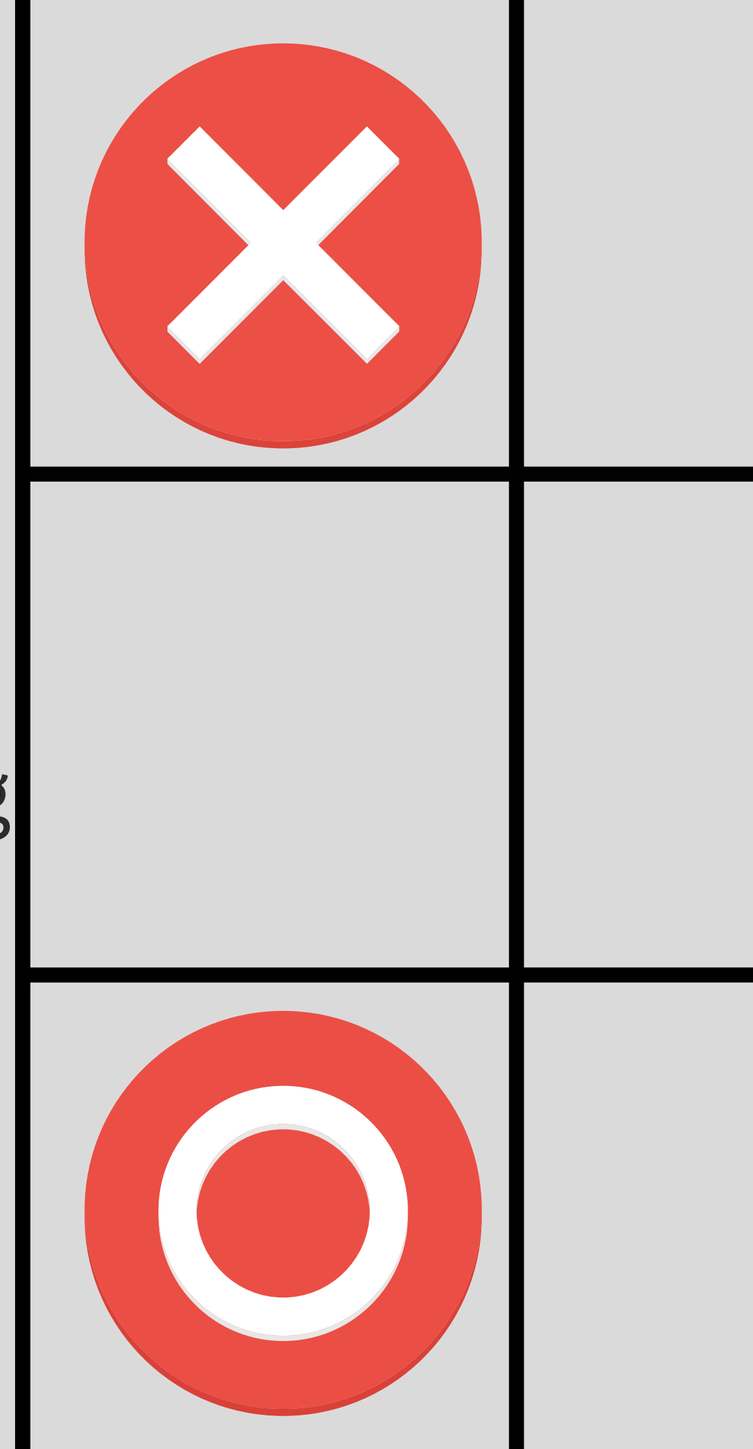
Tic Tac Net

Principles of Computer Systems - II Project

Overview

- Vision
- Roadmap
- Components:
  - Virtualization
  - Socket Programming
  - Pygame
- References



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Vision

Implement communication using sockets over a network between machines where one is running on a virtual machine

- Implementing Virtualization using VirtualBox
- Socket Programming
- Pygame

Roadmap

CREATING VM AFTER INSTALLING VIRTUAL BOX

- Installing VirtualBox
- Setting up guestOS - Ubuntu 23.10
- Creating a Virtual Machine (VM)

SETTING UP CONNECTION USING SOCKETS

- Implementing socket programming for server.py to run as the host
- Creating client.py to request from host

DEVISING THE TIC-TAC-TOE GAME

- Designing the layout and making calculations for the interface
- Scripting the entire tic-tac-toe game

INTEGRATING ALL THE COMPONENTS

- Running the server and making the client to request for the game
- Playing the game and having fun!

