Saurabh Rana

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Projects

Fraud Detection System | *Python, TensorFlow, scikit-learn, Pandas, Docker, Flask* **Mar 2025 - Mar 2025**

- Built a robust fraud detection system by implementing multiple machine learning models, achieving 92% accuracy in detecting suspicious transactions
- Trained, tested, and fine-tuned models on 100,000+ transaction records, leveraging Pandas for feature engineering and data preprocessing, which improved model efficiency by 25%
- Deployed the system online with Flask, creating a RESTful API for real-time transaction validation
- Containerized the entire application using Docker for consistent deployment across multiple environments
- GitHub Repository Link: **Fraud-Detection-System**

E- Commerce Product Recommendation System | *Python, SciKit-learn, Pandas* **Dec 2024 - Jan 2025**

- Implemented a recommendation system utilizing collaborative filtering and rank-based recommendation techniques to enhance product discovery
- Analyzed and processed 7.8M+ ratings from 4.2M users across 476K products, handled missing data, and generated personalized recommendations to improve user-item interactions
- Evaluated model performance using Mean Squared Error (MSE) and fine-tuned hyperparameters for improved accuracy
- GitHub Repository Link: **E-Commerce-Product-Recommendation-System**

Fake News Detection | *Python, Seaborn, Pandas, Matplotlib, SciKit-Learn, Flask* **Nov 2024 - Dec 2024**

- Implemented and compared four classification techniques: Logistic Regression, Decision Tree, Gradient Boosting, and Random Forest.
- Collected and scraped news data from multiple sources, ensuring a diverse dataset for model training
- Evaluated model performance with precision, recall, F1-score, and AUC-ROC curves for enhanced reliability
- Built and deployed the model using Flask, creating a user-friendly web interface for real-time news verification
- GitHub Repository Link: **Fake-News-Detection**

Weather Prediction | *R, Shiny* **Oct 2024 - Nov 2024**

- Developed a weather prediction model using advanced algorithms in R, achieving an 85% accuracy in temperature forecasting
- Analyzed historical weather data using statistical techniques and time-series analysis
- Achieved an accuracy improvement of 90% by optimizing feature selection and hyperparameters
- GitHub Repository Link: **Weather-Prediction-Project**

Certificates

Python for Data Science and Machine Learning **Jan 2025**
Udemy — Certificate Link

Introduction to Machine Learning - IITKGP **Oct 2024**
NPTEL — Certificate Link

Excel Skills for Business Macquarie University **Apr 2024**
Coursera — Certificate Link

Technical Skills

Languages: C++, R programming, Python, SQL

Technologies/Frameworks: TensorFlow, PyTorch, Scikit-Learn, PostgreSQL, MySQL, MongoDB, Power Bi, GitHub

Skills: ML Model Development, Model Evaluation & Optimization, Exploratory Data Analysis (EDA), Critical thinking, Time management

Education

Lovely Professional University Punjab **2022 – 2026**
Computer Science and Engineering — CGPA: 7.59 *Phagwara, Punjab*

Shivalik International Convent School **2021 – 2022**
12th with Science — Percentage: 71.8% *Jawalamukhi, Himachal Pradesh*

Shivalik International Convent School **2019 – 2020**
10th with Science — Percentage: 89.1% *Jawalamukhi, Himachal Pradesh*