

# UTKARSH RANJAN

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## Summary

A dedicated Computer Science student with a strong foundation in programming. I specialize in building innovative and user-focused applications using modern technologies. My experience includes multiple Machine Learning projects, as well as the development of a multiplayer desktop chess game and a desktop chatting application. You may have a look at my GitHub to checkout different projects I've worked on.

## Education

Birla Institute of Technology	Ranchi, Jharkhand
Bachelor of Technology (Biotechnology) CGPA: 7.4	11/2022 - Present
Seth M.R. Jaipuria School	Lucknow, Uttar Pradesh
High School	01/2018 - 07/2021

## Skills

C/C++ • Data Structures • Git • GitHub • Java • AWS • Kotlin • Material UI • Python • Socket.IO • Android Development

## Projects

### Loan Default Prediction 04/2025 - 05/2025

A project focused on developing machine learning models to predict the likelihood of loan defaults, enabling financial institutions to better assess credit risk.

- Developed and compared several machine learning models (Logistic Regression, Random Forest, XGBoost) to predict loan defaults based on borrower and loan characteristics.
- Utilized data preprocessing techniques such as scaling, one-hot encoding, and methods for handling class imbalance (SMOTE, ROS, RUS).
- Identified key risk factors for loan default, including DTI Ratio, Employment Status, Education Level, Age, and Loan Amount.
- Provided insights into model selection based on different priorities: interpretability (Logistic Regression), maximum accuracy (Random Forest), and a balance of both (XGBoost).

### Multiplayer Chess Game 12/2023 - 02/2024

A self-developed online and offline multiplayer desktop chess game with a focus on smooth graphics and comprehensive features.




- Features both an offline mode for local two-player games and an online multiplayer mode facilitated by a robust TCP-based networking system with reliability mechanisms.
- Implements complete chess rules, including legal move validation, special moves (castling, en passant, pawn promotion), draw conditions, and check/checkmate/stalemate detection.
- Utilizes Pygame for a smooth drag-and-drop interface and responsive graphics, alongside Python's socket library for real-time network communication.

### Real-Time Multi-User Desktop Chatting Application 09/2023 - 10/2023

A Python-based application enabling real-time communication among multiple users.

- The user interface (GUI) was thoughtfully designed using Figma to ensure a user-friendly experience.
- Implemented using Python and Tkinter for the graphical interface, leveraging TCP sockets for robust and real-time multi-user communication.
- Incorporated a heartbeat mechanism on the server to actively monitor and manage the connection status of all connected users.
- Deployed server-side logic on AWS EC2 to ensure continuous 24/7 availability.

## Key Achievements

 <b>Codeforces Global Performance</b> Global Rank of 3012 in Codeforces Round 1006 (div-3) contest of Codeforces among 25,000+ contestants	 <b>Codeforces Rating</b> Newbie at Codeforces, Max Rated - 1314	 <b>CodeChef Rating</b> 3 Stars at CodeChef, Max Rated - 1661
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