Untrained AI Model

In the land of Edo, there lived a young samurai named Hiro.

He wanted to be the greatest swordsman.

But no matter how hard he trained...he could not anticipate his opponent's moves.

"Why do I keep getting hit? I must learn to see attacks before they happen!"

Untrained AI Model

Step 1: Identifying the Problem

Hiro is untrained... Just like an untrained AI model before it learns from data

Machine Learning Concept:

- This represents defining a problem statement in ML.
- Hiro lacks knowledge, just like an AI model before training.
- The goal is to predict attacks—just like ML models aim to predict outcomes.

Untrained AI Model

Hiro visits Sensei Takeda, a wise master known for his deep knowledge of battle strategy.

"If you wish to be great...
you must not only train your body but also your mind.

Just like a river learns the land, you must learn the patterns of battle."

Step 2: The Need To Learn from Data

Sensei Takeda tells Hiro that strength alone is not enough—he must learn patterns.

Machine Learning Concept:

- Hiro is like an untrained AI model that needs data to improve.
- The Sensei represents the learning algorithm—guiding Hiro to recognize patterns.
- Machine learning is about learning from past experiences to predict future outcomes.

Hiro started observing how different warriors were fighting.

Data Collection

Hiro started making notes of their moves....

How they fought...
How they dodged an attack...

Hiro started noting everything

Step 3: Collecting Data

Hiro observes how different opponents fight and writes down their attack styles.

Machine Learning Concept:

- Hiro is collecting data—just like AI models need data to learn.
- Data helps models recognize patterns in past behaviour.
- Without enough data, a model (or Hiro) won't learn properly.

After watching many fights, Hiro realizes patterns in how warriors attack.

"I see it now!
The slow warriors always swing wide!
The fast warriors always step back
before striking!"

Hiro keeps on training only against slow warriors.

Thinking that all fighters will attack the same way....

Step 4: Training the Model

Hiro starts noticing patterns: slow warriors attack wide, fast warriors dodge first, etc.

Machine Learning Concept:

- This is similar to an ML model finding patterns in data.
- AI looks at large datasets and learns which inputs lead to which outputs.
- The more Hiro trains, the better he gets—just like an ML model improves with more data.

Overfitting

When he faces a fast warrior, he gets hit immediately!

"This attack was completely different! My training didn't prepare me!"

Overfitting

Sensei Takeda looks at Hiro and tells him...

"Your attacks are weak, Hiro... because you only trained with one class of warriors!"

Step 5: Overfitting (Training on Bad Data)

Hiro only trains against slow warriors and assumes everyone fights the same.
He gets hit when facing a fast warrior.

Machine Learning Concept:

- Overfitting—training on limited data leads to bad predictions in real-world scenarios.
- If a model only learns from biased or incomplete data, it won't generalize well.
- ML models need diverse and balanced data to avoid mistakes.


Hiro starts training with all types of warriors—big, small, fast, and tricky!
Improving the Model

Step 6: Training on More Data

Hiro realizes his mistake and fights different types of warriors to improve his skill.

Machine Learning Concept:

- Diverse training data = better accuracy.
- The more Hiro fights, the better he predicts moves—just like ML models improve with more data.
- ML requires continuous training on new and varied data to work effectively.

The day of the big tournament arrives! Hiro must fight warriors from all over Japan.

Hiro is confident.

"I have seen these moves before... I can predict their attacks!"

Step 7: Evaluating Performance

Hiro enters a samurai tournament to test his skills.

Machine Learning Concept:

- This is like testing a trained ML model on new data.
- A good model should be able to handle unseen situations.
- If the model performs well in testing, it's ready for real-world use.

An opponent uses a brand new move Hiro has never seen before!

Instead of panicking, Hiro quickly adapts.

"This is new... but I can adjust my attack style!"

Step 8: Adaptation & Continuous Learning

Hiro faces an opponent with a new move he has never seen before!
But he quickly adapts.

Machine Learning Concept:

- AI models must adapt to new, unseen data.
- Like Hiro adjusting mid-fight, ML models use real-time learning (online learning) to update themselves.
- This is why AI constantly needs new training data to stay relevant.

Years later...
Hiro becomes the greatest samurai in the land.

All because of the fact that he could predict almost every attack!

Step 9: AI Reaching Maturity

Hiro has trained for years and can now predict almost any attack.

Machine Learning Concept:

- The AI model has been trained on large amounts of data and is now highly accurate.
- A well-trained AI can make predictions with high confidence (like Hiro predicting attacks).
- But even a master samurai (or AI) must keep learning to stay sharp.

Summarizing the SamurAI Journey

Hiro struggles to fight: ML problem definition
Sensei tells Hiro to learn patterns: AI needs data to learn
Hiro watches fighters & takes notes: Data collection
Hiro recognizes attack styles: Model training
Hiro only trains against slow fighters & fails: Overfitting (bad training data)
Hiro trains with all kinds of fighters: Training on diverse data
Hiro enters a tournament: Model testing
Hiro adapts to a new move mid-fight: AI learning from new data
Hiro becomes a master but keeps learning: AI model reaches maturity