# Lab 1

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## Marketing

**Use Case**: Predict customer churn

**Business Problem:** Marketing teams need to know which customers are likely to stop using their product or service so they can take action to retain them.

**How AI Helps:** AI can analyze customer behaviour (clicks, purchases, and email activity) to predict churn.

**Data Used:** Customer purchase history, website activity, email engagement, and support ticket data.

**Suitable Learning Type:** Supervised Learning because we have labelled data (churned vs. retained customers) and want to predict a specific outcome.

## HR

**Use Case:** Resume screening and job matching

**Business Problem:** It is time-consuming to manually screen hundreds of resumes to find the best-fit candidates.

**How AI Helps:** AI models can rank applicants based on how closely their experience and skills match a job description.

**Data Used:** Resumes, job postings, interview feedback, and hiring outcomes.

**Suitable Learning Type:** Supervised Learning since the system can be trained on past hiring decisions and outcomes.

## Finance

**Use Case:** Fraud Detection

**Business Problem:** Detecting fraudulent transactions quickly to reduce financial loss.

**How AI Helps:** AI models can spot unusual spending patterns in real-time and flag potential fraud.

**Data Used:** Transaction history, device data, location data, time-of-day usage, etc.

**Suitable Learning Type:** Supervised Learning because labelled examples of fraud vs. non-fraud can be used to train the model.

# IT

**Use Case:** Threat detection in cybersecurity

**Business Problem:** IT teams need to detect suspicious activity before a data breach happens.

**How AI Helps**: AI can learn what "normal" network activity looks like and flag anything unusual.

**Data Used:** Network logs, login patterns, IP addresses, system access times.

**Suitable Learning Type:** Unsupervised Learning since cyber threats are constantly changing and not always labelled, anomaly detection can spot deviations from the norm.

# Operations Management

**Use Case**: Inventory demand forecasting

**Business Problem:** Overstocking leads to waste, while understocking causes delays and missed sales.

**How AI Helps:** AI can predict future demand based on trends, seasons, and past sales.

**Data Used:** Sales data, seasonal trends, supplier lead times, and historical demand.

**Suitable Learning Type:** Supervised Learning since the model learns from past sales patterns to predict future needs.