DSCI 6007-Final Project

SMART SUPPLY CHAIN FOR E-COMMERCE

TEAM MEMBERS OF THE PROJECT

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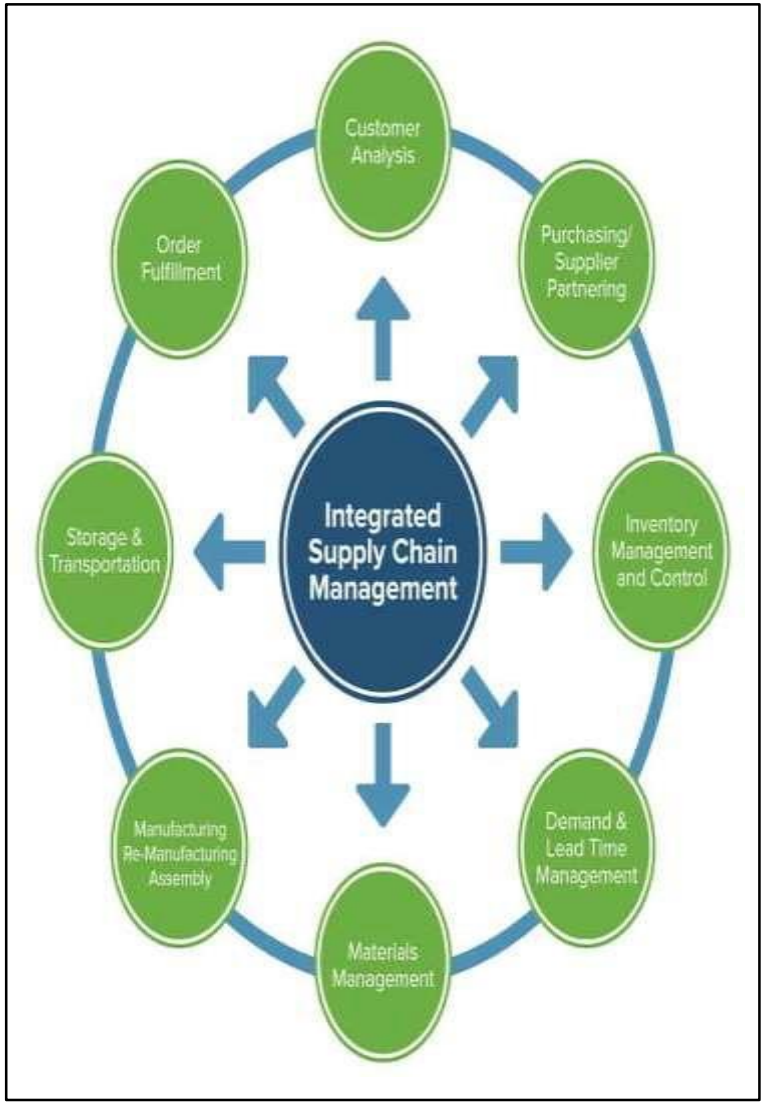
INTRODUCTION TO THE PROJECT

1. The surge in online shopping has revolutionized retail, necessitating agile supply chain solutions to meet customer demands swiftly and efficiently.

2. Conventional supply chains struggle with inefficiencies and delays, prompting the need for smarter, more adaptive systems to keep pace with e-commerce dynamics.

3. Leveraging cutting-edge technologies like real-time tracking, predictive analytics, and automation, smart supply chains enhance operational agility and customer satisfaction in the e-commerce landscape.



Business scenario overview

BUSINESS QUESTION:

How to increase customer satisfaction by predicting their delivery time in advance?

