



Benefits of Knowledge Based Systems and its Applications

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DESCRIPTION

The Knowledge Base System (KBS) is a computer program that uses Artificial Intelligence (AI) and the knowledge base to solve complex problems. KBS is a broad term that includes many different systems, but it always has two main characteristics of the particular system. It is a system of knowledge accumulation and reasoning [1]. Knowledge storage contains relevant facts that enable thinking systems to absorb new information and make decisions based on all that knowledge. Rules are commonly used in this type of system, but logic programming and constraint management rules are also available.

There are two types of knowledge bases available for KBS. The knowledge base system itself has to do with the system architecture. Expert systems, on the other hand, are systems that can assist or replace human professionals in complex tasks that generally require expert knowledge. Early knowledge-based systems were mostly rule-based expert systems, relying on human experts to assist in analysis, but as AI expanded, the need for human experts became it has decreased.

Knowledge-based inference systems are generally inference engines. Inference engines were, in many respects, pioneers of modern personal computing because they provided expert knowledge and access to problem solving [2]. The inference engine provides logical rules based on the existing knowledge base to understand and process new information. These engines process big data in real time, giving you easy access to the latest information. You can use the inference engine to classify data and update information during processing.

As knowledge base systems became more complex, the techniques used to represent the knowledge base became more sophisticated and included logic, term rewriting systems, conceptual graphs, and frames [3]. Consider a frame as an example. Instead of presenting facts as claims about the data, the knowledge base is more structured. Frames can be seen as representing knowledge of the world using techniques similar to object-oriented programming, especially the use of class and

subclass hierarchies, relationships between classes, and the behavior of objects.

A recent advance in knowledge-based systems is the adoption of techniques for developing systems using the Internet, especially a type of logic called description logic [4]. The Internet often processes unreliable and complex unstructured data to adapt to a particular data model. Knowledge-based system techniques are ideal for such systems, especially the ability to classify objects as needed. This type of knowledge-based Internet system model is known as the semantic web [5].

Components of knowledge based systems

Knowledge base: A knowledge base is a collection of established information and resources. The system uses this as storage for knowledge to use for decision making.

Interface engine: The interface engine processes data throughout the system. By finding relevant information based on queries, it behaves like a search engine in your system.

User Interface: The user interface shows how the knowledge base system appears to users on the computer. This allows the user to interact with the system to make a request.

Benefits of knowledge-based systems

- Accelerating delivery processes of goods and services for B2C organizations
- Assisting users in making expert decisions
- Creating new knowledge by reviewing existing data and stored knowledge
- Grouping data across different areas of expertise
- Handling significant amounts of structured and unstructured data intelligently and efficiently
- Improving productivity and consistency with decision-making processes
- Integrating knowledge on a large scale to create a common platform for accessing knowledge
- Providing efficient documentation of important data for users to access easily

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Received: 12-May-2022, Manuscript No. SIEC-22-17048; **Editor assigned:** 16-May-2022, Pre QC No. SIEC-22-17048 (PQ); **Reviewed:** 03-Jun-2022, QC No SIEC-22-17048; **Revised:** 13-Jun-2022, Manuscript No. SIEC-22-17048 (R); **Published:** 20-Jun-2022, DOI: 10.35248/2090-4908.22.11.251.

Citation: Gaily S (2022) Benefits of Knowledge Based Systems and its Applications. Int J Swarm Evol Comput. 11:251.

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- Serving as an expert resource with human experts are unavailable
- Storing data conveniently for future use

Applications

- Acquiring, organizing and manipulating large volumes of data and information
- Experiencing potential anomalies in the systems, such as redundant rules and circular dependencies
- Handling the limitations of scientific and cognitive techniques
- Navigating the generally abstract nature of knowledge
- Providing a system that is only as high quality as the data and information it contains

- Requiring accurate and extensive data to perform correctly.

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