Vivek Kumar Singh

Data Analytics, Business Analytics, and Strategy – SQL, Python, MS Office

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EDUCATION		
Bachelor of Technology (2018-2022)	Bundelkhand Institute of Engineering & Technology, Jhansi	Civil Engineering - CGPA 7.46

PROJECTS

➢ **SQL Data Analysis: Sales Data Insights**
- Identified that the top 10 products contributed 65% of total sales revenue, highlighting their critical role in driving the profitability.
- Discovered that customers aged 25-34 accounted for 40% of total revenue, positioning them as a key demographic for targeted marketing, also highlighting the marketing campaign they most respond to.
- Identified holiday sales (November-December) as peak periods, contributing to 30% of annual revenue, emphasizing the importance of seasonal marketing strategies as well as resource planning and balancing.
- **Results:** The analysis helped optimize product focus, refine regional strategies, plan resources efficiently, and tailor marketing efforts to key demographics and peak sales periods, driving overall business growth.

➢ **Python Weather Data Analysis**
- **Seasonal Weather Trends:** Used Python libraries like pandas and matplotlib to aggregate 10 years of daily weather data into seasonal averages (e.g., mean temperature and total precipitation). Analyzed seasonal temperature shifts, showing a 5% year-over-year increase in summer heat waves. Visualized results in Tableau using line charts for trends and heatmaps for regional variations.
- **Air Quality and Weather Correlation:** Processed 1 million records of weather and AQI data using Python functions like corr() (to calculate correlations) and groupby() (to segment by regions). Found a 0.75 correlation between high AQI and low wind speed during summer months. Tableau dashboards highlighted pollution-prone areas with scatterplots and regional risk maps.
- **Hurricane Path Visualization:** Cleaned NOAA hurricane datasets with Python (NumPy and GeoPandas) to map storm paths and calculate intensity metrics like maximum sustained wind speeds. Detected an 18% increase in category 4 and 5 hurricanes over 20 years. Mapped storm trajectories in Tableau, layered with year-wise intensity data for a detailed geographic visualization.

➢ **Data Analysis for Civil Engineering Highway Maintenance (Academic Project)**
- **Data Collection:** Collected data from 300+ highway sections across multiple regions, including traffic loads, material stress levels, and environmental factors.
- **Data Cleaning:** Utilized SQL functions like TRIM, CAST, and COALESCE to pre-process raw data, ensuring accuracy by handling missing values and inconsistent formats.
- **Data Analysis:** Used aggregate functions (SUM, AVG) to calculate average daily traffic, cumulative stress levels, and degradation rates for each highway section. Identified 15 poorly performing sections with recurring degradation patterns.
- **Pattern Identification:** Applied SQL window functions (ROW_NUMBER, LEAD, LAG) to track stress accumulation trends over time, predicting failure timelines for critical sections with over 90% stress thresholds.
- **Visualization:** Designed an interactive Power BI dashboard showing regional highway performance metrics, high-risk zones, and maintenance priorities. The dashboard included SQL-based summaries from JOIN operations between traffic data and material stress datasets.
- **Insights Sharing:** Shared findings via a PowerPoint presentation, highlighting key problem areas and a 25% reduction in resource wastage by prioritizing critical maintenance needs.

➢ **Profit and Loss Analysis for a Business Unit (Academic Project)**
- Conducted a detailed profit and loss analysis for a simulated motor business unit, extracting data from multiple sources using **SQL queries** and identifying cost savings trends. Found a **12% reduction in operational inefficiencies** over the project duration.
- Automated the monitoring process with a **Python script**, enabling a **40% improvement in reporting efficiency** and ensuring regular updates on potential savings and expenses.
- Analysed lead leakages month-on-month and reduced inefficiencies by **20%**, optimizing the policy-to-premium ratio and bringing the PO/PI ratio below 1.3 for **85% of policies**.
- Collaborated with a team to evaluate cost-saving opportunities, stabilizing the profit-to-loss ratio by **15%** through data-driven recommendations and strategic interventions.

BUSINESS SKILLS AND SOFT SKILLS				
Data Analysis	Business Analytics	Strategy Development	Dashboarding & Insights	Credit Risk
MySQL	Python – Pandas, NumPy	Advanced MS Excel, Google Sheets	PowerBI, Excel Dashboards	MS PowerPoint

CERTIFICATIONS
- Python for Data Science and Machine Learning Bootcamp
- SQL Essential Training
- NumPy for Data Science Beginners: 2023
- Data Visualization in Python Masterclass™ for Data Scientist