جامعة المستقبل
AL MUSTAQBAL UNIVERSITY

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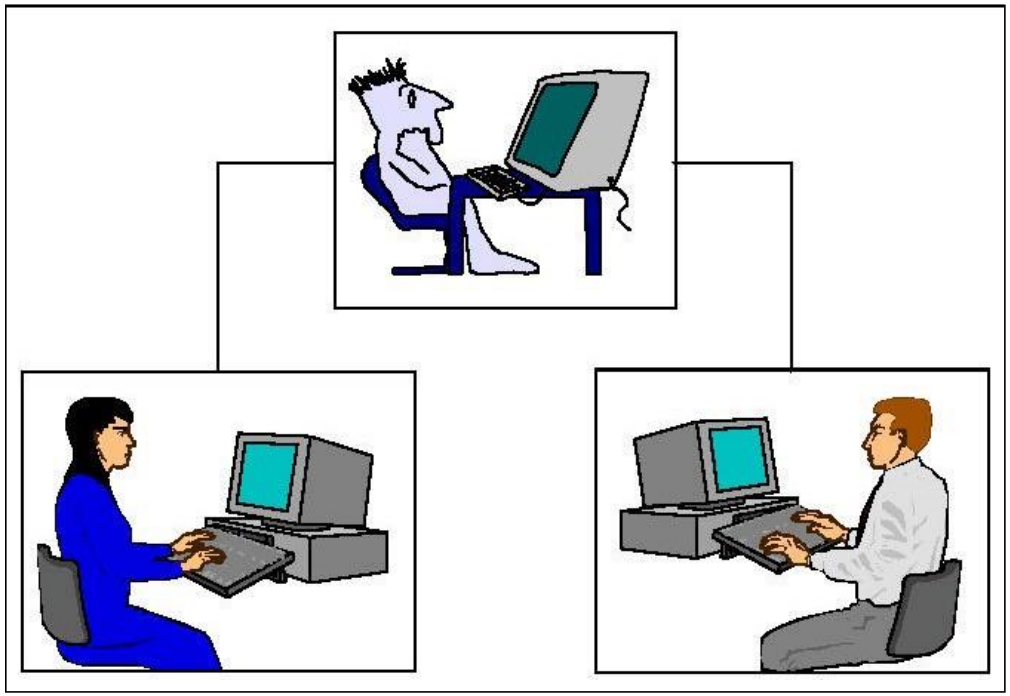
LECTURES

Subject: AI definition, history, concept, and applications
Level: six
Lecturer: Dr. Ahmed Adnan ALmhanna