Virtualization

Managing a VM running as server via VirtualBox

- Host OS: MacOS 13.4
- Guest OS: Ubuntu 23.1
- The ‘server.py’ scripts runs on the VM, independent of the host OS

Socket Programming

Method of connecting two nodes on a network to communicate with each other.

TCP

SERVER

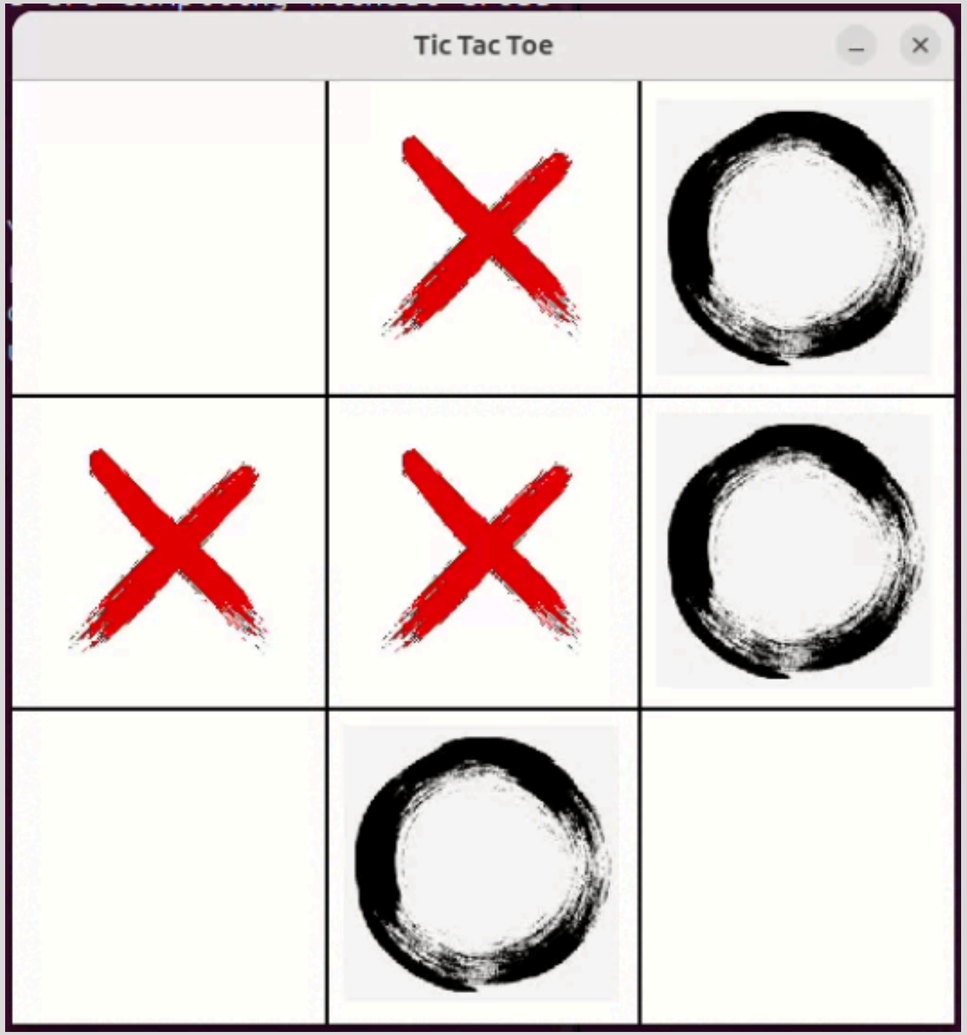
- Host which serves the request of client
- Listens for incoming connections
- Upon connection, the server receives data from the client
- After serving, it closes the connection

CLIENT

- Connects to server using TCP/IP socket to the server's address and port
- Once the connection is established, client sends a request to be served to the server

Tic-tac-toe

- The pygame script initializes the game window as shown.
- It captures mouse clicks to place X or O on the board.
- It checks for a win or draw and displays the result on screen.



References

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- https://realpython.com/pygame-a-primer/

THANK YOU!

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