AB INBEV: OPTIMAL PRODUCT RECOMMENDATION RANKING FRAMEWORK

Team Supermodels: Iris Brook, Emily Hahn, Mackenzie Lees, Pranav Girish

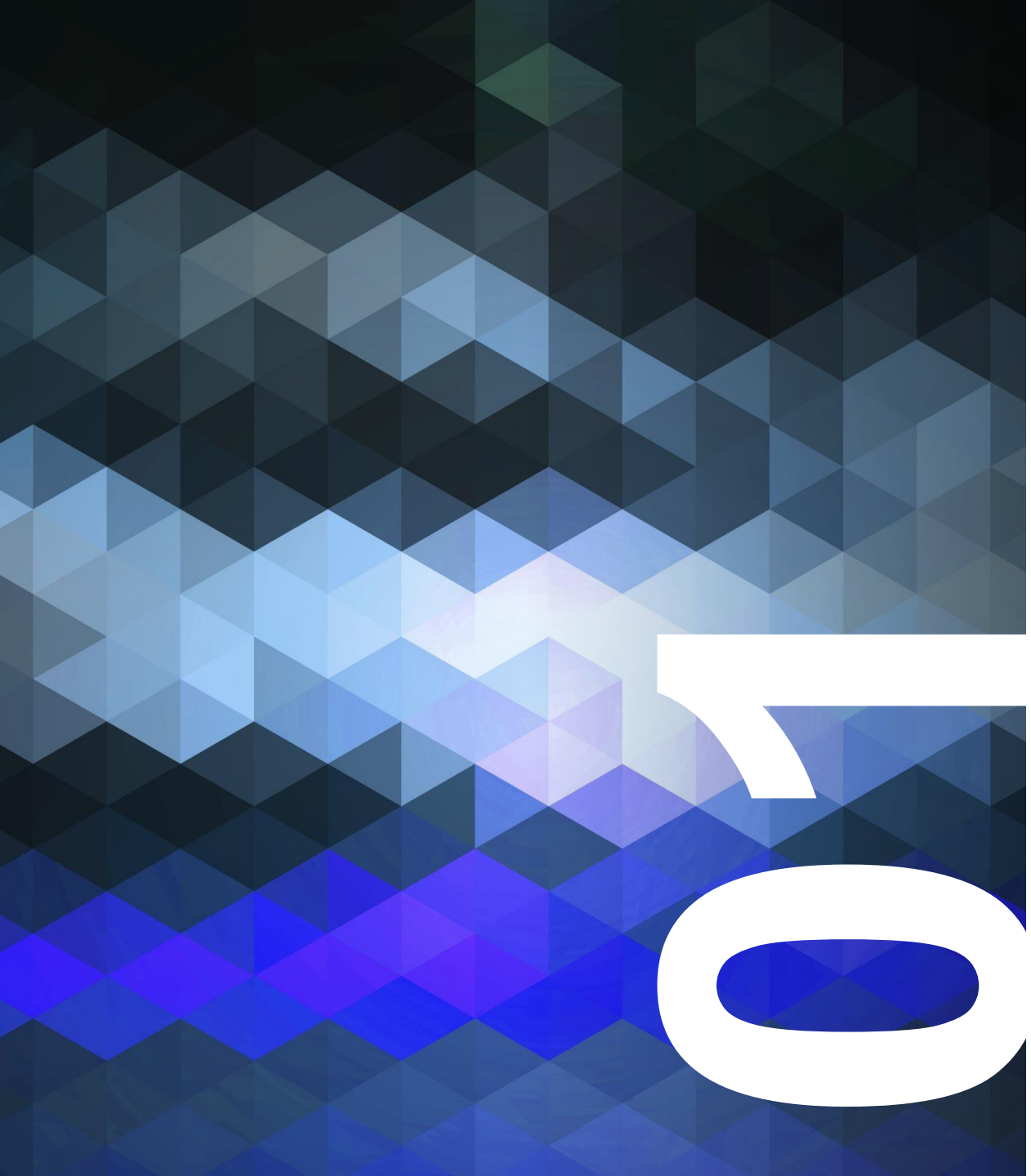
Mentor: Heather Fraser

AB InBev Team: Aditya Nanda, Rohan Jain, Subhro Mukherjee

MIT MANAGEMENT SLOAN SCHOOL

1. Our Journey
2. Final Model
3. Results
4. Discussion

MIT MANAGEMENT SLOAN SCHOOL



OUR JOURNEY

MIT MANAGEMENT SLOAN SCHOOL

THE PROBLEM:

