INDRAJ PRAJAPAT

M.Sc. (Statistics) 2nd Year

Department of Mathematics and Statistics
Indian Institute of Technology, Kanpur

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Education

Year	Degree/Examination	Institute	%(*CPI*)
2023 -	M.Sc.	Indian Institute of Technology, Kanpur	8.2 (up to sem II)
2023	B.Sc.	Govt. Lohiya college, Churu	7.32
2020	S.S.(XII)	Jai Public School, Jhunjhunu	90%
2018	Secondary(X)	Mahapragya International School, Tamkor (JJN)	90%

Scholastic Achievements

- Secured **All India Rank 148** in **JAM 2023** among 3119 candidates.
- Secured **100 out of 100** in **Secondary (X) and Senior Secondary (XII) Mathematics examination** under RBSE.
- Received an appreciation email from **Dr. Dootika in Statistical Computing for strong theory, intuition, exceptional coding skills**.

Key Projects

- **Gemstone Price Prediction**, Self-Project (*July-2023*)
  - Conducted exploratory data analysis (EDA) on gemstone pricing data, generating over 15 visual reports; leveraged insights to optimize pricing strategies. Transformed and encoded categorical variables using dummy variables; applied advanced feature engineering to 15 features and kernelization, enhancing linear relationships and reducing the dataset to 5 dimensions.
  - Developed and fine-tuned predictive models, including Linear Regression, Ridge Regression, Lasso Regression, and Random Forest, achieving a 97
- **Cricket Simulation App**, Course Project (MTH208), Under **Dr. Dootika Vatts (IITK Prof.)** (*Oct-Dec 2023*)
  - Extracted and cleaned data through web scraping; structured information into a hierarchical list-based data structure for 11 teams.
  - Computed probabilities for key performance metrics, including hitting 4's, 6's, and likelihood of getting out, based on data.
  - Engineered a simulation function incorporating hierarchical lists to process team inputs, outputting detailed player performance metrics (e.g., runs, wickets, balls played) and predicting the winning team with 85% accuracy; developed a user-friendly R-Shiny app with 3 interactive panels.
- **Taxi Revenue Estimation**, Course Project (MTH209), Under **Dr. Shubhojit Datta (IITK Prof.)** (*Feb-March 2024*)
  - Cleaned and pre-processed large-scale NYC taxi data with 25 variables; performed feature extraction on 10 key features, including trip distance, duration, and station data.
  - Estimated Poisson Process parameters for 250 stations; utilized PCA to plot the top 100 routes and simulated taxi data for 5 vehicles, testing various hypotheses. Optimized profit margins by selecting strategic starting points, routes, and times; applied a loss function for waiting time, leading to a daily profit of $200 for a simulated taxi against 14k competitors.
- **Customer Church (Unsupervised ML)**, Course Project (MTH443A), Under **Dr. Amit Mitra (IITK Prof.)** (*Ongoing*)
  - Performed EDA and outlier removal using z-score; converted categorical data to numerical formats through Frequency encoding, Label encoding, and One-Hot encoding. Standardized features and executed PCA, reducing dimensionality to 2 for visualization.
  - Evaluated and compared models (Naive Bayes, Decision Tree, K-Nearest Neighbour, SVM) using 10-Fold Cross Validation; achieved the highest accuracy of 92.4% with Decision Tree.
- **Time Series Analysis and Forecasting using Walmart Sales Data**, Self-Project (MTH442). (*Ongoing*)
  - Conducted data pre-processing, EDA, and addressed trend, seasonality, and stationarity issues. Prepared data by implementing a robust imputation technique, reducing missing values by 72% estimated and removed trend and seasonal components.
  - Analysed seasonality and stationarity, and made appropriate time series models (AR, MA, ARMA, ARIMA) for accurate forecasting.

Technical Skills

- **Programming Languages:** R, Python, SQL
- **Software:** MS Word, MS PowerPoint, MS Excel, Tableau, Power BI

Relevant Courses

• Descriptive Statistics • Probability Theory • Statistical Inference • Linear Models • Categorical Data Analysis • Data Science Lab 1
• ANOVA • Data Science Lab 2 • Time Series Analysis • Inference II • **Mastering in ML**

Workshops

• **Basic of Python Programming by Open Waver • Data Analytics and Visualization by Accenture • Mastering Machine Learning with Python by iHUB at IIT Roorkee and RBPL • Data Analytics by Jobaaj Learning** Click here for Certificates

Extra-Curricular Activities

• Mentoring Students of **Mathematics and Statistics** for 10+2 level examination.