Project Idea: Manufacturing Downtime project

Data Name: Metadata: AI4I 2020 Predictive Maintenance Dataset

About data

This dataset represents the operating conditions of industrial machines and whether they failed. It is synthetic, but it mimics real-world data used in predictive maintenance: predicting and preventing machine breakdowns before they occur.

Number of rows: 10,000
Number of columns: 15

Metadata

Column	Description
UDI	Unique identifier for each record. Just a running number.
Product ID	Identifies the product being manufactured, including its quality grade (Low, Medium, High).
Type	Quality grade of the product: L = Low, M = Medium, H = High.
Air temperature [K]	Temperature of the surrounding air (in Kelvin).
Process temperature [K]	Temperature inside the machine during operation (in Kelvin).
Rotational speed [rpm]	How fast a rotating part moves, in revolutions per minute.
Torque [Nm]	Twisting force applied by the machine, in Newton-meters.
Tool wear [min]	How long the tool has been used, measured in minutes.
Machine failure	Did the machine fail at this moment? 0 = No, 1 = Yes.

TWF (Tool Wear Failure)	Did the machine fail due to worn-out tools?
HDF (Heat Dissipation Failure)	Did the machine fail because heat couldn't be removed properly?
PWF (Power Failure)	Did the machine fail due to power issues?
OSF (Overstrain Failure)	Did the machine fail because of overstrain (too much force on a worn tool)?
RNF (Random Failure)	A failure that occurs randomly, not explained by conditions.
Date/Time (added)	Timestamp of when the record was taken.