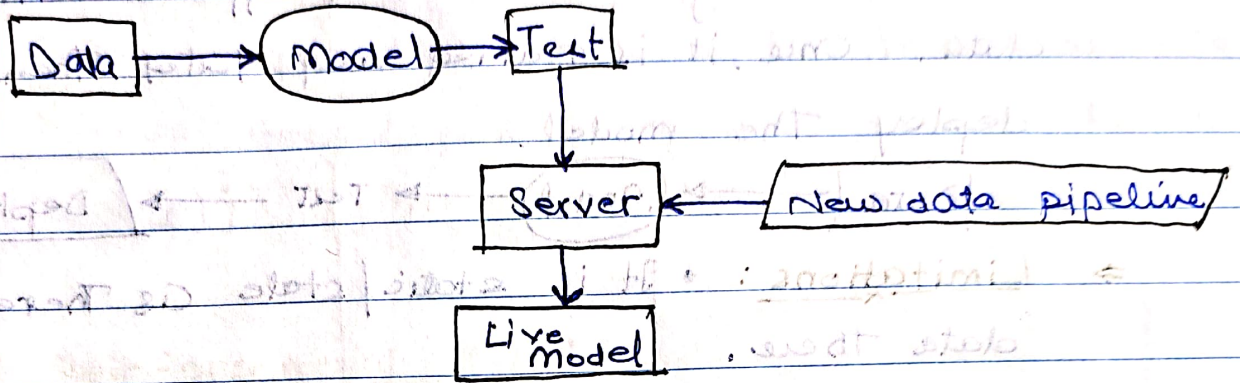


(14) Day-5: Types of Machine Learning-3 (19 Dec, 24)

Online Machine Learning:



→ We keep updating our model directly on the server as new data comes.

Examples: i) Chatbots (Alexa, Siri),
ii) AI keyboards, iii) Youtube

⇒ When to use online ML?

- When the concept is volatile (social media, e-commerce, stocks etc.)
- To keep it cost-effective (as we work on small chunks of data)
- Faster solution is required.

⇒ How to implement?

- Use direct methods via libraries [SGDRegressor] etc.
- Use library such as 'River', 'Vowpal Wabbit'.

⇒ What should be the 'Learning Rate'?

Learning rate ⇒ How fast or slow we feed the model with new data.

* It depends on business requirements.

⇒ Out of Core Learning : When data is so huge that we can't train at once, so we use online ML method.

⇒ Disadvantages of Online ML:

1. Tricky to use : Expectations with models aren't met easily as there are many factors.

2. Risky : The model is prone to failure if wrong data is fed or hacked.

Batch Learning v/s Online Learning

Complexity	Less complex	Dynamic complexity over time
Computation	One-time computation over period	Continuous computations
Production	Easier to implement	More difficult to implement
Applications	Image Classification or anything where data is constant for long periods.	Used in finance, health etc. where new data patterns are constantly coming.
Tools-used	E.g → Scikit, Tensorflow, Pytorch, Keras etc.	E.g → MOA, SMOA, scikit-multiflow, stream DM etc.