

Short Questions:

1. Who is the database administrator (DBA)?
2. What is Data mining (DM)?
3. What is a data warehouse?
4. Identity four advantages of databases
5. What is an expert system?
6. Define Virtual reality (VR)
7. What are the main areas of AI?
8. Define a decision support system (DSS)?

Short Answers:

1. The database administrator (DBA) is the person who coordinates all related activities and needs for an organization's database. The DBA determines user access privileges; sets standards, guidelines, and control procedures; assists in establishing priorities for requests; prioritizes conflicting user needs; and develops user documentation and input procedures. He or she is also concerned with security—setting up and monitoring a system for preventing unauthorized access and making sure that the system is regularly backed up and that data can be recovered should a failure or disaster occur.
2. Data mining (DM) refers to the computer-assisted process of sifting through and analyzing vast amounts of data to extract meaning and discover new knowledge. The purpose of DM is to describe past trends and predict future trends. Thus, data-mining tools might sift through a company's immense collections of the customer, marketing, production, and financial data and identify what's worth noting and what's not.
3. A data warehouse is a database containing cleaned-up data and meta-data (information about the data). The data is stored using high-capacity disk storage. Data warehouses combine vast amounts of data from many sources in a database form that can be searched, for example, for patterns not recognizable with smaller amounts of data.
4. Four advantages of databases: (1) reduced data redundancy; (2) improved data integrity; (3) increased security; (4) ease of data maintenance.
5. An expert system, or knowledge-based system, is a set of interactive computer programs that helps users solve problems that would otherwise require the assistance of a human expert. Expert systems are created based on knowledge collected on specific topics from human specialists, and they imitate the reasoning process of a human being. Expert systems have emerged from the field of artificial intelligence, the branch of computer science that is devoted to the creation of computer systems that simulate human reasoning and sensation. Expert systems are used by both management and nonmanagement personnel to solve specific problems, such as how to reduce production costs, improve workers' productivity, or reduce environmental impact. Because of their giant appetite for memory, expert systems are usually run on large computers, although some microcomputer expert systems also exist.
6. Virtual reality (VR), a computer-generated artificial reality, projects a person into a sensation of three-dimensional space. To put yourself into virtual reality, you need software and special headgear; then you can add gloves, and later perhaps a special suit. The headgear—which is called a head-mounted display—has two small video display screens, for each eye, to create a sense of three-dimensionality. Headphones pipe in stereophonic sound or even 3-D sound; so that you think you are hearing sounds not only near each ear but also in various places all around you. The glove has sensors for collecting data about your hand movements. Once you are wearing this equipment, the software gives you interactive sensory feelings similar to real-world experiences.
7. Main areas of AI are expert systems, natural language processing, intelligent agents, pattern recognition, virtual reality and simulation devices, robotics, fuzzy logic, neural networks
8. A decision support system (DSS) is a computer-based information system that provides a flexible tool for analysis and helps managers focus on the future. It gathers and presents data from a wide range of sources in a way that can be interpreted by humans. Some decision support systems come very close to acting as artificial intelligence agents. DSS applications are not single information resources, such as a database or a program that graphically represents sales figures, but a combination of integrated resources working together. Whereas a TPS records data and an MIS summarizes data, a DSS analyzes data. To reach the DSS level of sophistication in information technology, an organization must have established TPS and MIS systems first.

Many DSSs are developed to support the types of decisions faced by managers in specific industries, such as airlines or real estate. Many companies use DSSs called geographic information systems (GISs), such as MapInfo and Atlas GIS, which integrate geographic databases with other business data and display maps. Also called an executive information

system (EIS), an executive support system (ESS) is an easy-to-use DSS made especially for strategic managers; it specifically supports strategic decision-making. It draws on data not only from systems internal to the organization but also from those outside, such as news services or market-research databases. An ESS might allow senior executives to call up predefined reports from their personal computers, whether desktops or laptops. They might, for instance, call up sales figures in many forms—by region, by week, by anticipated year, by projected increases. The ESS includes capabilities for analyzing data and doing “what-if” scenarios. ESSs also have the capability to browse through summarized information on all aspects of the organization and then zero in on (“drill down” to) detailed areas the manager believes require attention. ESSs are relatively user-friendly and require little training to use.