Predictive Analytics in the Financial Industry

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Gokulram Krishnan is a Manager of AI & Data at Ernst & Young LLP (US), with a distinguished career in transforming data into strategic insights across various industries, including financial services, healthcare, automotive, and energy. He specializes in AI-driven consulting for C-level executives, architecting robust data ecosystems, and leading high-impact data modernization initiatives. Gokulram has deep expertise in big data technologies, data engineering, and agile project delivery, consistently leading global teams to deliver enterprise-wide analytics solutions that enhance operational efficiency, customer experience, and risk management. His work enables organizations to harness data as a strategic asset for innovation and sustained growth. He is an **IEEE Senior member**.

Agenda

1

Introduction

Overview of predictive analysis in financial sector and the role of AI/ML

2

Architecture

Architecture, Landscape, and Adoption

3

Framework for Model Development

Proposed Approach and Implementation Framework

4

Q & A

Introduction

Introduction

- Data Analytics is a vast topic that requires defined goals and a targeted approach
- Artificial Intelligence creates business opportunities and manages risks efficiently
- The need for Artificial Intelligence enhances the process of feature selection
- Data Mining is a transformational process employed to transform raw data into a usable data product
- Fraud Analytics and Fraud Detection are subcomponents of Data Analytics and Data Science, with a touch of Business Analytics

Need for Predictive Analytics: In the Financial Industry

Competitive Landscape

Financial institutions face unprecedented competition to retain customers in an increasingly digital marketplace

Customer Profiling

Propensity models enable organizations to build comprehensive customer data profiles for targeted engagement

AI-Driven Feature Selection

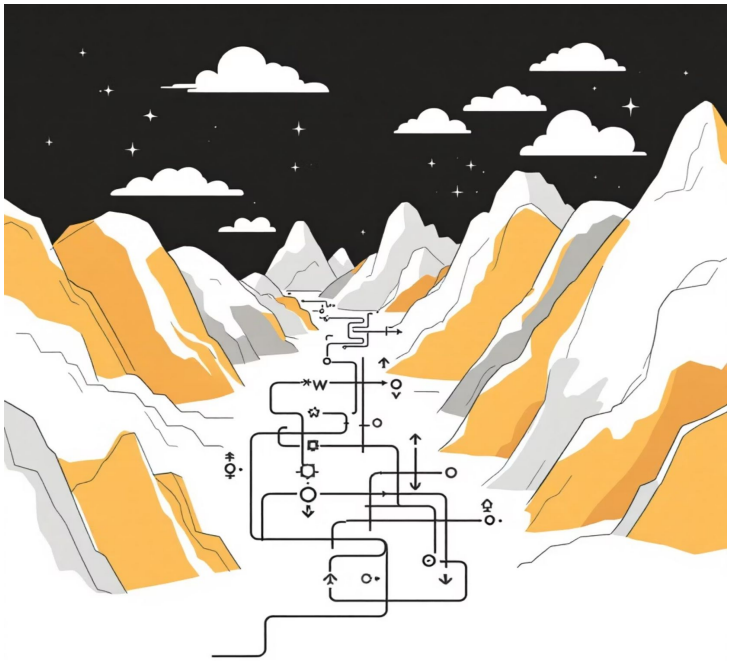
Artificial intelligence algorithms perform advanced feature selection to identify key behavioral indicators

Decision Support

Anomaly detection, predictive analysis, and comparative methodologies form the foundation of effective decision engines

Architecture

Pillars: In The Financial Industry



Data Intake and Consumption

- Evolution from data warehouses to cloud computing
- Transition from batch to real-time processing
- Proliferation of competing analytical tools

