LogiVista:

Pioneering Supply Chain Resilience Through Data Science Innovation

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Business Context

About LogiVista: Dynamic Solutions, Diverse Team

Our Founding Story: To Transform Global Supply Chains with Data Science & ML

LogiVista

LogiVista harnesses data-driven insights to navigate complexities, redefine resilience, and elevate supply chains to strategic assets, ensuring success in a dynamic business landscape

Utilizing a cutting-edge Prediction Model, LogiVista anticipates delays, identifies root causes, and offers strategic solutions to elevate delivery performance, enhance customer satisfaction, and drive revenue growth

RouteMaster

A tailored solution that predicts delivery delays, offering prompt alerts for high-risk routes, actionable remedies, and crucial geopolitical and macroeconomic insights

OptiNavi

A personalized solution that seamlessly detects delivery delays in priority shipping, optimizes shipping modes, reduces unnecessary costs, and offers unparalleled efficiency

EcoSavvy

Revolutionary add-on solution that tracks CO_2 emissions in deliveries, providing eco-friendly recommendations for optimal routes and methods aligning with sustainability goals

Our Business Model: Predictive Analysis, Tailored Subscription, and Imperative Add-On

LogiVista

Core Product: Proactive Prediction Model

At the heart of LogiVista's offering lies our cutting-edge **Prediction Model**, a pioneering solution designed to forecast late delivery risks. This **one-time priced** product operates on a scalable pricing structure, tailored to match the volume of data processed. This ensures affordability while accommodating diverse business needs.

Actionable Follow-up Services: RouteMaster & OptiNavi

Once our Prediction Model provides predictive analyses, LogiVista extends two distinct follow-up services, **RouteMaster** and **OptiNavi**, available through **subscription plans**.

Continuous Learning for Enhanced Performance

As clients engage in our subscription-based strategic services, a symbiotic relationship is nurtured. The longer the subscription, the more our Prediction Model evolves. This iterative learning process enhances the efficacy of recommended strategies, creating an upward spiral of performance improvement.

Add-on service: EcoSavvy

Our commitment to sustainability is integral. **EcoSavvy** tracks CO_2 in deliveries and suggests eco-friendly routes and methods. This **optional service** empowers eco-conscious supply chains.

Our Agile Team: Fusing Machine Learning, Strategy, and Logistics Expertise

In the heart of LogiVista beats a dynamic founding team, an amalgamation of versatile professionals:

Machine Learning Pioneers

LogiVista's essence lies in adept model crafting and data precision. These architects of our advanced prediction model are integral to our innovation.

Supply Chain Trailblazers

Nestled at the heart of LogiVista and equipped with unmatched insights, these industry experts unravel the complexities of global supply chain hurdles, steering us towards optimal resolutions.

Strategic Visionaries

LogiVista's scope surpasses mere delay predictions. Rooted in strategic consultancy expertise, LogiVista not only anticipates risks but also provides strategic remedies.

Global ESG Guardians

In the supply chain vocabulary, CO_2 emission shines resplendently. LogiVista meticulously monitors CO_2 emissions. Our resolute dedication to mitigating ESG risks fortifies the bedrock of sustainable supply chains.

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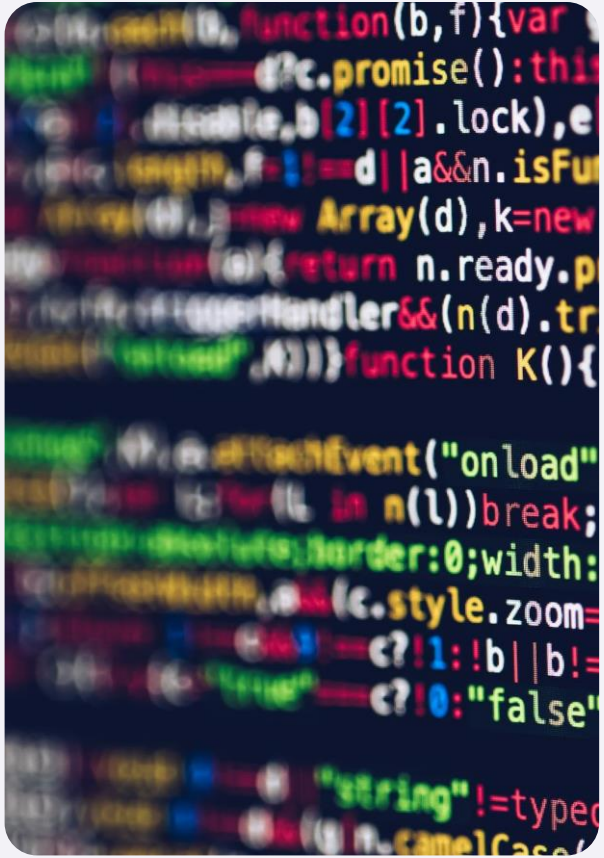
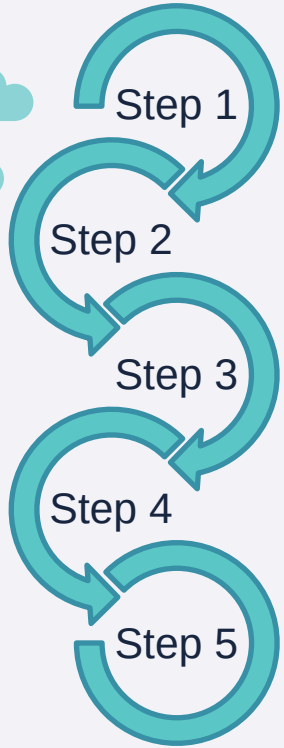
Scientific Approach

