MCSE-003 JULY-13-14

Q1.(a) Explain with suitable examples, significance of each of the following in solving problems:

(i) Contextual information (ii) Simultaneous availability of information

Ans-

(i).Information we know that is relevant to an understanding of the text:

The identity of things named in the text: people, places, books, etc. Information about things named in the text: birth .dates, geographical locations, date published, etc.Interpretive information: themes, keywords.Normalization of measurements, dates, etc. The idea of context is treated differently in the li

terature. Different classifications and opinions about context information can be found there. First of all, three classes of context can be distinguished: user context, terminal context and communication network context. For given services or applications, these classes can be combined as required. In our article, we focus on the context of the user and the terminal. Things refer to physical objects or software components. To describe these entities, four categories are introduced:

•
Identity
– characterizes the entity with an explicit identifier, which has to be unique in the name domain of the application.
•
Location
– includes positioning data and orientation as well as information about regional re-lations to other entities (e.g. neighboring entities). This comprises geographical data as well as spatial relations.
•
Status
– contains properties, which can be perceived by a user. For a place, this can be, for ex-ample, the current temperature, the ambient illumination or the noise level. For persons this refers to physical factors like vital signs, tiredness or the current occupation.
•
Time

– is both date and time. In contrast [7] classifies the context and the necessary information in three categories:

•

Physical context

– contains objective information aboutthe user like position, orientation, time, date...

(II).

Simultaneous availability of information:--

Ans:--

It is currently not known how distributed neuronal responses in early visual areas carry stimulus-related information. We made multielectrode recordings from cat primary visual cortex and applied methods from machine learning in order to analyze the temporal evolution of stimulus-related information in the spiking activity of large ensembles of around 100 neurons. We used sequences of up to three different visual stimuli (letters of the alphabet) presented for 100 ms and with intervals of 100 ms or larger. Most of the information about visual stimuli extractable by sophisticated methods of machine learning, i.e., support vector machines with nonlinear kernel functions, was also extractable by simple linear classification such as can be achieved by individual neurons. New stimuli did not erase information about previous stimuli. The responses to the most recent stimulus contained about equal amounts of information about both this and the preceding stimulus. This information was encoded both in the discharge rates (response amplitudes) of the ensemble of neurons and, when using short time constants for integration (e.g., 20 ms), in the precise timing of individual spikes.

(b).

Discuss relations between ‘organisation’, ‘information’ and ‘intelligence’

Ans:----

Organizational Intelligence is defined as the capacity of an organization to create knowledge and use it to strategically adapt to its environment. It is similar to I.Q., but framed at an organizational level. The mean is normalized at 100, so that an O.I.Q. above 100 indicates a more intelligent organization, whereas one below 100 indicates a less intelligent organization.

Information Technology and Systems are the technical networks carrying formal, hard information through the organization. I.T. systems with greater processing power and distributed architectures generally improve O.I.

Organizational Structure is defined as hierarchical versus decentralized decision-making. Decentralized organizations raise O.I. because they permit faster, local decisions.

Organizational Culture consists of the symbols, ceremonies and the normative climate of the organization. Generally speaking, entrepreneurial cultures seem to correspond with higher O.I.

The survival of many organizational is threatened in agreement with environmental chan ges. The theory of environmental evolution suggests that variable and uncertain environments demand various organizational that have high flexibility with environmental changes simultaneously. During recent years that rapid environmental changes

threat man y
organizational;
competitor intellig
ence is distinct from competitive intelligence . competitor intelligence is defined as those who their activity is determined by company, understanding their competitors, determine the strengths and weakness and
predictable motion they believe that the inf rastructure words are identification,perception, determination and anticipation of industry and competitors, but these is only the definition of competitive intelligence is include

competitor responses to the consumer, understanding customer needs and resp onse in the strategic decision making process . the implication of competitive intelligence is in the wider range of competitor intelligence . in describing

their differentiation,

Q.8:-
(b).
Write a note on Nonmonotonic reasoning systems ?

Ans :---

A logic is **non-monotonic** if some conclusions can be invalidated by adding more knowledge. The logic of definite clauses with negation as failure is non-monotonic. Non-monotonic reasoning is useful for representing defaults. A **default** is a rule that can be used unless it overridden by an exception.

For example, to say that *b* is normally true if *c* is true, a knowledge base designer can write a rule of the form

b c ab_a.

where ab_a is an atom that means abnormal with respect to some aspect a. Given c, the agent can infer b unless it is told ab_a. Adding ab_a to the knowledge base can prevent the conclusion of b. Rules that imply ab_a can be used to prevent the default under the conditions of the body of the rule.

Nonmonotonic reasoning provides formal methods that enable intelligent systems to operate adequately when faced with incomplete or changing information. In particular, it provides rigorous mechanisms for taking back conclusions that, in the presence of new information, turn out to be wrong and for deriving new, alternative conclusions instead. Nonmonotonic reasoning methods provide rigor similar to that of classical reasoning; they form a base for validation and verification and therefore increase confidence in intelligent systems that work with incomplete and changing information.

Q.8(c.)

Discuss briefly various methods/ mechanism for handling incompleteness of a knowledgebase (KB).

Q.10.

a) Describe briefly each of the components of an expert system shell.

Ans:--

Expert Systems is an area of AI that explores how to computerise the expertise of a human expert. For example, is it possible to computerize the knowledge of a medical diagnostician or a master computer repair person?

An expert system typically consists of four major components:

1. Knowledge Base. This is the knowledge in the expert system, coded in a form that the system can use. It is developed by some combination of humans (for example, a knowledge engineer) and an automated learning system (for example, one that can learn through the analysis of good examples of an expert's performance).

2. Problem Solver. This is a combination of algorithms and heuristics designed to use the Knowledge Base in an attempt to solve problems in a particular field.

3. Communicator. This is designed to facilitate appropriate interaction both with the developers of the expert system and the users of the expert system.

4. Explanation and Help. This is designed to provide help to the user and also to provide detailed explanations of the "what and why" of the expert systems activities as it works to solve a problem.

It is very important to understand the narrow specialization of the typical expert system. An expert system designed to determine whether a person applying for a loan is a good loan risk cannot diagnose infectious diseases, and vice versa. An expert system designed to help a lawyer deal with case law cannot help a literature professor analyze poetry.

Researchers in AI often base their work on a careful study of how humans solve problems and on human intelligence. In the process of attempting to develop effective AI systems, they learn about human capabilities and limitations. One of the interesting things to come out of work on expert systems is that within an area of narrow specialization, a human expert may be using only a few hundred to a few thousand rules.

10.(b).

What is an agent? Discuss briefly different at least four types of agents.

Ans:---

In artificial intelligence, an intelligent agent (IA) is an autonomous entity which observes through sensors and acts upon an environment using actuators (i.e. it is an agent) and directs its activity towards achieving goals (i.e. it is rational).[1] Intelligent agents may also learn or use knowledge to achieve their goals. They may be very simple or very complex: a reflex machine such as a thermostat is an intelligent agent,[2] as is a human being, as is a community of human beings working together towards a goal.

Types of Agent..

1. simple reflex agents
2. model-based reflex agents
3. goal-based agents
4. utility-based agents