MUHAMMAD TAQI RAZA

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SKILLS

- C++
- Python, Java, C#
- HTML, CSS, Java script
- Unity
- Solidity
- Ruby on Rails

WORK EXPERIENCE

Educative **June 2023 - Aug 2023**

- Done internship at Educative as Technical Content Engineer.
- Published more than 60 Answers, related to deep learning, and robotics

Mindstorm Studios **June 2020 - Sep 2020**

- Working on a 3D game in the hyper-casual games category at Mind storm Studios.
- Responsible for developing game mechanics, designing levels.

EDUCATION HISTORY

Bachelors of Computer Science **Sep 2020 - June 2024**
Information Technology University Lahore

- CGPA/Grade: 3.37

FSc. (Pre-Engineering) **Aug 2018 - May 2020**
Government College University, Lahore

- CGPA/Grade: 87.91%

Matriculation **Aug 2016 - May 2018**
Government Pilot Secondary School, Sharqpur

- CGPA/Grade: 93.27%

PROJECTS

Poverty Detection Using Satellite Imagery In Pakistan **March 2023 - June 2023**

- Done this semester project with Dr. Mohsen Ali.
- Developed an extensive dataset by tagging satellite images based on their features, including categories such as barren land, dense and regular housing, and agricultural land. Poster paper
- Incorporated ground truth data from the DHS survey, specifically the asset index, to validate and refine the poverty detection models.
- Utilized advanced models such as ResNet-18 and Vision Transformer to predict the tagged labels of the satellite images. Through vision transformer the accuracy of prediction is 71.34%
- Collaborated with a diverse team to gather and analyze satellite imagery from various regions across Pakistan, ensuring comprehensive coverage.

Survey on the interoperability of Blockchain

November 2022 - January 2023

- Conducted research and analysis on different types of cross-chain communication and the techniques/protocols for achieving them, contributing to a broader understanding of blockchain interoperability
- Designed and executed a survey to identify blockchains that have implemented cross-chain communication techniques/protocols, providing valuable insights into the current state of blockchain interoperability.
- Collaborated with team members to develop a framework for evaluating different interoperability solutions and rated them according to the proposed criteria. Research Paper

Doss Shell and Editor

December 2021 - January 2022

- Designed and implemented a DOS/Command Window-like shell and Notepad using C++ programming language
- Implemented a tree-based architecture to represent folders and files, with each folder considered as a node and its subfolders and files as children.
- Implemented all DOS commands using tree operations, including folder creation, deletion, and navigation, file creation, deletion, reading, and writing.
- Implemented Notepad functionality for file editing, including write data, undo, and redo operations, using Linked List data structure. Link

Multi-tasking kernel

- Designed and implemented a multi-tasking kernel in assembly that enables concurrent execution of multiple threads
- Developed functions for creating and deleting threads, context switching, and scheduling threads based on priority.
- Implemented a linked list data structure to store threads and facilitate efficient management of thread operations.
- Acquired proficiency in low-level programming and operating system concepts, including memory management, process synchronization, and scheduling algorithms. Implemented a context switching to start another thread.

myFacebook App

- Implemented various features, including profile picture, managing friends, home page, and profile page.
- Enabled users to upload pictures, post updates, and comment on posts.
- Developed a user-friendly interface using HTML and CSS, allowing users to easily navigate the app and interact with their friends.
- Created a system for deleting posts, ensuring that users could easily remove content they no longer wanted to share. Utilized PHP to implement complex functionality, such as posting updates and managing friend requests.

AI based Tic Tac Toe

- Developed a Tic Tac Toe game using the minimax algorithm to create an unbeatable AI player.
- Implemented the minimax algorithm in Python to create a Tic Tac Toe game that could play against human players or other AIs
- Utilized the minimax algorithm to develop a Tic Tac Toe game that incorporated alpha-beta pruning for improved efficiency and speed.
- Designed and coded a Tic Tac Toe game with a minimax algorithm that was able to successfully predict and respond to human player moves with optimal moves of its own.

Chess Game

- The project involved creating a class hierarchy with classes such as Board, Pieces, Color, King, Queen, Rook, Bishop, Knight, and Pawn, using inheritance and polymorphism to ensure code reusability and maintainability.
- The project implemented all the standard rules of chess, including stalemate, checkmate, self-check, castling, and pawn promotion, ensuring the game is playable and challenging.
- The project also featured an exceptional feature of replaying all the moves, allowing users to review and analyze their games, which is a valuable tool for improving their chess skills.