Precision in Chosen Model and Optimization



Model Selection, Construction & Optimization:
Transforming Data Into Predictive Insights



Import and Transformation
- **Data processing**: We begin by importing our dataset post-cleaning.
- **Machine Learning Aspect**: Transforming all dataset data into numerical form using **OneHotEncoding** and **LabelEncoder**. For instance, "America" becomes 0 or 1 or 2.

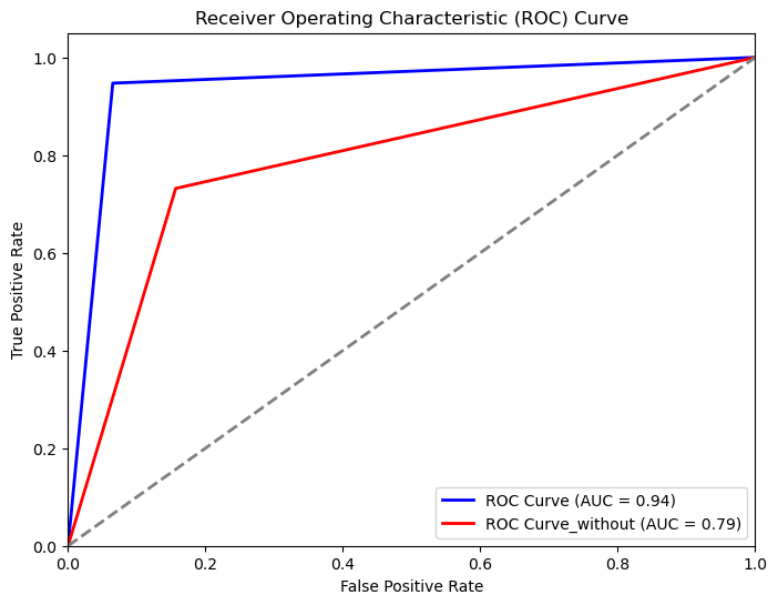
Splitting the Dataset
- **Preparing for training and testing**: We separated the dataset into two parts – **80%** for training (parameters and answers) and **20%** for testing (parameters only). AI will predict answers, which we'll compare with actual results.

Model Selection
- **Exploring model options**: We considered three models - **Logistic Regression** in scikit-learn `LogisticRegression()`, **Decision Tree** in scikit-learn `DecisionTreeClassifier()`, and **Random Forest** in scikit-learn `RandomForestClassifier(), testing each with and without new variables for accuracy comparison.

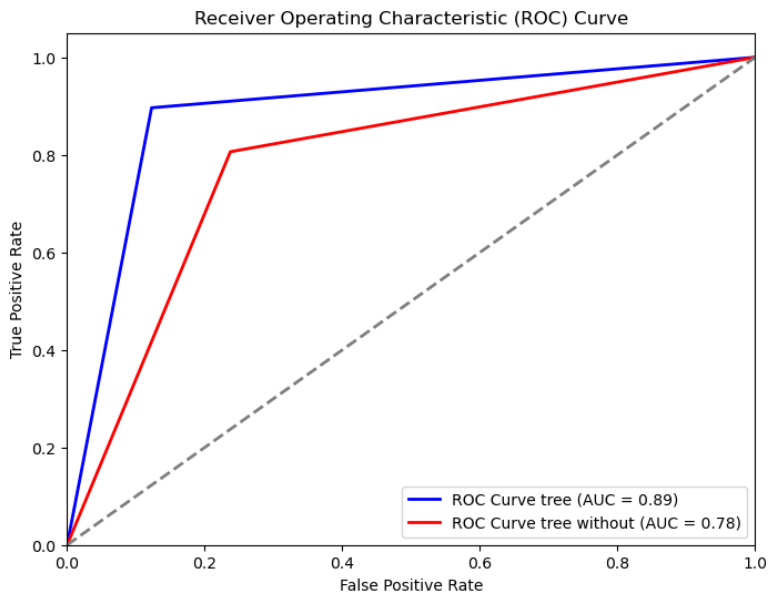
Model Performance
- **Evaluating accuracy**: We selected the Random Forest model due to highest accuracy achieved – 94%.