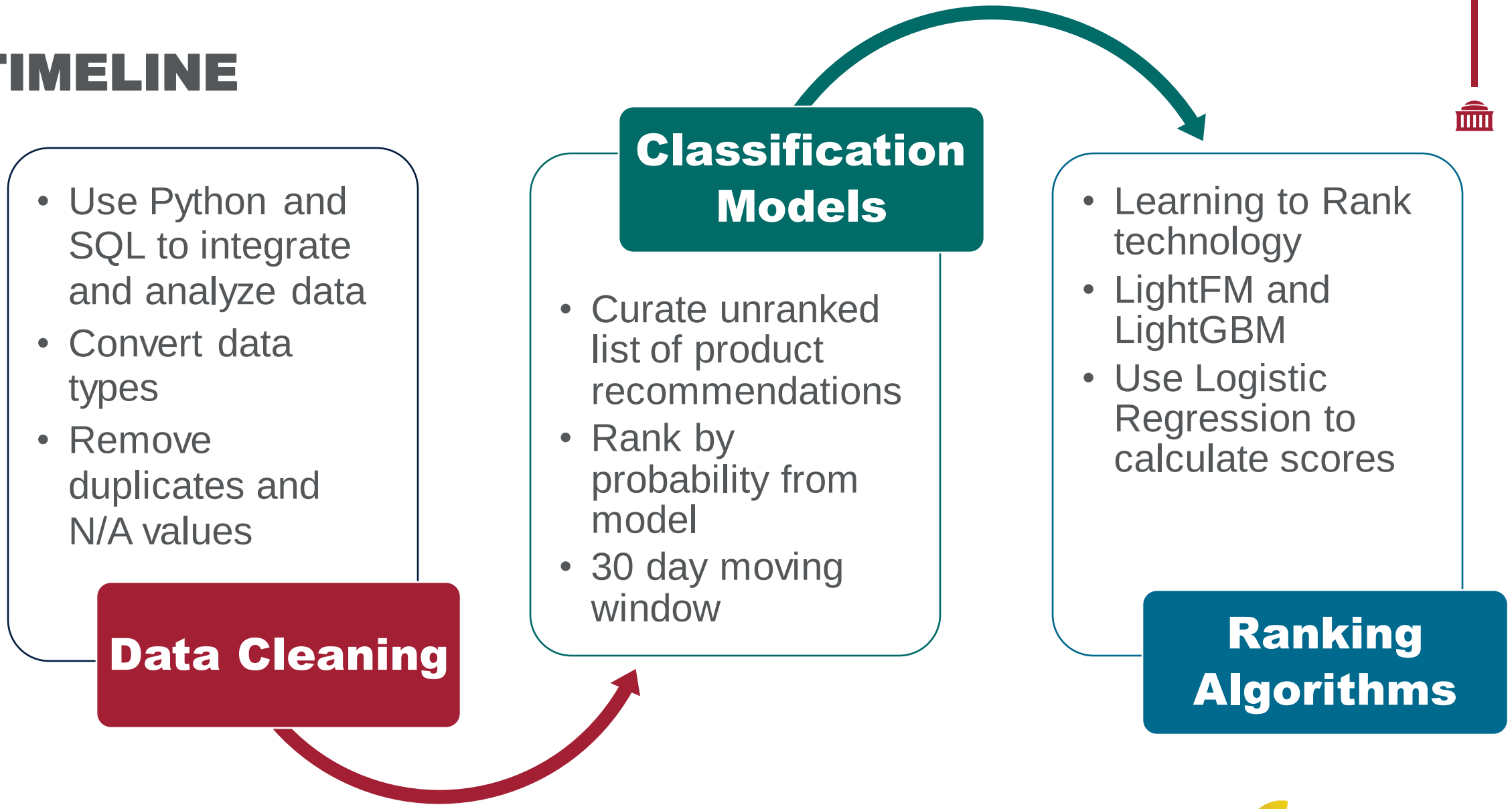
Task: Improve personalized and dynamic recommendations on BEES e-commerce platform using app behavior data

Method: Create a ranking algorithm for recommendations and assess precision

MIT SLOAN SCHOOL OF MANAGEMENT

MIT MANAGEMENT SLOAN SCHOOL

TIMELINE



MIT MANAGEMENT SLOAN SCHOOL

FINAL MODEL

MIT MANAGEMENT
SLOAN SCHOOL

Data Selection and Feature Engineering

Counts of interaction data and significant features (ex. product information)	Counts based on a 30-day rolling window

Data Preprocessing

Split data using time-split	Resampling using the Synthetic Minority Over-sampling Technique (SMOTE)

Ranking Using LightGBM

Logistic Regression for scores	Optimizes Normalized Discounted Cumulative Gain with LambdaRank

