Water Pump Status Prediction

Function : #Customer Service | **Industry :** #Utility

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Goal

- To predict the status of the water pump at any given time.
- To forecast the status of the machine beforehand.
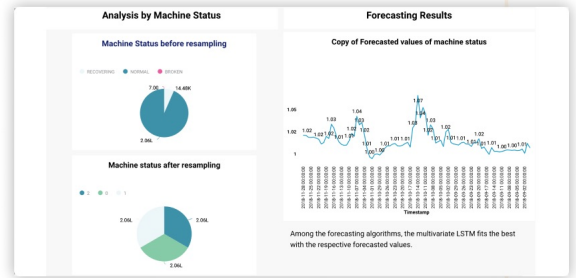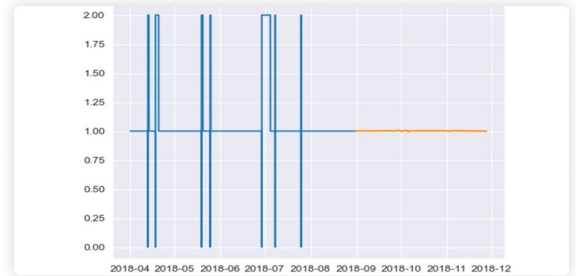
Technique

- Statistical Analysis
- SMOTE
- Predictive Maintenance Analysis
- Time Series Forecasting
- Long short-term memory networks (LSTM)
- Visualisation

Impact

- Breakdown of water pumps are very expensive and could be fatal .
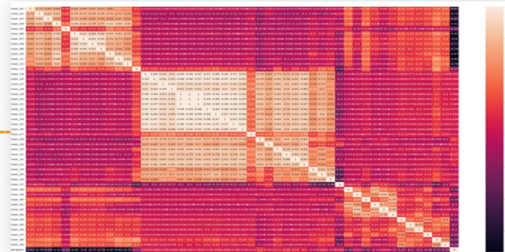- Pumps can be stooped in advance to avoid breakdown.

Result

Among the forecasting algorithms, the multivariate LSTM fits the best with the respective forecasted values.

Value Points

Understand the **what, why, when, where** & **how**
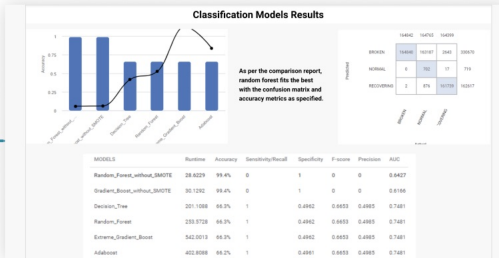
Exploratory Analysis

Exploratory Data Analysis On The Preprocessed Data To Derive Meaningful Data Insights

Heat map illustrating correlation among attributes

Exploratory data analysis enables business owners to derive meaningful insights and making better data-driven decisions as opposed to intuitive ones.
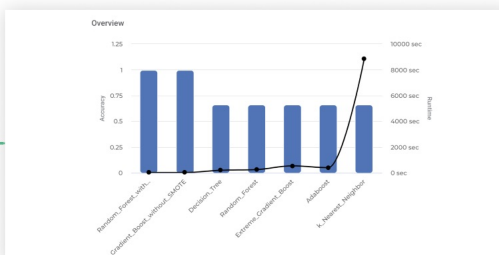
Sampling Techniques

Resampling techniques results using SMOTE to balance the classes yielding better classification results.

Resampling techniques using SMOTE to balance the classes helps in yielding better classification results and improve operational efficiency.

Classification

Applied multiple classification algorithms and then based on accuracy metric best fit is identified
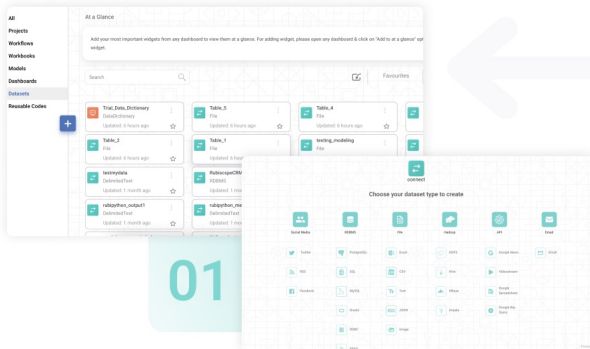
Classification analysis in water pump status monitoring has the potential to improve operational efficiency, reduce costs, enhance customer satisfaction.