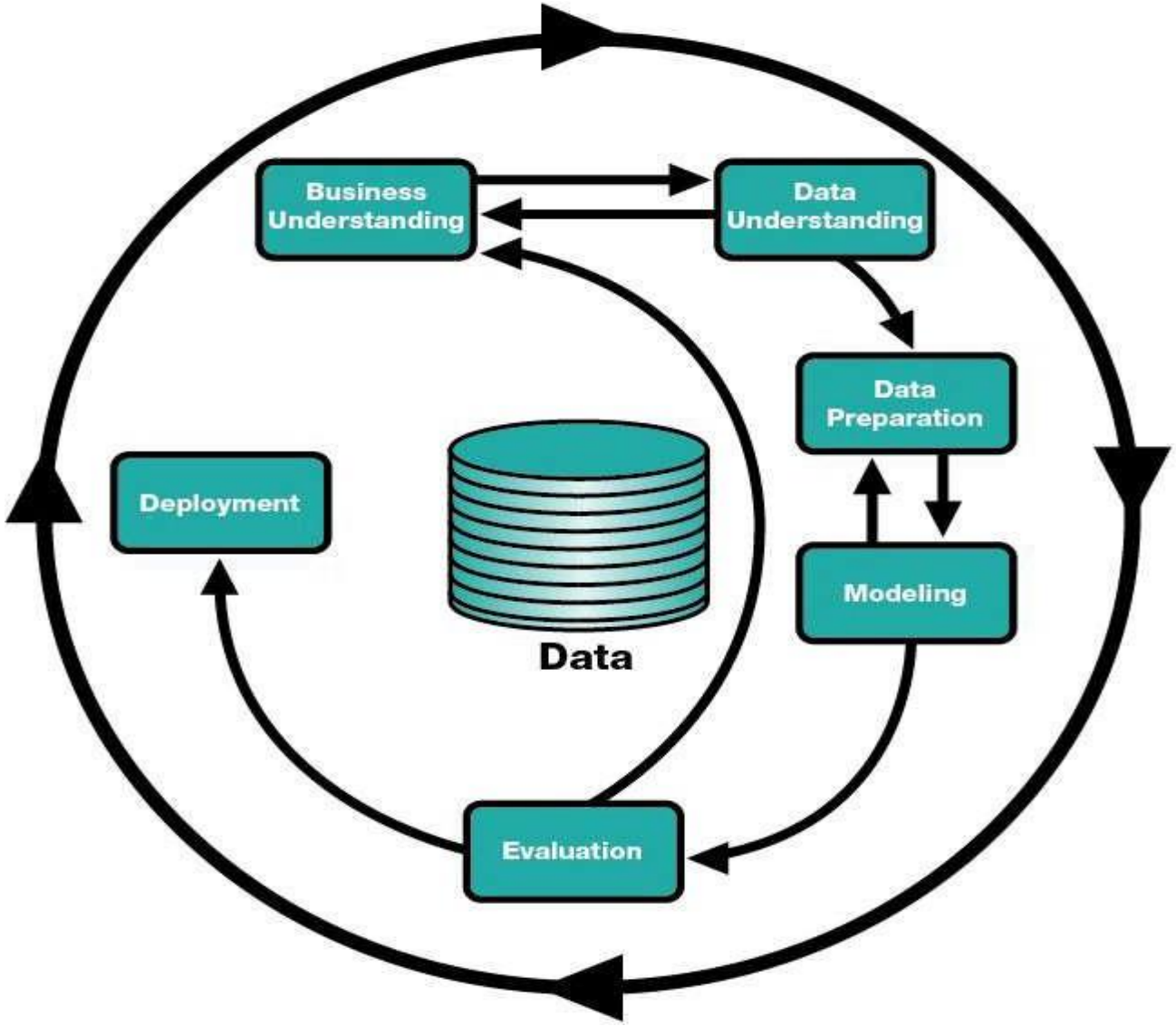
SUGGESTED SOLUTION:

- Based on various properties of an order (such as size, weight, destination, shipping method, etc.), a system sends a message to the customer informing them about the expected delivery time of their order.
- This communication helps manage customer expectations and provides them with important information regarding when they can expect to receive their purchased items.