Model Optimization
- **Refining model performance**: We utilized feature extraction to pinpoint the top 20 variables that influence predictions, resulting in a **remarkable 94% accuracy** with these critical variables.
- **Continuation**: Ongoing exploration of the most relevant variables for further improvements.

Model Performance: Accuracy of Selected Model



Best-performing model: **Random Forest**, boasting a remarkable 94% accuracy



Comparatively, the second-best performing model, the Decision Tree Classifier, achieved an 89% accuracy rate

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Approach Transition

From Business Understanding to Scalable Deployment

Our Evolutionary Journey: From Business Understanding to Data Preparation

LogiVista

Business Understanding

LogiVista understands that efficient, robust supply chains are crucial for business success. We use data-driven strategies to deal with late deliveries, refine large datasets, and predict potential delay risks. Our strong belief in data-driven insights powers growth and resilience. By **blending our logistics know-how ("Logi") with a clear perspective ("Vista")**, we guide smart supply chain decisions. Choose LogiVista to boost your supply chain, where innovation meets sharp insights.

Data Preparation and Cleaning

As we endeavored to pinpoint variables closely associated with late deliveries, our primary objective was to unveil **meaningful correlations**. Initially, we found no direct correlations. Subsequently, we attempted to **create new variables by merging existing ones** to gain deeper insights into their relationships and their influence on delivery risks. Such as:

Origin-to-destination shipping route

Order-to-shipping time gap (in days)

Our Evolutionary Journey: Preparation Exploration and Visualization

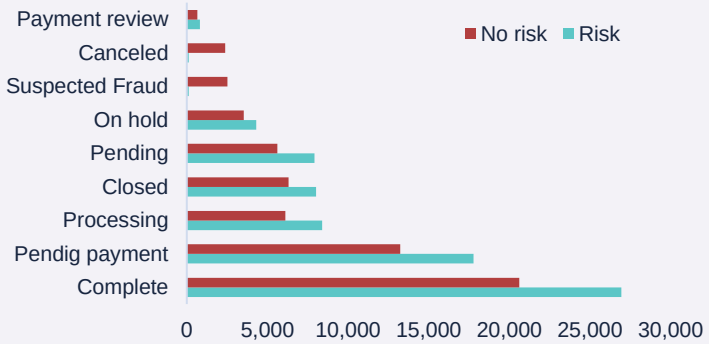
LogiVista

Data Exploration and Visualization

We initiated our data exploration with the aim of uncovering variables strongly linked to late delivery risks, embarking on an iterative journey guided by a trial-and-error approach.

Order status vs. Late delivery risk

We found that late delivery risks were consistent across all 9 order statuses, prompting concerns about data accuracy and timely status updates.



Shipping mode vs. Late delivery risk

We initially presumed that shipping modes represented the company's commitment level, anticipating a strong correlation with late delivery risks. Our findings, however, revealed that over 90% of first-class shipments and 75% of second-class shipments were linked to late delivery risks.

Time gap between order and shipping dates (in days) vs. Late delivery risk

Finally, we investigated whether the time gap between order date and shipping date impacted late delivery risk. Our hypothesis was that a longer gap might imply a higher potential for delay. After adding this variable to our dataset and constructing a random forest model, our analysis significantly improved model accuracy.

Our Evolutionary Journey: Model Building, Optimization to Deployment

LogiVista

Model Building and Optimization

In our model selection and optimization process, we delved into various variables to enhance our predictive accuracy for late delivery risks. Notably, we explored the impact of the time gap between order and shipping dates on these risks. After integrating this variable into our dataset and implementing a **random forest model**, we witnessed a remarkable transformation in our analysis. Our model's accuracy surged from an initial 79% to an impressive 94%, a testament to its effectiveness. This exceptional performance ultimately led us to select the random forest model over other alternatives, solidifying our decision based on the **unparalleled accuracy** it delivered **at 94%**.

Scale Up Strategy and Deployment

LogiVista's scaling strategy and deployment leverage its visionary business model to enhance supply chain efficiency. **At the core** is the advanced Prediction Model, offering adaptable pricing and ensuring cost-effectiveness for diverse needs. The company **extends its impact** through subscription-based services like RouteMaster and OptiNavi, providing real-time insights and optimizations for efficient deliveries. **Facilitating continuous learning** to enhance the Prediction Model's accuracy over time, LogiVista is committed to reshaping the supply chain landscape with innovation and **sustainability**.

Thank You

LogiVista: Innovation meets insight, where vision becomes reality.

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