

# VISHAL MEHRA

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[data-science-web-dev-portfolio.vercel.app](https://data-science-web-dev-portfolio.vercel.app)

## PROJECTS

### Supply Chain Data Analysis & Optimization

- **Revenue & Profitability Analysis:** Identified top revenue-generating categories and regions, enabling data-driven prioritization of business focus and marketing strategy.
- **Inventory & Demand Optimization:** Analyzed product availability vs. sales to reduce stockouts, improve demand fulfillment, and optimize stock allocation for high-demand SKUs.
- **Supplier & Production Performance:** Evaluated supplier lead times, stock levels, defect rates, and production volumes to align manufacturing with demand and mitigate quality and inventory risks.
- **Logistics & Cost Optimization:** Assessed shipping carriers, transportation modes, routes, and total operational costs to identify cost-efficient and faster delivery strategies.
- **Business Impact:** Delivered actionable insights across inventory management, supplier selection, production planning, and logistics optimization, improving overall operational efficiency and profitability.

### Climate Change Data Analysis

- **Global Climate Data Analysis:** Analyzed multi-country climate data (15 countries, 2000–2023) across temperature, CO<sub>2</sub> emissions, sea level rise, forest cover, rainfall, and renewable energy metrics.
- **Climate Risk & Vulnerability Assessment:** Identified fastest-warming countries and regions most exposed to extreme weather events to support climate risk prioritization.
- **Renewable Energy & Emissions Insights:** Evaluated renewable energy adoption trends and correlated deforestation with rising CO<sub>2</sub> emissions, highlighting sustainability gaps and transition opportunities.
- **Sea Level & Rainfall Impact Analysis:** Assessed coastal and continental vulnerability to flooding, storms, and climate-related hazards using historical trend analysis.
- **Business & Policy Impact:** Delivered data-driven insights through visual dashboards to support climate policy decisions, disaster preparedness, and sustainable energy planning.

### Customer Segmentation & Behavior Analysis

- **Customer Behavior Analysis:** Analyzed customer purchasing patterns to improve revenue growth, retention, and identification of high-value customer segments.
- **RFM Segmentation:** Applied Recency, Frequency, and Monetary (RFM) analysis to segment customers into high-value, loyal, one-time, and at-risk groups.
- **Revenue Concentration Insights:** Identified the top 10% of customers contributing the majority of revenue and uncovered loyal but low-spending customers for targeted upselling.
- **Retention & Churn Analysis:** Detected at-risk customers using recency and frequency metrics to support personalized marketing and retention strategies.
- **Product & Revenue Insights:** Evaluated product-level revenue performance and visualized customer engagement and spending trends through dashboards to enable data-driven decisions.

### Retail Sales & Profitability Analysis

- **Revenue & Profitability Analysis:** Analyzed retail sales data to evaluate revenue, profit, and profit margins across categories, sub-categories, and time periods.
- **Category Performance Insights:** Identified high-performing categories and loss-making sub-categories to support strategic product and inventory focus.
- **Trend & Growth Analysis:** Performed monthly and quarterly trend analysis to assess revenue growth vs. profit growth and uncover performance gaps.
- **Profit Margin Optimization:** Calculated profit margins and quarter-over-quarter growth to highlight efficiency issues and underperforming segments.
- **Data Visualization & Reporting:** Built clear, interactive visualizations using Matplotlib and Seaborn to communicate insights and drive data-driven business decisions.

## SKILLS

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- **Languages:** Python, JavaScript, Java
- **Libraries & Frameworks:** Pandas, NumPy, Matplotlib, Seaborn, React.js, Express.js
- **Databases:** SQL, MongoDB
- **Tools & Technologies:** Node.js, Jupyter Notebook, Git

## EDUCATION

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### Netaji Subhas Institute of Technology, Patna

B.Tech - MechanicalEngineering - 7.33/10

2016-2020