Introduction ML

- Machine Learning
- Basics for non-computer science background
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Introduction to Machine Learning

- **Introduction to Machine Learning**
- **What is Machine Learning**
- **Importance of Machine Learning**
- **Types of Machine Learning**
- **Supervised Learning**
- **Unsupervised Learning**
- **Reinforcement Learning**
- **Machine Learning Process**
- **Applications of Machine Learning**
- **Advantages of Machine Learning**
- **Challenges of Machine Learning**

What is Machine Learning?

- • Machine Learning is a branch of Artificial Intelligence.
- • It allows computers to learn from data.
- • ML systems improve automatically through experience.
- • Helps machines make decisions without being explicitly programmed.

Why Machine Learning is Important

- • Helps solve complex real-world problems.
- • Improves automation and efficiency.
- • Used in healthcare, banking, and education.
- • Supports data-driven decision making.

Types of Machine Learning

- • Supervised Learning
- • Unsupervised Learning
- • Reinforcement Learning

Supervised Learning

- • Uses labeled training data.
- • Learns input and output relationship.
- • Examples: Email spam detection, House price prediction

Unsupervised Learning

- • Uses unlabeled data.
- • Finds hidden patterns and relationships.
- • Examples: Customer segmentation, Data clustering

Reinforcement Learning

- • Learning by trial and error.
- • Uses reward and punishment system.
- • Examples: Robotics, Game playing AI

Machine Learning Process

- • Data Collection
- • Data Preparation
- • Model Training
- • Model Testing
- • Prediction and Deployment

Applications of Machine Learning

- • Healthcare diagnosis
- • Fraud detection in banking
- • Self-driving cars
- • Speech recognition
- • Recommendation systems

Advantages of Machine Learning

- • Handles large data easily
- • Improves accuracy over time
- • Automates repetitive tasks
- • Helps in prediction and analysis

Challenges of Machine Learning

- • Needs large amount of data
- • Requires high computing power
- • Risk of biased data
- • Difficult to interpret some models

Conclusion

- • Machine Learning is transforming technology.
- • Helps computers learn and improve automatically.
- • Has wide applications in daily life and future innovation.