

# DELHI TECHNOLOGICAL UNIVERSITY

**TIC TAC TOE IMPLEMENTATION  
USING SOCKET PROGRAMMING  
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### Introduction:

The Tic-Tac-Toe game is a popular two-player game. We have tried to implement a simulation of this game being played optimally by two players and trying to win. We have also implemented an AI player that employs Alpha Beta Pruning to play intelligently.

**AIM:** To implement Tic-Tac-Toe using Socket Programming.

### Related Work

**SOCKET PROGRAMMING:** Socket programming is a method of joining and operating two nodes in a network that communicate and transfer information. One socket listens on a specific port at an IP address, while another socket establishes a connection with it. While the client connects to the server, the server creates the listener socket.

### Tools & Technologies

#### **ACCOUNT REGISTRATION AND LOGIN USING SQLite DATABASE:**

SQLite is a C library that contains a relational database

management system (RDBMS). SQLite is a client-server database engine, not a client-server database engine. It's built into the final product.

## **GUI IMPLEMENTATION USING TKINTER MODULE:**

Python has numerous choices for creating Graphical User Interface. tkinter is the most ordinarily utilized strategy. It is a standard Python interface to the Tk GUI toolbox dispatched with Python.

Tkinter is the Python port for the Tcl-Tk GUI tool stash created by Fredrik Lundh.

- We have utilized tkinter module to execute the Graphical UI for our application.

## **GAME LOGIC USING ALPHA-BETA PRUNING:**

Alpha-beta pruning is a changed form of the minimax calculation. It is an advancement method for the minimax calculation using boundaries Alpha and Beta.

It lessens the calculation time by a colossal factor. This permits us to look through a lot quicker and surprisingly go into more profound levels in the game tree. It cuts off branches in the game tree which need not be looked at on the grounds that there as of now exists a superior move

accessible. It is called Alpha-Beta pruning since it passes 2 additional boundaries in the minimax work, specifically alpha and beta.

## **Future Work**

- Account info security using Hashlib and random uuid generation
- Implementing multiple thread functionality
- implementing leaderboard for the game

## **References**

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