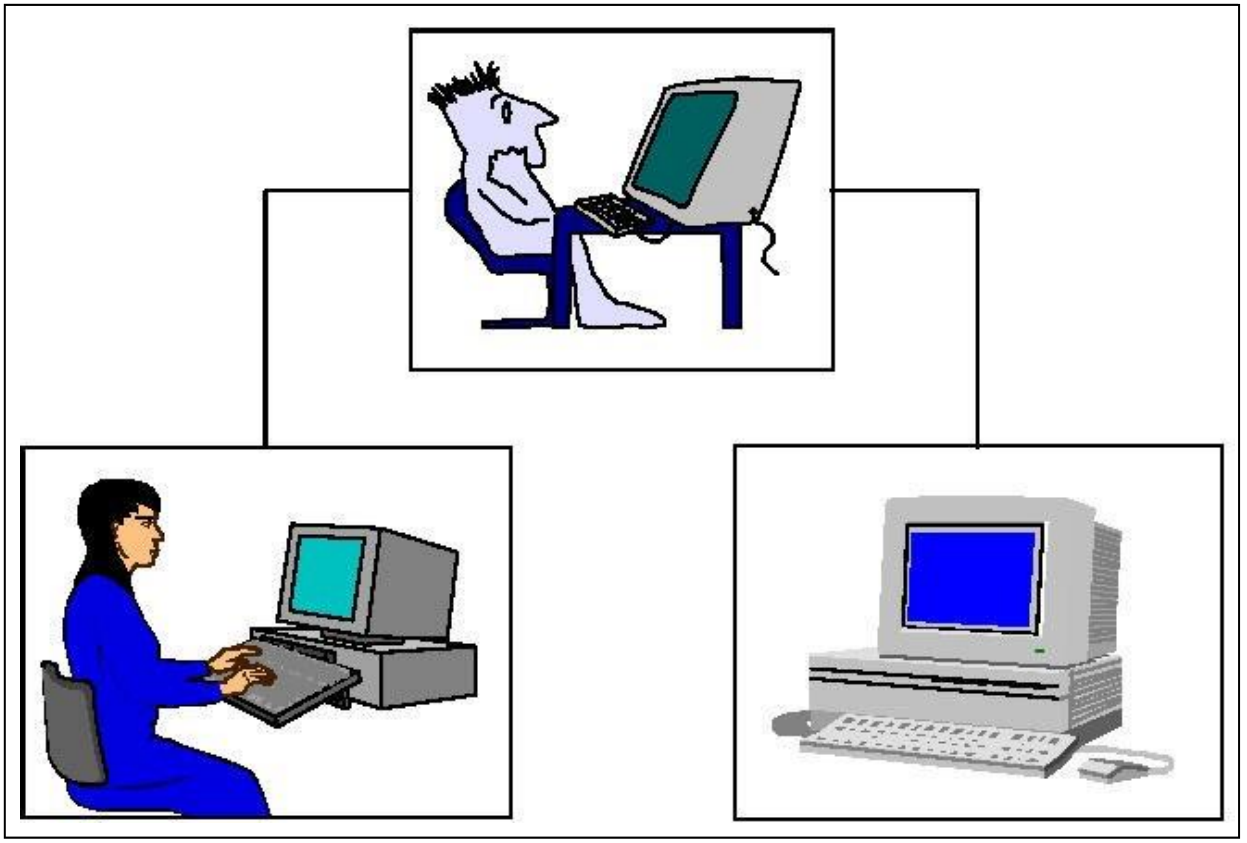
Acting Humanly: Turing Test

Alan Turing define an intelligent machine, in which the machine in question must pass the following test.

- The interrogator, a man and a woman are each placed in separate rooms.
- The interrogator's objective is to work out who is the man and who is the woman by questioning them.
- The man should attempt to deceive the interrogator that he is the woman, while the woman has to convince the interrogator that she is the woman.

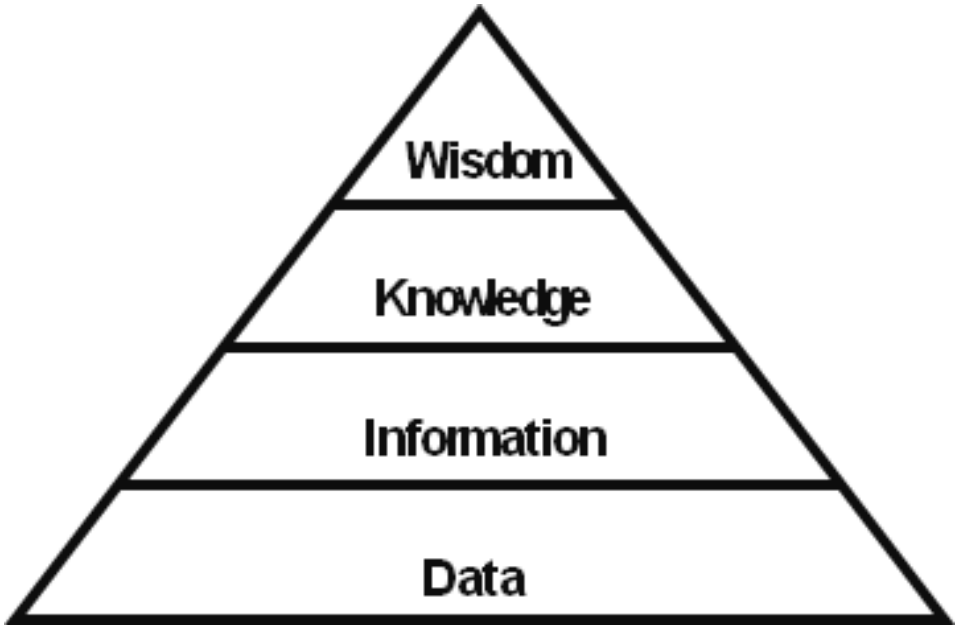


- The man is replaced by a computer programmed to deceive the interrogator as the man did.
- It would even be programmed to make mistakes and provide fuzzy answers in the way a human would.



- If the computer can fool the interrogator as often as the man did, we may say this computer has passed the **intelligent behaviour** test.

DIKW Pyramid



Data – facts and statistics collected for reference or analysis.

Information – Facts provided or learned about something or someone.

