



*Coca-Cola*

GROUP -7

# OUR TEAM



**NISHI  
TAYADE**



**GAUTAM  
NAIR**



**SANKET  
JANOLKAR**



**SARVESH  
KELUSKAR**

# BUSINESS PROBLEM

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**\$60 Million**  
Annually



**94.4%**  
Efficiency

# ANALYTICAL APPROACH

FEATURE  
ENGINEERING

BUSINESS  
INSIGHTS



# FEATURE ENGINEERING

## NLP

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- Functional\_Node\_2
- Functional\_Node\_3
- Functional\_Node\_4

## RISK SCORE

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- Lifespan Ratio
- Maintenance Frequency
- Duration Deviation

## RISK CLASSIFICATION

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- Low Risk
- Medium Risk
- High Risk

# DATA MODELLING

# TIME SERIES ANALYSIS

APPROACH



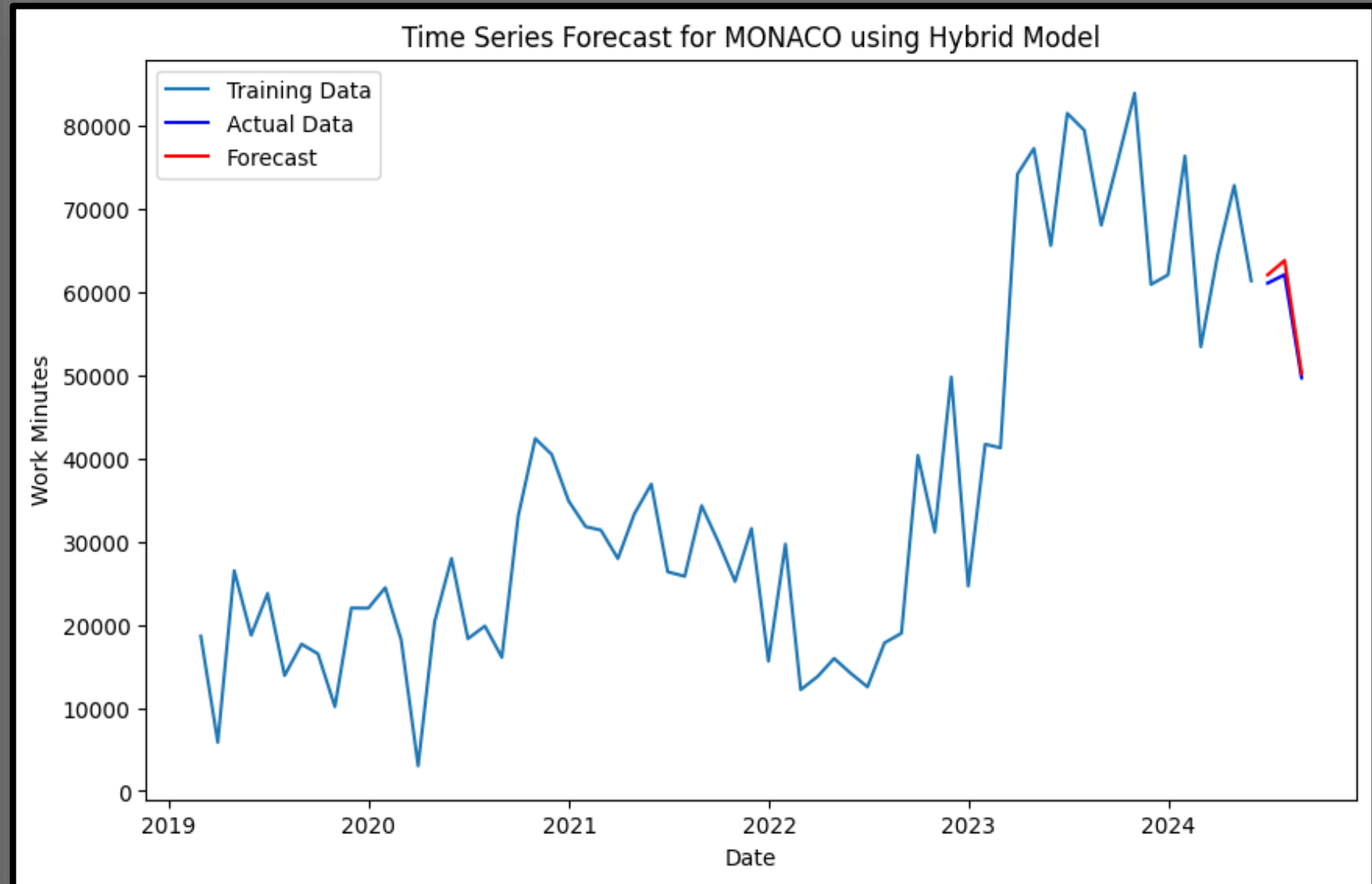
PREDICTIONS





# Time Series Analysis : Maintenance Optimization

## TIME SERIES ANALYSIS



# TIME SERIES ANALYSIS

APPROACH



PREDICTIONS



# TIME SERIES ANALYSIS

## **FORECAST**

- Six-month forecasts for work minutes across all locations.
- Drill-down analysis at the equipment level for precise predictions.

