

# Emerging Technologies Lecture 2 Notes

Posted in 9 Computer Science



These lecture notes are prepared by **Salman Ahmad**, who is both a **teacher** and a **web developer**. The purpose of this material is to make the topic clear and useful for students of Class 9 Computer Science.

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## Machine Learning (ML)

A branch of AI where computers learn from data and past experiences to improve performance over time without being explicitly programmed. Computers identify patterns and make predictions based on examples.

### Examples:

- Email spam detection automatically filters unwanted emails.
- Movie recommendations on platforms like Netflix.
- Stock price predictions using historical data.

## Deep Learning (DL)

A specialized part of machine learning that uses neural networks inspired by the human brain. It can process large amounts of data to recognize complex patterns and make decisions more accurately.

### Examples:

- Self-driving cars recognizing roads and pedestrians.
- Voice assistants like Siri and Google Assistant understanding speech.

## Natural Language Processing (NLP)

AI technology that allows computers to understand, interpret, and respond in human language.

### Examples:

- Chatbots answering customer queries online.
- Auto-complete suggestions in messaging apps.
- Language translation using Google Translate.

## Computer Vision

AI technology that enables computers to analyze, interpret, and understand images and videos. It helps in tasks like object recognition, facial recognition, and visual data analysis.

### Examples:

- Facial recognition for unlocking phones.
- Security cameras detecting suspicious activity.
- Image-based search engines like Google Images.

## Robotics

The science and technology of designing, building, and programming robots. Robots can perform tasks autonomously or semi-autonomously, and AI can help them make decisions and adapt to new situations.

### Examples:

- Cleaning robots for homes.
- Industrial robots assembling cars in factories.

- Delivery drones navigating autonomously to deliver packages.

## Multiple Choice Questions (MCQs) on AI Branches

### 1. What is Machine Learning (ML)?

- a. Manual programming only
- b. Computers learning from data and experience
- c. Only hardware design
- d. Typing data into computers

**Answer: b. Computers learning from data and experience**

### 2. Machine Learning mainly works by:

- a. Ignoring data
- b. Identifying patterns and making predictions
- c. Printing results only
- d. Building machines

**Answer: b. Identifying patterns and making predictions**

### 3. Which is an example of Machine Learning?

- a. Writing letters
- b. Email spam detection
- c. Drawing pictures manually
- d. Reading books

**Answer: b. Email spam detection**

### 4. What is Deep Learning (DL)?

- a. Basic computer use
- b. A part of ML using neural networks
- c. Only programming languages
- d. Hardware repair

**Answer: b. A part of ML using neural networks**

### 5. Deep Learning is inspired by: