ABHINAV PRATAP SINGH

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EDUCATION

Degree/Certificate	Institute	CGPA / %	Year
MTech (Management Sciences)	IIT KANPUR	-	2023 - Present
PG-DIPLOMA(IEM)	IIT ISM DHANBAD	7.72/10	2022 -2023
B. Tech (Textile Technology)	UPTTI KANPUR	7.75/10	2018 -2023
Higher Secondary Education (CBSE)	K. V. No.1 SPN	84.4%	2017
Secondary Education (CBSE)	K. V. No.1 SPN	10/10	2015

ACADEMIC PROJECTS(IIT ISM DHANBAD)

Champo Carpet Case Study |Unsupervised Learning|(Clustering)

Objective	• Improving Business to Business Sales Using Machine Learning Algorithms
Approach	• Conducted **EDA** and **feature scaling**, uncovering insights like a sales decrease from 2018 to 2019, TGT's importance as customer, Durry's high sales, and Hand-Tufted commanding the highest price. • Utilized **ExtraTreesClassifier** to identify key features impacting carpet conversion rate. • Employed an **elbow graph** to determine the optimal number of clusters via **K-Means (Clustering).** • Proposed solutions: prioritize influential features for better conversion and use clustering to suggest diverse samples to similar customers.
Result	• Optimal Number of Cluster = 6, Most Contributing Featuring = AreaFt, CustomerCode, Item_Name, CountryName.

Project Management Using JIRA

Objective	• Adding Quality Control tools in Project Management Information System
Approach	• Employ latest project management methodologies. • Specifically implement the **Agile** and **Scrum framework** • Incorporate **Quality tools** into Project Management Information System • Used **JIRA** and Analyzed Sprint burndown Chart
Result	• Project Completed in Three Sprint.

SELF PROJECTS

Laptop Price Predictor |Supervised Learning| (Regression)

Objective	• Created a Machine Learning project focused on predicting laptop prices, utilizing various algorithms for Enhanced accuracy.
Approach	• Performed **EDA**, **Feature Engineering**, **Feature Selection**, **Models Training** and Best Model **Hyperparameter Tuning.** • Used Training and prediction **Pipeline** for Automation • Model used: Linear Regression (Ridge, Lasso, Elastic Net), Decision Tree Regressor, Support Vector Regressor (**SVR**), • Explored ensemble methods**: RandomForestRegressor** ,**AdaBoostRegressor**,**GradientBoostingRegressor** andXGboost(**XGBRegressor**) and Performed Hyperparameter Tuning using **GridSearchCV.** • Utilized the **Pickle** library for both data and pipeline serialization. • Deploy Best Model Using **Streamlit** Library.
Result	• Best Model: **RandomForestRegressor** with **r2_score** =0.88734 • After **Hyperparameter Tuning, r2_score** =0.89132

Bank Customer Churn Prediction |Supervised Learning|(Classification)

Objective	• Developed and executed a ML project focused on bank customer churn prediction using classification techniques.
Approach	• Leveraged **Python** and popular libraries such as **scikit-learn** and **pandas, Matplotlib, seaborn** to preprocess andanalyze the dataset. • Engineered relevant features and employed **various algorithms**, including **Random Forest** and **Decision Tree Classifier**,to build predictive models. • Conducted thorough **hyperparameter tuning** and cross-validation to enhance model accuracy. • Utilized **Pickle** Library for Saving Model and Used **Streamlit** to Process the model to web page.
Result	• Achieved a **accuracy [0.868] |precision[0.82]|** using **Random Forest Classifier** With **Hyperparameter** tuning.

Airline Ticket Sales Prediction | Time Series Forecasting

Objective	• To forecast future Air Ticket Sales Prediction.
Approach	• Analyzed the given data to check for stationarity & decomposed it to get **level**, **trend**, **seasonality**, and residue fordemand forecasting. • Performed **ADF test** for stationarity & used **ARIMA**, **SARIMA**, **Prophet** and **XGBoosT** to predict future sales.
Result	• Achieved best accuracy of **19.23%** MAPE in **SARIMA** & **14.27%** MAPE by implementing the Facebook's **Prophet** model.

Data Analysis Swiggy Case-Study|MySQL|

Objective	• Analyzed Swiggy's restaurant data to gain insights into their operations.
Approach	• Identified **TOP** city and Name of restaurant Which Contains Word Pizza • Used Basic clause used in MySQL, (**SELECT, FROM, WHERE, HAVING, GROUPBY,UPDATE,DELETE,TRUNCATE**) ,**JOINS** • Used **Aggregate functions** to for summarizing and analyzing data (**SUM, COUNT,AVG,MAX,MIN,STRING_AGG**).
Result	• Improved menu categorization and highlighted Premium dining options using Pricing Strategies.

Hypothesis Testing and Predictive Analysis | Business Statistics|	
objective	• Performed Hypothesis Testing and Predictive Analysis of city payroll data.
Approach	• Utilized **hypothesis testing** techniques to assess the significance of various factors affecting payroll distribution (**Normal Distribution, Student t Distribution,Annova**) • Employed **predictive analytics** to forecast future payroll expenditures based on historical trends and external economic indicators. (**RandomForestRegressor and Linear Regression**)
Result	• Got **RandomForestRegressor as** Best model.
Food Reviews Classification System|NLP|	
Objective	• To Classify the Reviews for food using (**Natural Language Processing**)
Approach	• Performed **text preprocessing techniques** such as Tokenization, Lemmatization, stop words removal and SMOTE for handling class imbalanceness. • Implemented feature engineering techniques like **Bag-of-words**, **TF-IDF** to vectorize the text data. • Applied models **- Logistic Regression**, **Naïve Bayes** Classifier and Random Forest Classifier with **GridSearchCV** for hyperparameter tuning.
Result	• Achieved a best **accuracy (0.84**), **recall (0.85**), **precision (0.89**) and **F1 score (0.84)** with Logistic Regression model.

COURSEWORK & SKILLS

- **COURSEWORK\|** Statistical Modelling for Business Analytics | Applied Machine Learning| Probability & Statistics
- **SKILLS \|** Python| ML Libraries: NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn | MySQL| Excel| PowerBI
- **SOFT SKILLS**| Decision Making | Adaptability | Team Management | Communication Skills | Leadership | Teamwork
- **CERTIFICATIONS\|** Basics of Machine Learning |SQL for Data Science| Basics Of Python |EXCEL

ACHIEVEMENTS & EXTRACURRICULAR

- Achieved **AIR 9** in GATE 2023 (TF).
- **Smart India Textile Hackathon 2K19 Winner** Organized by Uttar Pradesh Textile Technology Institute Kanpur
- Got Start Up Funding and **Best Idea Nomination** from **SIIC IIT KANPUR** And (REC) For Start Idea of Production of Bioethanol and Biofuel from textile waste.
- Participated in course titled "**intellectual property rights under civil trade**" organized by ordnance factory, Kanpur.
- **Rajya puraskar** in scout and guide during schooling