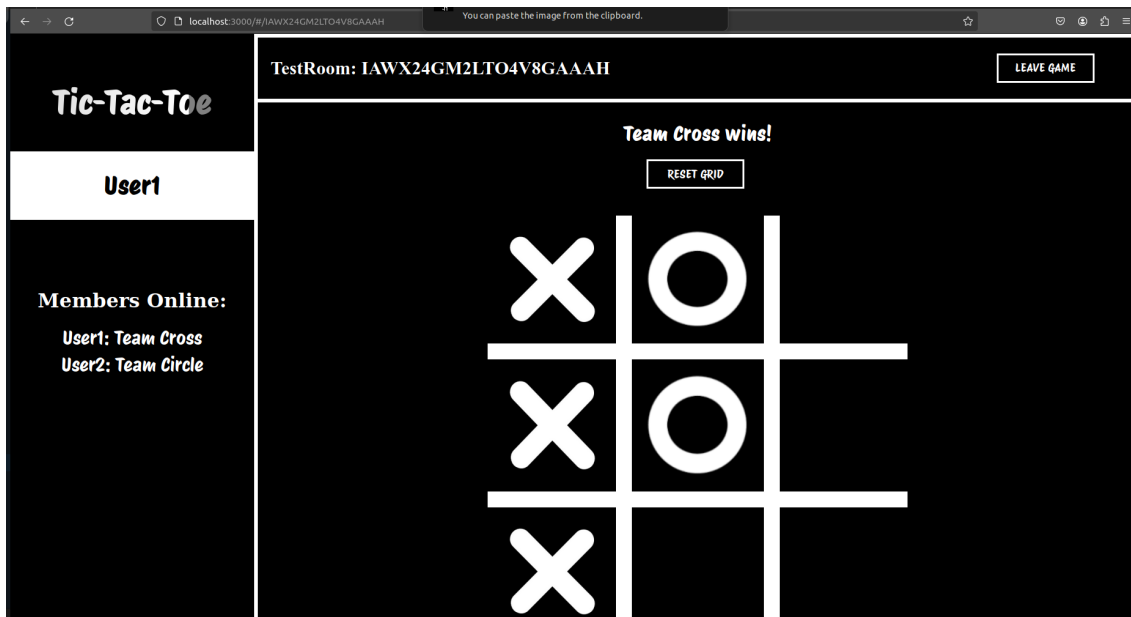
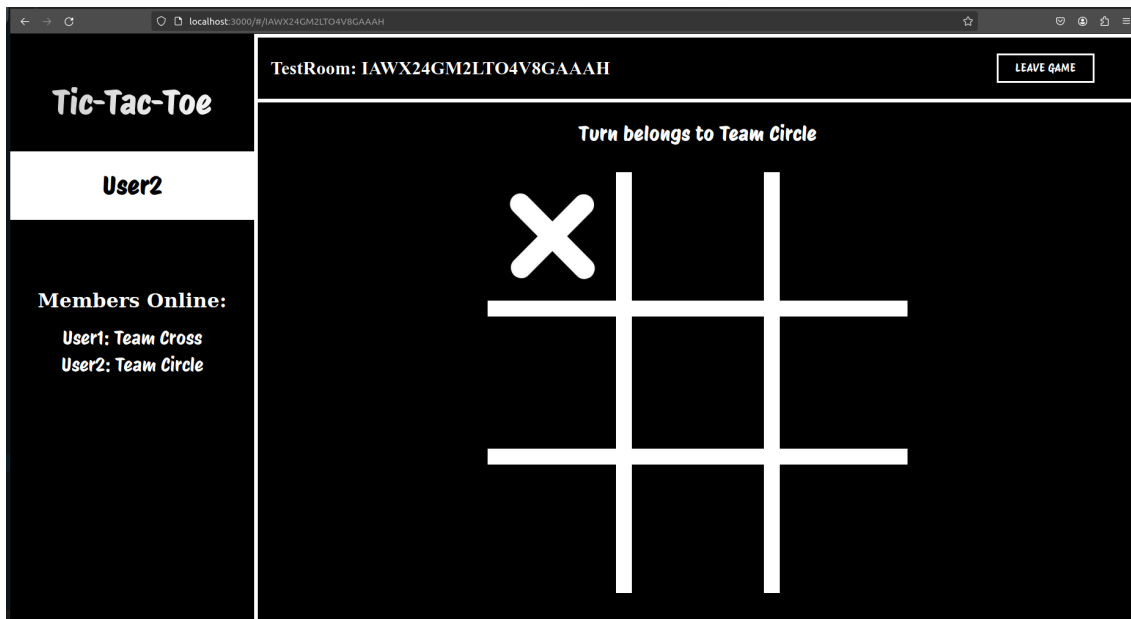
- Now click on the provided button to enter the GameRoom.



- Send the GameRoomID displayed in the top left corner to the people you wish to play with. If you are the one joining the GameRoom, enter the ID into the mentioned field upon login.



- Press on the provided button and start playing!



## 4 Features to be Added

- Login system with secure authentication mechanisms.
- Responsive design to cater to various kinds of devices.
- Option for updating user profile avatar.