

Individual Task - Module - 1

Foundations of AI: Historical Milestones & Core Concepts

1) Research and Present a timeline showing major milestones in AI History

Introduction:

Artificial Intelligence (AI) is a rapidly growing field of computer science that focuses on creating intelligent machines capable of performing tasks that normally require human intelligence.

These tasks include learning from experience, reasoning, problem-solving, understanding natural language, and making decisions.

Studying the history of Artificial Intelligence helps us understand how human intelligence inspired machines and how AI evolved from theoretical concepts into real-world applications.

The following timeline explains the major milestones in the history of Artificial Intelligence along with suitable examples.

Early Ideas and Foundations (Before 1950) :

Before the invention of modern computers, humans imagined intelligent machines through philosophy and mechanical inventions.

Ancient Greek philosopher Aristotle introduced logical reasoning, which later became the foundation of algorithms and decision-making systems.

Example: Early calculating machines and mechanical clocks demonstrated how machines could perform repetitive tasks accurately, inspiring future intelligent systems.

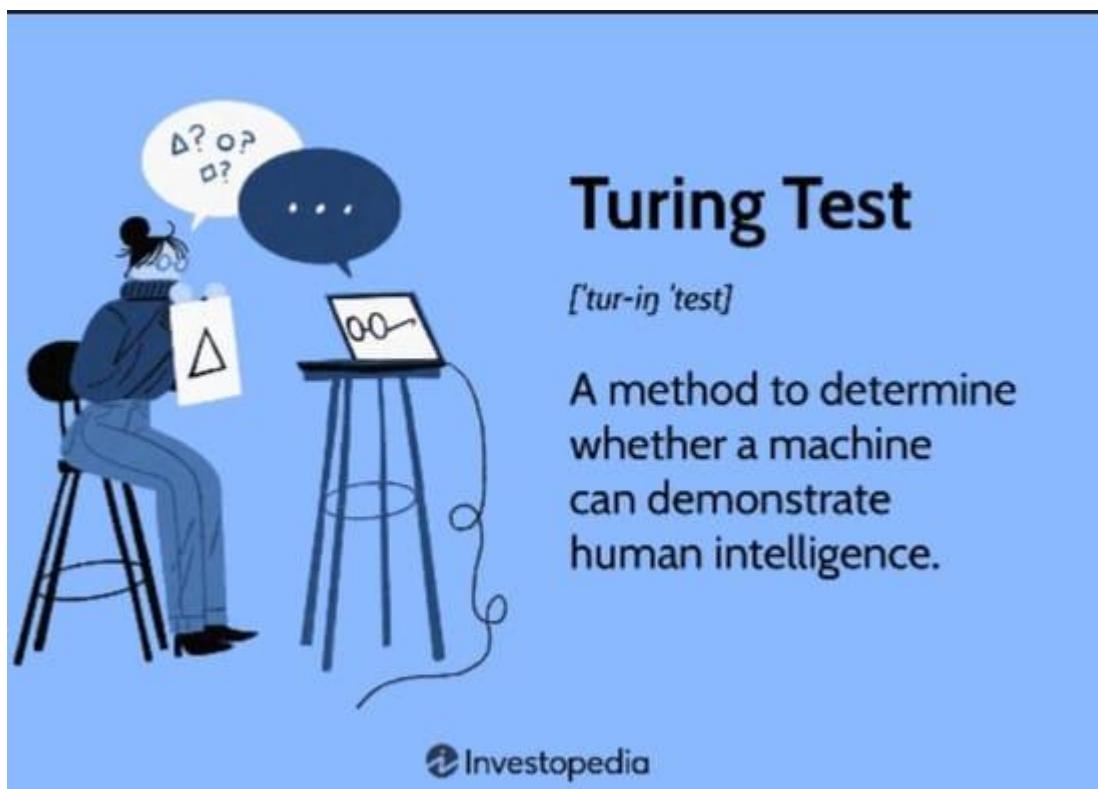
1950 – Alan Turing and Turing Test :

In 1950, British mathematician and computer scientist Alan Turing published a groundbreaking paper titled 'Computing Machinery and Intelligence.'

He posed the famous question: 'Can machines think?' and proposed the Turing Test to determine whether a machine can exhibit intelligent behavior similar to a human.

In the Turing Test, a human evaluator communicates with both a machine and a human through text. If the evaluator cannot reliably distinguish the machine from the human, the machine is considered intelligent.

Example: Modern chatbots and virtual assistants are inspired by the idea of the Turing Test.



Turing Test

[*'tur-ing 'test*]

A method to determine whether a machine can demonstrate human intelligence.

 Investopedia

1956 – Birth of Artificial Intelligence :

The term 'Artificial Intelligence' was officially introduced in 1956 during the Dartmouth Conference organized by John McCarthy and other researchers.

This conference marked the formal birth of Artificial Intelligence as an academic and research field.

Example: Early AI programs could solve logical problems and play simple board games using predefined rules.

1960s–1970s – Early AI Programs :

During this period, AI research focused mainly on symbolic and rule-based systems.

Notable programs included ELIZA and SHRDLU.

Example: ELIZA acted as a simple virtual therapist by responding to user input using pattern Matching.

AI Winter (1970s–1980s) :

Despite early optimism, AI research faced challenges such as limited computing power, lack of large datasets, and unrealistic expectations.

As a result, funding for AI projects was reduced, leading to a period known as the 'AI Winter.'

Example: Early speech recognition systems failed due to noise and limited processing capabilities.

1980s – Expert Systems Era :

AI research revived with the development of expert systems.

These systems used a knowledge base and inference rules to make decisions similar to human experts.

Example: Medical expert systems assisted doctors by suggesting possible diseases based on symptoms.

2000s – Big Data and Improved Computing:

The growth of the internet led to the availability of massive amounts of data known as Big Data.

Combined with improved computing power and storage, this enabled AI systems to become more accurate and efficient.

Example: Google Search uses AI algorithms to provide relevant search results.