Artificial Intelligence (AI) is the broadest field among the three. It refers to the overall concept of making machines capable of performing tasks that normally require human intelligence—such as understanding language, solving problems, recognizing patterns, planning, and decision-making. AI includes everything from simple rule-based systems to advanced learning models. Any system that mimics human thinking, even without learning from data, falls under AI.

Machine Learning (ML) is a subset of AI. ML focuses on building systems that can learn from data instead of being explicitly programmed. Instead of writing rules manually, we feed the model data and allow it to find patterns. ML algorithms such as linear regression, decision trees, SVM, k-means, and random forests learn relationships from examples to make predictions or classifications. ML improves as more data is given, but still requires human feature engineering and domain expertise.

Deep Learning (DL) is a specialized subset of ML that uses artificial neural networks with many layers (deep neural networks). DL models automatically learn complex patterns and features from large datasets without manual intervention. Unlike traditional ML, DL does not require hand-crafted features; it extracts them on its own. This makes DL highly powerful for tasks like image recognition, speech processing, natural language understanding, and autonomous driving, but it needs large computing power and big datasets.