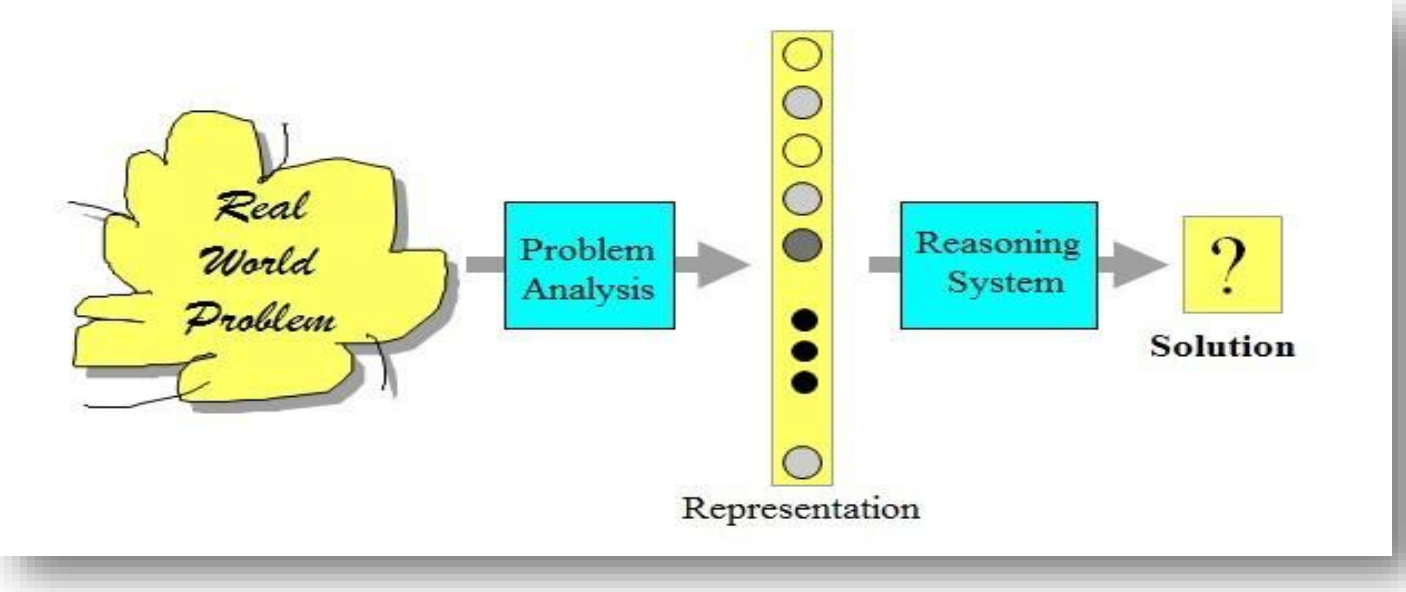
Knowledge – Facts, information, and skills acquired by a person through experience or education.

Wisdom – the quality of having experience, knowledge, and good judgment – or my favorite…knowledge rightly applied.

Problem Reduction

Problem Reduction **means that there is a hard problem may be one that can be reduced to a number of simple problems. Once each of the simple problems is solved, when the hard problem has been solved.**

A model of knowledge-based systems development



- Knowledge-Based Systems/Expert Systems

  An information technology based on the application of rules derived from expert knowledge which can imitate some intelligent behaviour.

- The knowledgebase is a type of storage that stores knowledge acquired from the different experts of the particular domain. It is considered as big storage of knowledge. The more the knowledge base, the more precise will be the Expert System.
- It is similar to a database that contains information and rules of a particular domain or subject.
- One can also view the knowledge base as collections of objects and their attributes. Such as a Lion is an object and its attributes are it is a mammal, it is not a domestic animal, etc.

Knowledge Representation: It is used to formalize the knowledge stored in the knowledge base using the If-else rules.

- The knowledge of an expert system can be represented in a number of ways, including IF-THEN

rules:

IF you are hungry THEN eat

Knowledge Acquisitions: It is the process of extracting, organizing, and structuring the domain knowledge, specifying the rules to acquire the knowledge from various experts, and store that knowledge into the knowledge base.

Knowledge Base Components

- Factual Knowledge: The knowledge which is based on facts and accepted by knowledge engineers comes under factual knowledge.
- Heuristic Knowledge: This knowledge is based on practice, the ability to guess, evaluation, and experiences.