**PREDICTIVE MAINTENANCE**

* Predictive maintenance (PdM) uses data analysis to identify operational anomalies and potential equipment defects, enabling timely repairs before failures occur. It aims to minimize maintenance frequency, avoiding unplanned outages and unnecessary preventive maintenance costs.
* Predictive maintenance (PdM) uses condition monitoring tools and machine learning (ML) algorithms to predict potential failures, faults, and deterioration for assets and equipment.
* One of the main benefits of predictive maintenance technology is that by taking action before equipment fails, organizations can mitigate downtime risk and ensure high levels of consistent operational efficiency and product quality. For the business, that means better insight into internal process timelines, which leaders can then use to more accurately set customer expectations.
* Predictive maintenance relies heavily on data collection and analysis. And the speed at which that data can be collected and analyzed is critical.
* In general, operational data is collected from equipment via sensors. That data helps establish baselines for optimal or peak operation, and the technology team can use this to establish acceptable ranges for future operations.
* Real-time data analysis comes next. The technology team can compare equipment data to the established and acceptable ranges, and when something falls out of the band indicating a trend toward failure or downtime, alerts sound so the appropriate people can take action.

P260\_Classification of Machine Failure:

**Business Objective:**

In industries, re-evaluating their maintenance schedules is necessary for this digitalization era as smart as possible for production enhancements. Predictive maintenance offers great opportunities to businesses for a smarter and more digital facility. Using this dataset our objective is to predict when the machine is more likely to fail.

**Data Set Details:**

-The dataset contains 10000 observations in 14 columns