## **EQUIPMENT MAINTENANCE PREDICTION**

- Used Random Forest Regressor to predict maintenance intervals.
- Generated next maintenance dates for each piece of equipment.

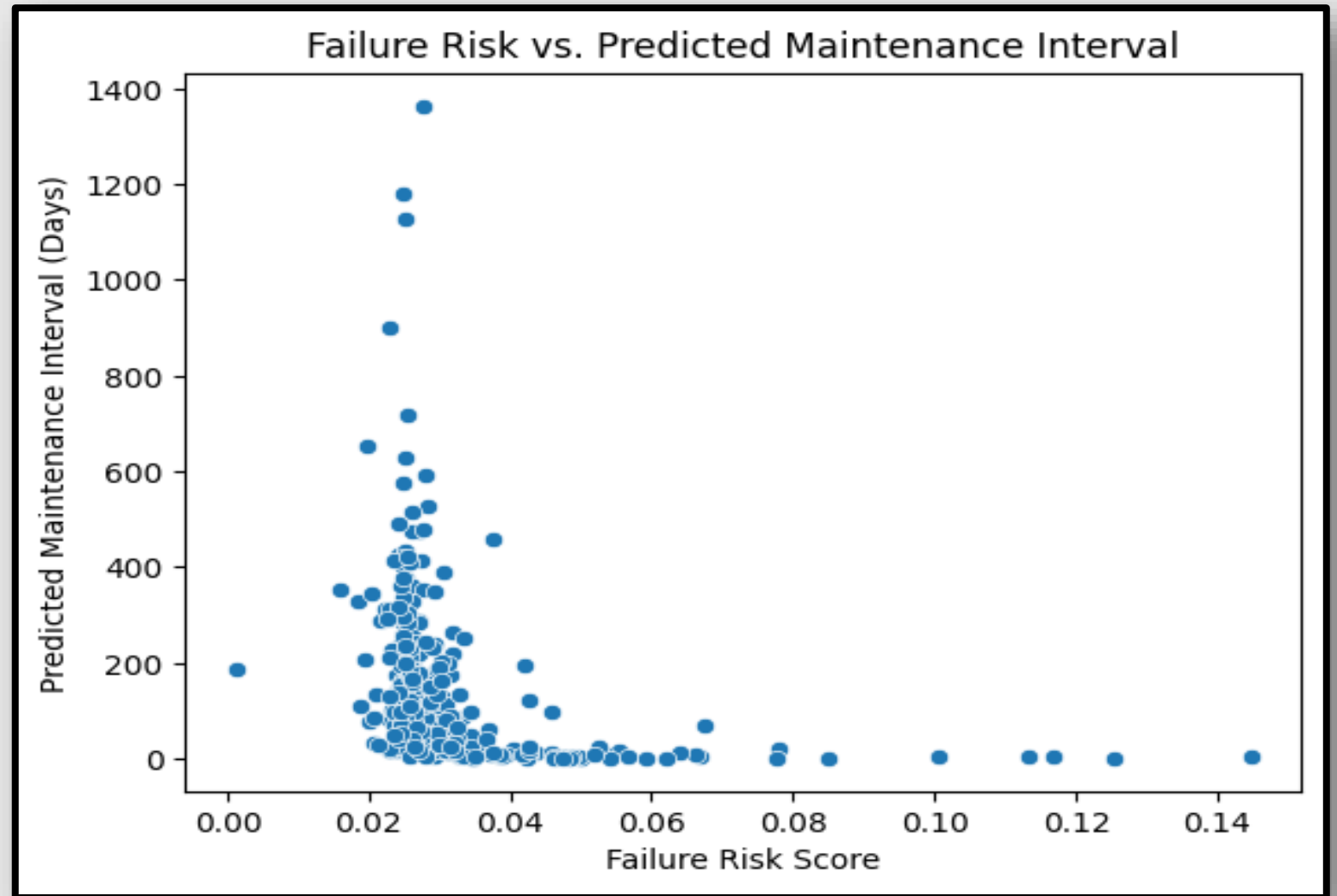
## **BUSINESS IMPACT**

- Enables proactive scheduling of maintenance activities.
- Reduces downtime and enhances operational efficiency.

## **OPTIMIZATION POTENTIAL**

- Focusing on high-risk equipment – Minimized Downtime
- Resource Allocation can be optimized.

# TIME SERIES ANALYSIS



High failure risk scores predict shorter maintenance intervals.

