Tarun Singla

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EDUCATION

Degree/Certificate	Institute	CGPA / %	Year
M. Tech (Department of Management Sciences)	Indian Institute of Technology, Kanpur	-	2024 - Present
B. Tech (Agricultural Engineering)	Punjab Agricultural University	8.46 CPI	2020-24
Higher Secondary Education (Non-Medical)	Meritorious School, Bathinda	94.88 %	2020
Secondary Education	Government High School, Shatirwala, Fazilka	94 %	2018

PROJECTS

Air Ticket Fare Estimator, India |Machine Learning | Regression (GitHub Link) | **(Self Project)** *July 2024*

Objective	• To predict the flight ticket prices for Indian airlines using Machine Learning Algorithms.
Approach	• The dataset comprises 10 independent features, and a dependent variable "Price" with 10682 observations. • **Data Preprocessing**: Conducted outlier treatment, **feature engineering** and handled missing values. Applied one-hot encoding and feature scaling. • **Models Used**: Employed **Random Forest Regressor**. • **Hyperparameter Tuning**: Utilize **GridSearchCV** to optimize model hyperparameters and enhance predictive performance. • **Toolset:** Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn
Result	• Achieved **adjusted R^2** of **85.2%** after **Hyperparameter tuning as compared to R^2** of **84.5 %** using **Random Forest Regressor**.

Customer Churn Prediction | Machine Learning | Classification (GitHub Link) | **(Self Project)** *August 2024*

Objective	• To develop a binary classification model to accurately predict which customer is likely to leave.
Approach	• In this, 20 independent variables are used over 7043 observations. • **Data Preprocessing:** Cleaned data, Performed One-Hot Encoding and feature scaling. • **Analysis:** Conducted **EDA**, including **Univariate** and **Bivariate Analysis** for getting insights • **Models Used**: Employed **Decision Tree Classifier**, and **Random Forest Classifier** and optimized performance by handling imbalanced data using **SMOTE,** also performed **PCA** • **Toolset:** Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn
Result	• Random Forest Classifier with Over SMOTE gave balanced results: Recall = 0.96, Precision = 0.94, F1 Score = 0.95

Analysis of World Population Growth | Data Analysis | EDA (GitHub Link) **| (Self Project)** *July 2024*

Objective	• To analyze the countries and cities which are highly populated in 2024, and which grew with highest rate.
Approach	• Conducted **data exploration** on dataset which includes the growth rate of the population of the top 800 populated cities around the world for 2023 and 2024. • Conducted preprocessing and handled missing values in the data set • Performed **EDA** on the dataset to carry out the insights. • Visualized the data insights by making dashboard using **Tableau**.
Result	• Identified top **10 most populated cities and countries** in the world • Identified top **10 cities having highest population growth rate**

COURSEWORK & SKILLS

**in progress*

Relevant Courses	**Statistical Modelling** for Business Analytics* | **Probability** & **Statistics*** | Operations Research for Management* | Introduction to Computing*
Skills	Python| ML Libraries: NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn | MySQL*| Tableau* | Excel
Soft Skills	Flexibility | Adaptability | Team Management | Communication Skills | Leadership |Decision Making
Certifications	• Unlock Excel's Power: Essential MS Excel for Success. (Udemy) • Hands on Machine Learning: Python Project Showcase (Udemy)

POSITION OF RESPONSIBILITY

Alumni and Corporate Relations | M. Tech | DoMS | IIT Kanpur

- Collaborating with Alumni of the Department of Management Sciences (DoMS) and corporate leaders of Tech industry, maintaining good relations with them and leveraging opportunity while acting as bridge between Alumni and Department

Student Representative | **1.** Student Grievance Redressal Committee |**2.** Board of Studies Committee | B. Tech | PAU Ludhiana

- Elected to bring any matter of students in front of higher authorities and to discuss the same for best possible solution
- Giving input on the behalf of whole college students in discussion and implementation of academic agendas for the college

ACHIEVEMENTS & EXTRACURRICULAR

- **AIR 1** in **TIFAN-24 National level Competition** for the development of **Automated Vegetable Transplanter** | (2023-24)
- GATE **AIR 7** in Agricultural Engineering
- Inter-College Basketball 3rd prize | PAU Ludhiana | (2022)
- Inter-College Debate 2nd prize | PAU Ludhiana | (2022)