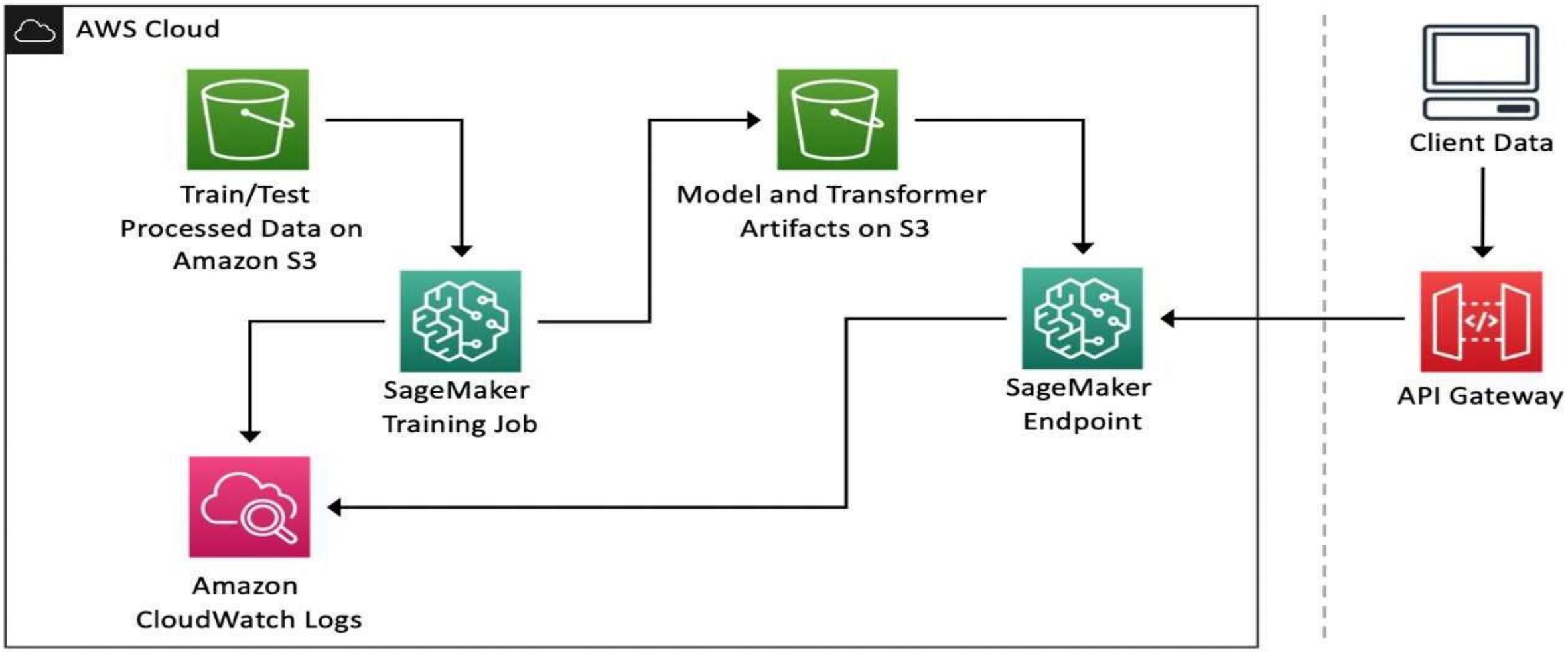
Solution overview

Amazon S3 Data Warehousing	Utilizing SageMaker notebook instances to access unprocessed datasets stored in Amazon S3, leveraging S3 as a solution for data warehousing.
Data Preprocessing Pipeline	Accessing and cleaning unprocessed datasets in Amazon S3 using SageMaker notebook instances, utilizing S3 as a reliable and scalable data storage solution. Performing exploratory data analysis (EDA) and applying data cleaning methods to maintain data quality and consistency.
Model Training with SageMaker	Leverage SageMaker's scalable infrastructure to build and train machine learning models on the preprocessed data, with S3 serving as a solution for data warehousing. Choose appropriate algorithms and models based on the specific e-commerce use case, dataset characteristics, and desired outcomes.
Deployment and Inference	Deploying the trained models using SageMaker's deployment capabilities to serve predictions or perform various tasks in real-time, with S3 continuing to support efficient and cost-effective deployment strategies. Ensure considerations such as latency requirements, scalability, and operational efficiency are addressed in the deployment process.

CRISP-DM Methodology



Architecture diagram of the solution



Lessons learned

- Optimizing model training and deployment pipelines for varying workloads.

- SageMaker documentation and online tutorials.

- Configuring and managing SageMaker training jobs and model deployment.

Continuous Improvement and Expansion of Use Cases

Demo

- Include the link to the demo materials.

https://docs.google.com/document/d/15iZ5fZl2q2qVChVyVn5Gs5S7sHun0cjy/edit?usp=drive_link&ouid=113039846763085870076&rtpof=true&sd=trueFinal Project-Technical Report Template.docx

Thank you