Insights and Forecast Application: <https://04ee-34-74-138-58.ngrok-free.app/>

## KEY RISK FACTORS

- Maintenance Frequency
- Risk Level
- Failure Risk Score

## SURVIVAL ANALYSIS

## APPROACH

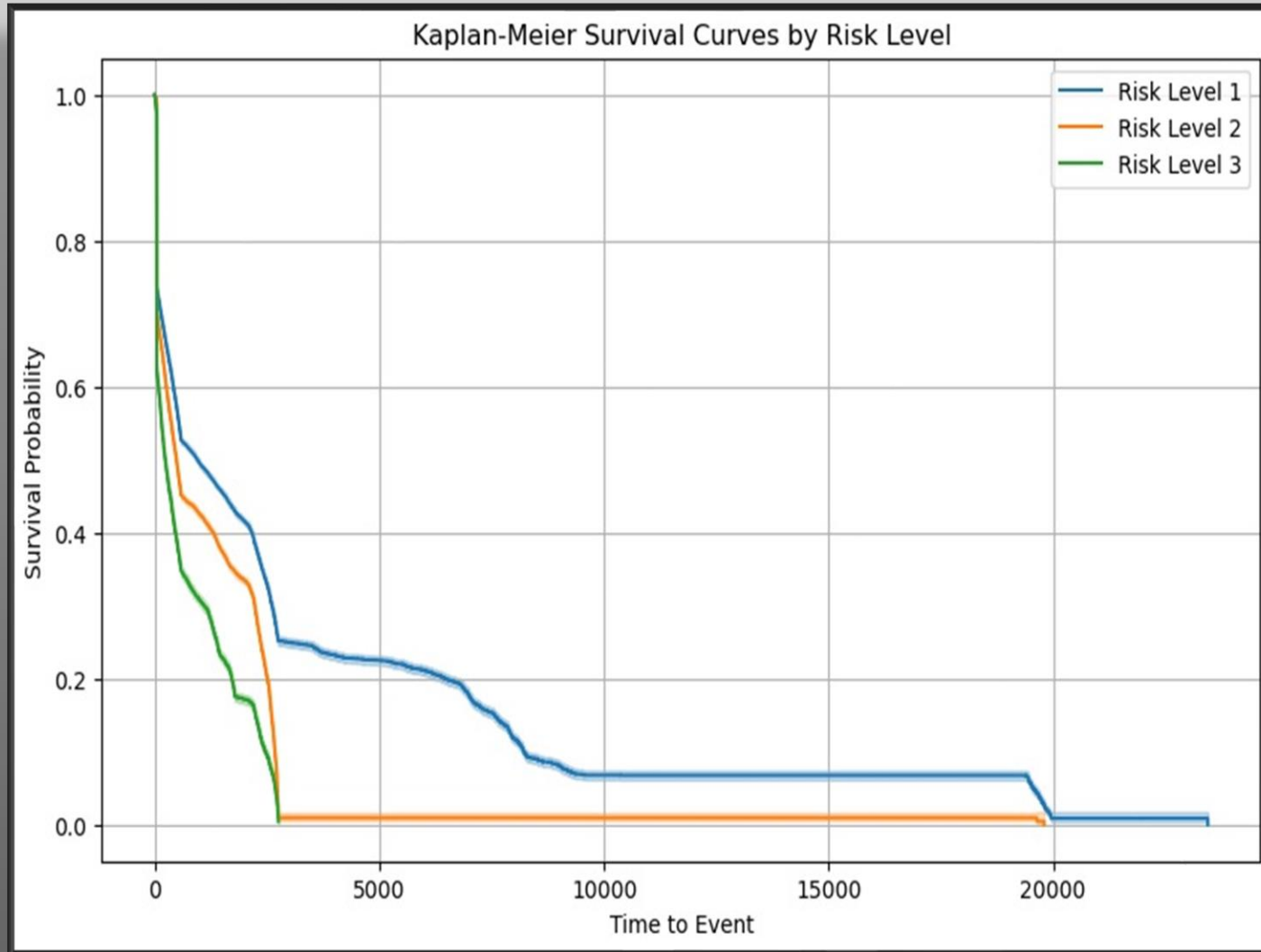
- Cox Proportional Hazards Model
  - Kaplan- Meier Model

NET PROMOTER SCORE



FAILURE RISK SCORE

# MEDIAN SURVIVAL TIME



DASHBOARD

HIGH RISK-Level 3

235 Days

MEDIUM RISK-Level 2

484 Days

LOW RISK- Level 1

953 Days

# FINANCIAL INSIGHTS



**\$13.6** Million



**\$27** Million



# RECOMMENDATIONS

- Updating Risk Model
- Integration of Survival Analysis with IoT
- Email Triggering to Management
- Inventory Management
- Staff Training

# LIMITATIONS

- Equipment Expiration Date
- Absence of Financial Data
- Absence of Inventory Data
- Data Discrepancy



THANK  
YOU