

## Offline VS Online Learning:

### Offline Learning vs Online Learning (Machine Learning Types)

Feature	Offline Learning (Batch Learning)	Online Learning
<b>Definition</b>	Model is trained on the <i>entire dataset at once</i>	Model learns <i>continuously</i> as new data arrives
<b>Training Style</b>	Batch-wise, one big training step	Incremental, small updates
<b>Data Requirement</b>	Requires full dataset before training	Does not require full dataset; learns piece by piece
<b>Speed</b>	Slower to train (big batches)	Fast updates (small chunks)
<b>Memory Usage</b>	High (stores whole dataset)	Low (only small data chunks needed)
<b>Adaptability</b>	Cannot easily adapt to new data; needs retraining	Easily adapts to new data in real-time

<b>Use-Case</b>	Stable data that doesn't change often	Streaming or rapidly changing data
<b>Examples</b>	House price prediction, medical diagnosis	Stock price prediction, fraud detection, online ads