Artificial Intelligence (AI)

What is AI?

- AI means making machines *smart like humans*.
- It helps computers to *think, **learn, and** make decisions*.
- AI = Artificial (man-made) + Intelligence (smart thinking)

Examples:

- Siri, Alexa (talking to you)
- Google Maps (shows best way)
- ChatGPT (answers your questions)

The Turing Test

- A test to check if a *machine can act like a human*.
- If you chat with both a person and a machine, and *can't tell who's who* → The machine *passed* the test.
- Given by *Alan Turing*.

Types of AI

1. *ANI – Artificial Narrow Intelligence*

- *Weak AI* → does *only one task*.
- Example: Siri, Google Maps

2. *AGI – Artificial General Intelligence*

- *Strong AI* → like a *human brain*.
- It can do *many tasks*, learn and solve problems.
- (Not real yet, still a dream)

3. *ASI – Artificial Super Intelligence*

- *Smarter than humans* in everything.
- Only in movies for now (like Jarvis, Ultron)

🔍 Domains (Fields) of AI

Domain	What it does	Example
ML (Machine Learning)	Learns from data	Netflix suggestions
NLP (Natural Language Processing)	Understands human language	ChatGPT, Google Translate
Robotics	Machines that move and work	Factory robots
Deep Learning	Like human brain learning	Face unlock
Fuzzy Logic	Not only yes/no answers	Smart AC adjusting temperature

What is Machine Learning (ML)?

- ML is a way to *make AI happen*.
- It means: *machine learns from data* and improves automatically.
- No need to write every instruction!

Types of Machine Learning

1. *Supervised Learning*

- Learns with *labeled data* (correct answers are given)
- Example: Cat/Dog photo detection
- Used in: Spam filters, Price prediction

2. *Unsupervised Learning*

- Learns without answers
- Finds *groups, patterns*
- Example: Customer grouping, fraud detection

3. *Semi-Supervised Learning*

- Mix of *some labeled + lots of unlabeled* data
- Example: Medical images (few labeled scans)

4. *Reinforcement Learning*

- Learns by *trial and error*

- It gets rewards for good actions
- Example: Game-playing AI, Self-driving cars

Final Recap Table

Term	Meaning
AI	Machines acting smart
ML	Learning from data
Supervised	Learns with correct answers
Unsupervised	Learns without answers
Semi-Supervised	Mix of both
Reinforcement	Learns by trying and getting rewards