SNS COLLEGE OF ENGINEERING

Department of AI &DS

Course Name – 23ADT201 ARTIFICIAL INTELLIGENCE

II Year / III Semester

Unit 1-INTELLIGENT AGENTS
Topic:INTRODUCTION TO AI

INTODUCTION TO AI

CASE STUDY:

AI in Personalized Learning

In traditional classrooms, it's hard to meet every student's unique learning needs. AI is changing that by creating personalized learning experiences tailored to each student.

ACTIVITY:ASK STUDENTS TO DO GD BASED ON PERSONALIZED LEARNING

What is AI?

Artificial Intelligence (AI) is the field of computer science dedicated to creating machines that can perform tasks that would normally require human intelligence. These tasks include learning, reasoning, problem-solving, perception, and language understanding.

Purpose:

AI aims to build systems that can think, learn, and act autonomously, or assist humans in complex decision-making and problem-solving.

Foundation of AI

Core Concepts:
Machine Learning: AI systems learn from data to improve their performance over time without being explicitly programmed.
Neural Networks: Inspired by the human brain, these are algorithms designed to recognize patterns and make decisions.
Natural Language Processing (NLP): Enables machines to understand and interact with human language.
Robotics: Involves designing and building robots that can perform tasks in the physical world.

Techniques:
Supervised Learning: Training models on labeled data (e.g., teaching a model to recognize images of cats and dogs using examples with labels).
Unsupervised Learning: Finding patterns in data without predefined labels (e.g., clustering similar items).
Reinforcement Learning: Learning by interacting with the environment and receiving rewards or penalties (e.g., game-playing AI).

History of AI

Early Beginnings:
1950s: AI as a field was formally established. Alan Turing proposed the Turing Test as a measure of machine intelligence. Early AI research focused on symbolic reasoning and problem-solving.
Development Phases:
1950s-1960s: Initial enthusiasm led to early AI programs that solved algebra problems and played games like chess.
1970s-1980s: AI faced challenges and funding cuts, known as the "AI Winter," due to unmet expectations and limitations in technology.
1990s-2000s: AI experienced a resurgence with advancements in algorithms and computational power, leading to breakthroughs like IBM's Deep Blue defeating the world chess champion Garry Kasparov in 1997.
Recent Advances:
2010s-Present: AI has seen rapid growth with the rise of deep learning, improved algorithms, and massive data availability. Notable achievements include Google's AlphaGo defeating the Go champion Lee Sedol in 2016 and the widespread adoption of AI in applications like self-driving cars, virtual assistants, and recommendation systems.

State of the Art in AI

Current Trends:
Deep Learning: Advanced neural networks with many layers, known as deep learning, are used for tasks like image recognition, speech processing, and natural language understanding.
Generative Models: Models like GPT-3 and DALL-E can generate human-like text and images, showcasing the ability of AI to create new content.
AI in Healthcare: AI is being used to analyze medical images, predict patient outcomes, and assist in drug discovery.
Autonomous Systems: AI is powering self-driving cars, drones, and robots that can operate in complex environments.

Future Directions:
General AI: Researchers are working towards Artificial General Intelligence (AGI), which aims to create machines with human-like cognitive abilities.
Ethics and Regulation: There is increasing focus on the ethical implications of AI, including privacy, bias, and accountability.

THANK YOU