Group 6 Capstone Project

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Business Problem Introduction

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- To solve this issue we have developed Machine Learning models using historical IWC data to predict equipment time to failure.

- This enables proactive stocking of parts, faster repairs, reduced downtime, and increased productivity.

Planned vs Unplanned Maintenance

- Driving force behind our analysis.

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- Can we predict breakdowns?

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- Can we predict breakdowns?

- What is the difference?

Planned vs Unplanned Maintenance

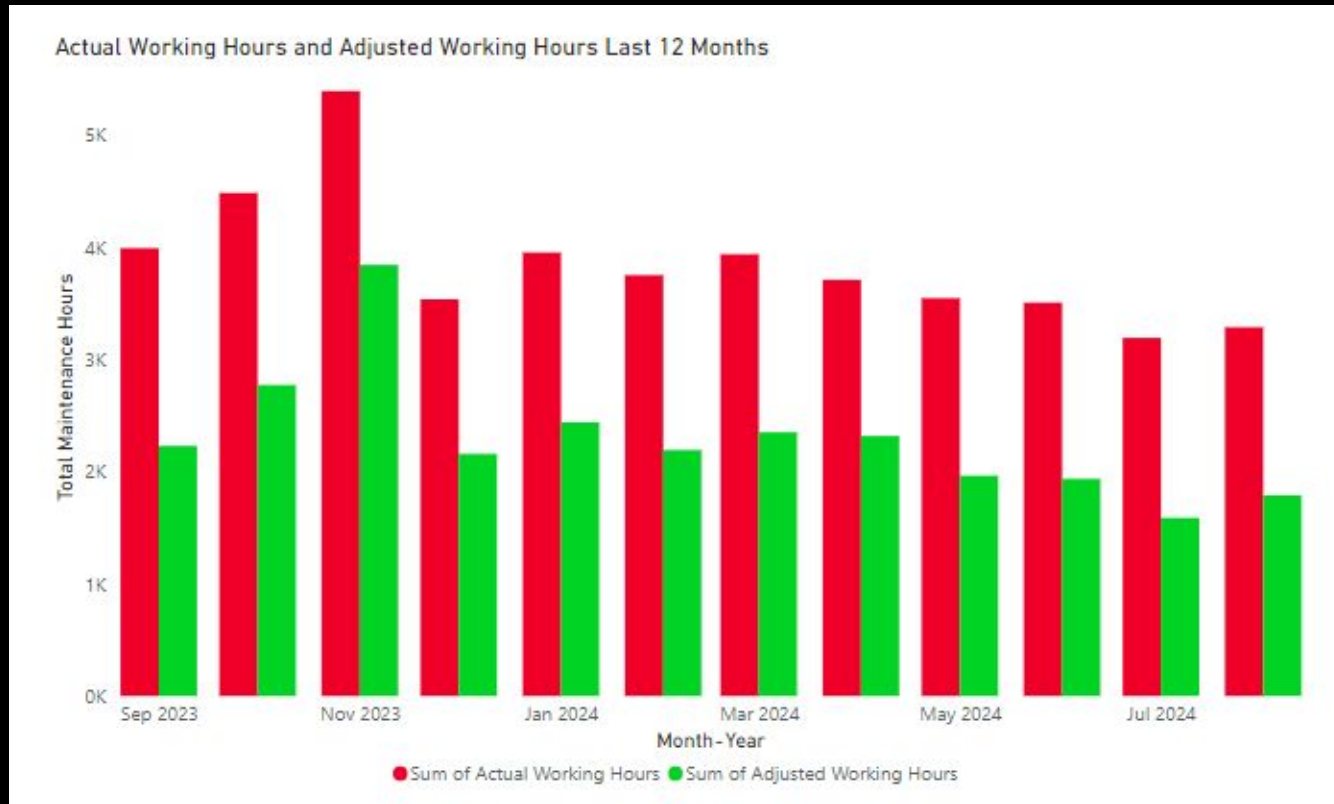- Driving force behind our analysis.

- Can we predict breakdowns?

69.8mins

- What is the difference?

Planned vs Unplanned Maintenance

Finding The Target

What's our Goal? ⟶

Finding The Target

What's our Goal? ⟶ Predict the Time to Failure

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What's our Goal? ➡️ Predict the Time to Failure

How can we Calculate it? ➡️

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What's our Goal? ➡️ Predict the Time to Failure

How can we Calculate it? ➡️ Time until the next Error

Were there Limitations? ➡️

Finding The Target

What's our Goal? → Predict the Time to Failure

How can we Calculate it? → Time until the next Error
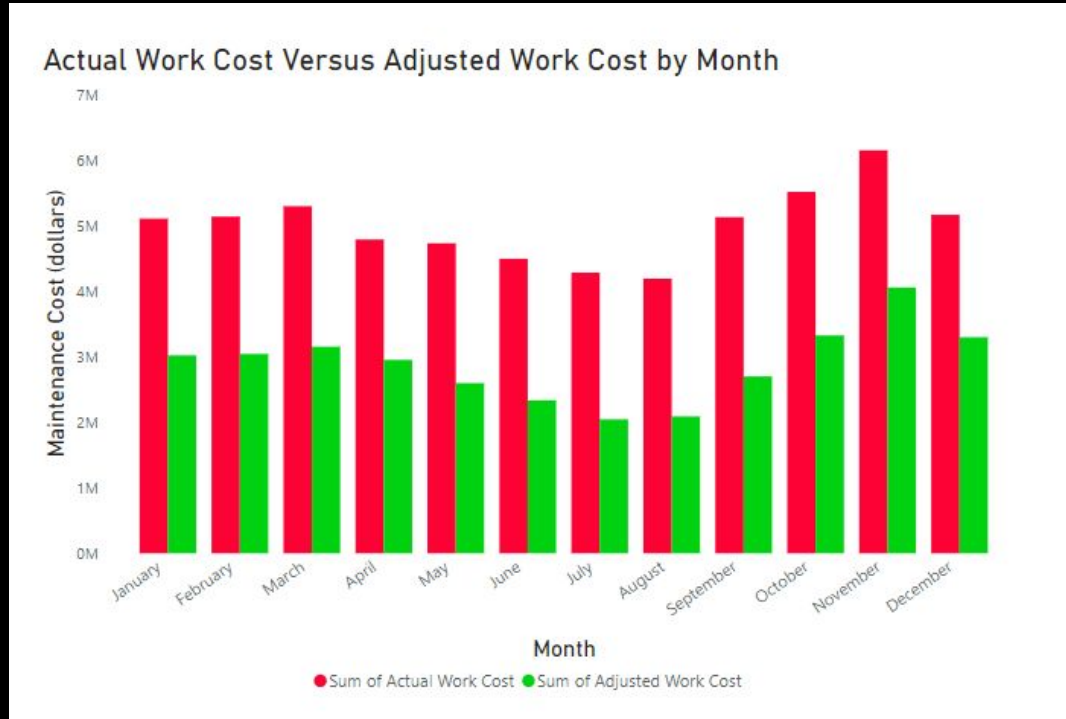
Were there Limitations? → Needed Function LOC

Model Performance

- Kaplan-Meier Model fitted using new Time to Failure variable

- Calculated Median Survival Time for each Functional_Loc-EquipmentID

- C-Index Score: 0.78

Model Implementation

- Apply Survival Times

- Plan Maintenance before breakdowns occur.

- Save time and money.

Actual Work Cost Versus Adjusted Work Cost by Month

Recommendations

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- Finally, will minimize Unplanned events, saving Swire time and money.