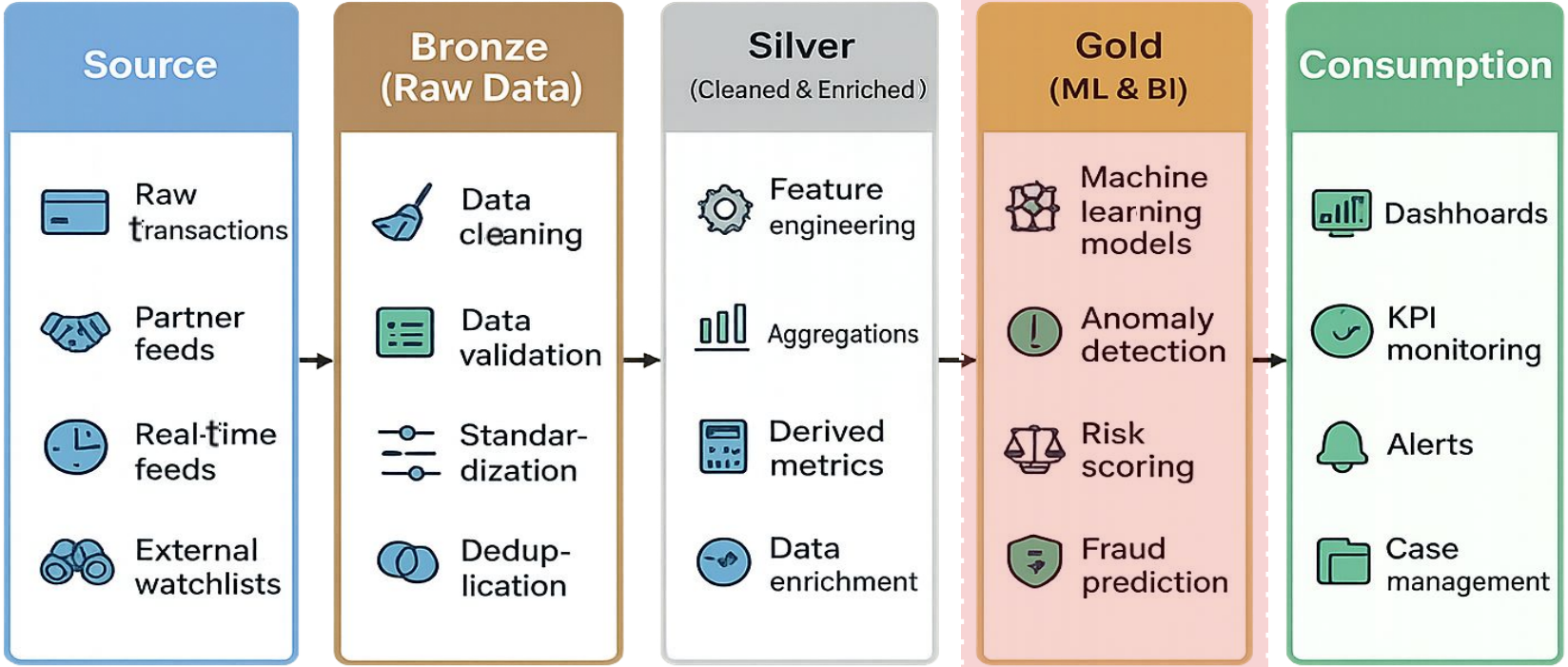
Data Privacy and Governance

- Alignment with regulatory compliance frameworks
- Elimination of unintentional bias in algorithmic decisions
- Maintaining governance across distributed systems

Scalability Challenges

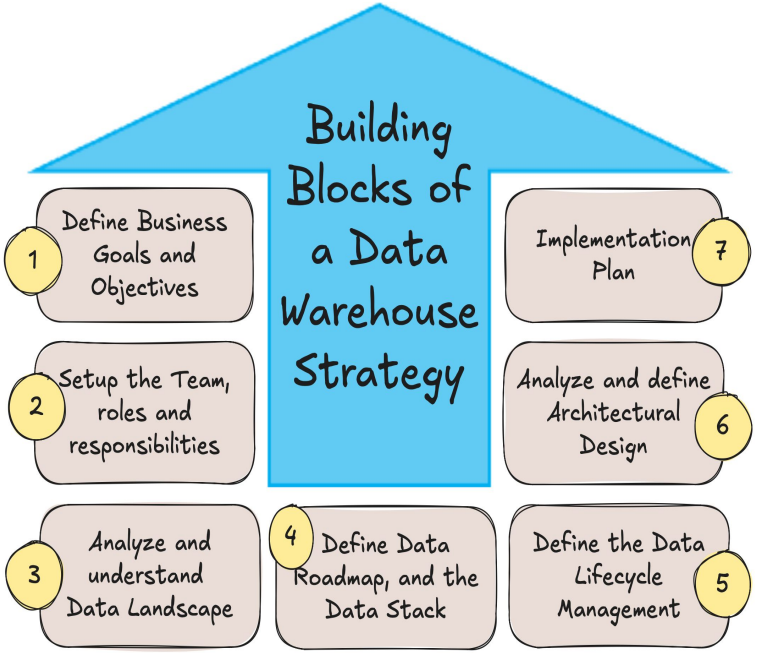
- Infrastructure requirements for production-grade models
- Computational constraints in real-time applications
- Resource optimization for large-scale deployments

Architecture and Approach



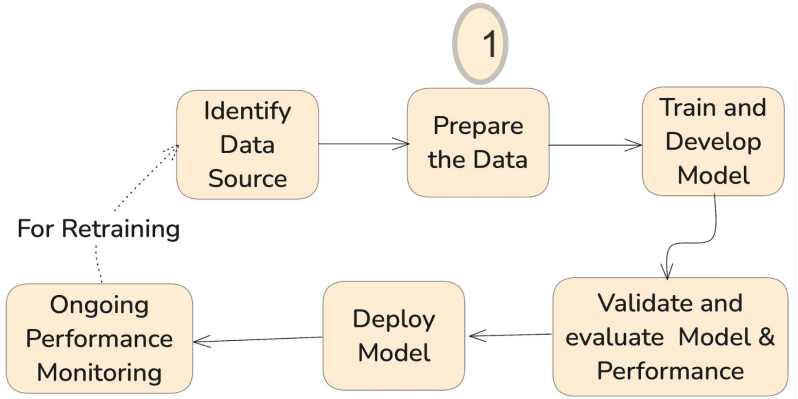
Framework for Model Development

Data Warehouse: Strategy



1. *The primary and critical step in building a data warehouse is to establish a clear business goal*
2. *Analyze and set the roles and responsibilities of the team, and define the ownership to set expectation*
3. *Analyze the current state, and based on the data footprint, evaluate the data requirements*
4. *Based on the data footprint analysis, define the data roadmap and the tools used to manage data*
5. *Define the Data transformation lifecycle, which includes the Extract, Transform and Load process*
6. *Architectural principles are important and will empower the implementation to be successful*
7. *The implementation plan and deployment should adhere to all the analysis done in previous steps*

Model Development and Deployment: Lifecycle



Data Sourcing and Data Quality

- Identify the source and perform Data sourcing steps
- Prepare the data to align to the business specification
- Execute the necessary data quality steps

Model Development and Training

- Data use prioritization for model development
- Selection of features from the Data Quality outcome data
- Model training using the identified features

Model Deployment, Monitoring and Retraining

- Validate model output and deploy model
- Monitor model execution and performance
- Model Performance score and model retraining

Q & A

Thank You
Hopworks Team, Jim, & Hiroo