Multi Persona DSML Platform

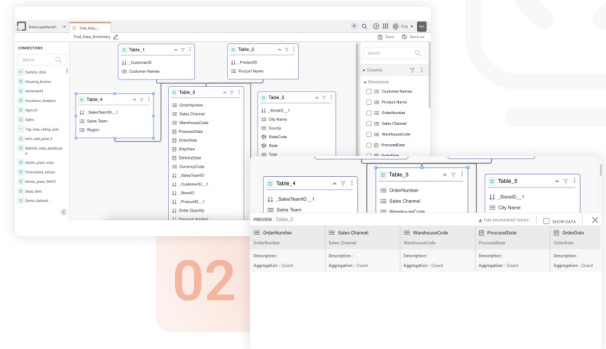For all your data needs- Data Engineering, Data Science, Data Visualisation, IoT

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Data Connect

01

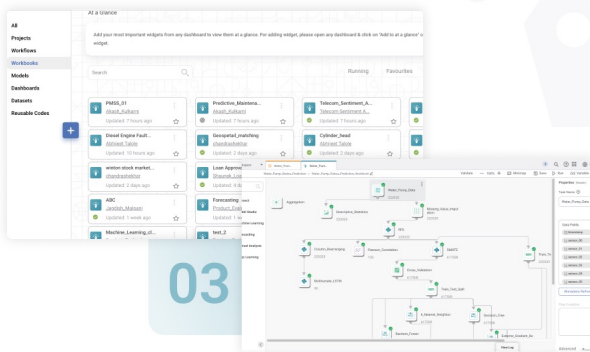Data Source: Water pump status

Metadata Manger

02

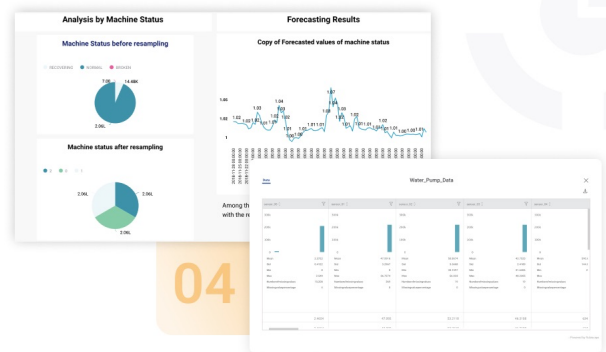Comprehensive Data Operations, encompassing Metadata Management

Model Studio

03

Modelling, encompassing the selection and configuration of models

Visualisation

04

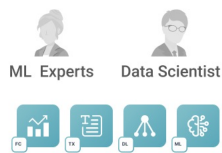Viz Ops, Illustrating The Core Trends And Graphical Representations

Agile Data Science
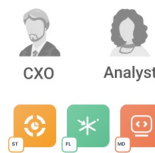
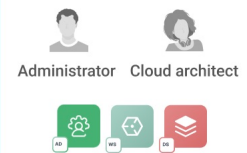Encapsulating **best practices**, tools and **methods**

Data Ops	ML Ops	Viz Ops	Tech Ops
Data Architect Data Manager	ML Experts Data Scientist	CXO Analyst	Administrator Cloud architect

Ideate	Acquire	Explore	Model	Present	Deploy
• What is the **goal**? • How can you leverage the **data**? • What do you want to **predict**?	• How is data **sampled**? • Which data is **relevant**? • Any data **privacy** issue?	• Plot the **data** • Are there **anomalies**? • Are there **patterns**?	• **Build** a model • **Fit** the model • **Validate** the model	• What did we **learn**? • Do the results make **sense**? • Can we tell a **story**?	• Where to **Deploy**? • What is the **Structure** of Pipeline? • How to **Optimise** and **Scale**?