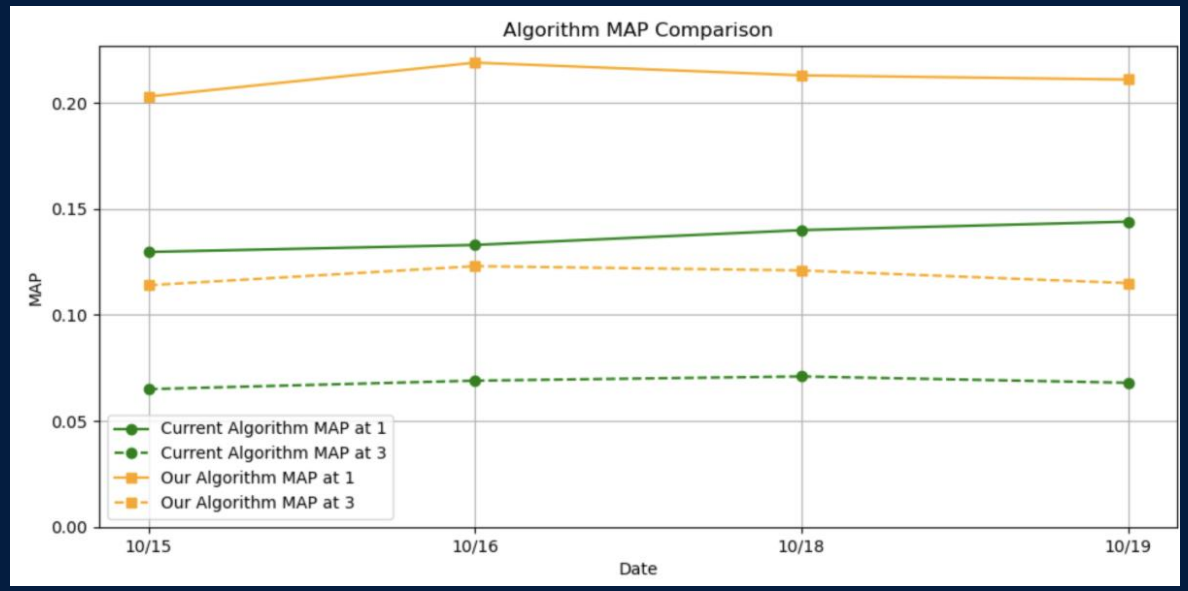
MIT MANAGEMENT SLOAN SCHOOL

RESULTS

MIT MANAGEMENT SLOAN SCHOOL

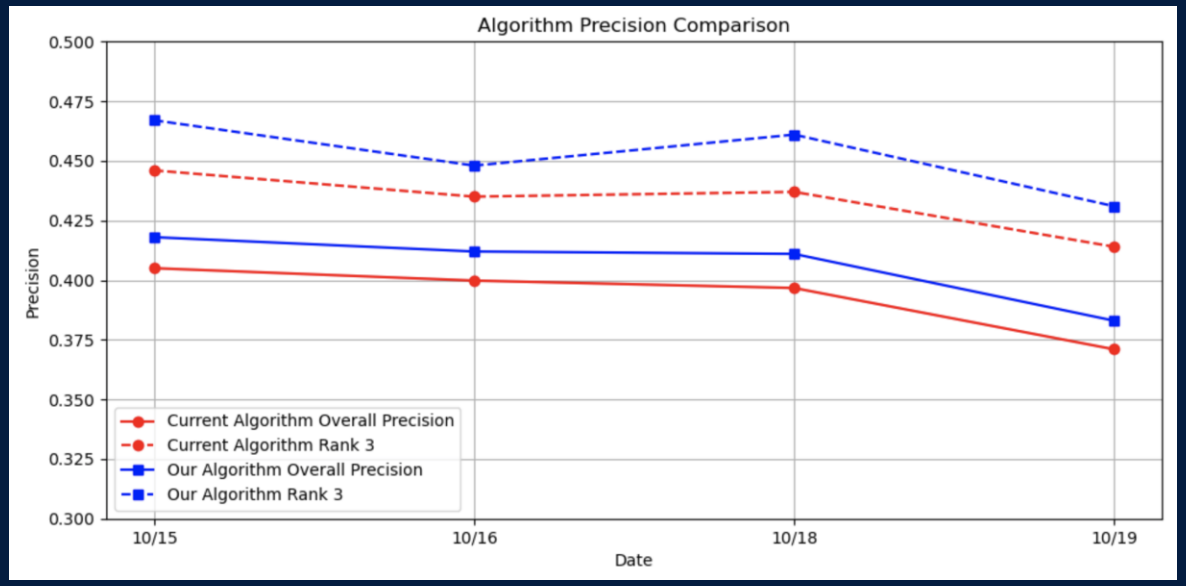
UPSELL

- Mean Average Precision (MAP):
  - **8% point** increase at **rank 1**
    - *Current model: 14%*
  - **5% point** increase at **rank 1-3**
    - *Current model: 7%*



SUGGESTED ORDER

- **1% point** increase in **overall precision**
  - *Current model: 30-40%*
- **2% point** increase in **rank 1-3 precision**
  - *Current model: 35-45%*



04

DISCUSSION

MIT MANAGEMENT SLOAN SCHOOL

DISCUSSION

Interaction Data

Customer interactions are correlated to purchase behaviors

Future Models

Integrate live interaction data into existing models for better predictions

A/B Testing

Understand impact of improved recommendations on sales and future customer interactions

MIT MANAGEMENT SLOAN SCHOOL

THANK YOU!
QUESTIONS?

Mackenzie Lees

mlees28@mit.edu

Emily Hahn

ech232@mit.edu

Pranav Girish

pranav7@mit.edu

Iris Brook

irisb211@mit.edu