

COMPUTER NETWORK AS A REINFORCEMENT TO EFFECTIVE UTILIZATION OF ELECTRONIC DATABASE SYSTEM IN EDUCATIONAL SECTOR IN NIGERIA

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Abstract

The study centered on Computer Network as a Reinforcement to Effective Utilization of Electronic Database System in Educational Sector in Nigeria. Computer network as a group of connected computer that allow people to share information and resources. It is the connection of two or more computers to enable computer user to exchange information and resources. Computer network has element or component, types, benefits and disadvantages of computer network are contained in-computer network. The researcher also found the utilization of electronic database system in educational sector in Nigeria.

Keywords: Computer, Network, Reinforcement, Utilization and Electronic.

Introduction

An electronic database is a collection of data stored in one or more digital media. It can be accessed by any user with appropriate permissions and rights. Electronic databases are used for various purposes, including storing, retrieving and managing information on a wide range of topics such as books, newspapers, health records and much more. A database typically contains fields, or columns, where each field has a specific type of data and length; the most common types are text, numbers, dates and currency (Kofi, 2014). To make it easier to search for data within a database, indexes can be created on one or more fields. An electronic database is a lot like any other library. It's where one go to find books, articles, and other materials that have been organized by subject or author. But instead of paper books, it's full of zeros and ones on the screen. The best part about an electronic database is that one can search for anything with just a few keystrokes. An electronic database is a great way to store and organize data. It's a form of computer software designed for storing, retrieving, and managing data in an efficient manner with the goal of making it easy for one to find what one is looking for quickly (Lawal, 2021).

Example of electronic database

An electronic database is a collection of information that can be accessed by computer. This means you can find whatever it is you're looking for in seconds, without having to go through piles and piles of paper or books. Most databases are available online and often provide an easy way to search for specific items. Some examples are Google Scholar, PubMed, CINAHL Plus with Full

Text, Scopus from Elsevier Publishing and Web of Science from Clarivate Analytics (Obiamalu *et al.*, 2021).

Types of Electronic Databases

Centralized database

A centralized database is a system of storing information that allows for quick retrieval and updating by authorized users. These databases are generally run on large computer systems with high-speed access to the Internet, making it easy to add new entries or change existing

data. In this article we'll show you how to set up your own centralized database using MySQL, Apache, PHP (a programming language), and Linux (an operating system) (Okunoye, 2020).

Cloud database

Cloud databases are a powerful new technology that is making computing more accessible and affordable for small businesses. The cloud takes the onus of hardware and software installation off your shoulders so you can focus on other aspects of your business. The cloud database is a type of database that can be accessed from any device, no matter what the location. It's also very scalable and low-cost to use (Shukla & Mishra, 2011).

Distributed database

A commercial database is an organized collection of data stored in tables on a computer or multiple computers where large amounts of information can be retrieved efficiently by using queries to extract relevant information from the larger set of data. There are many types of databases, some public and some private but they all store huge amounts of information across different devices such as hard disks or memory sticks (Sudhler & Seethalekshmi, 2013).

Open-source database

Open-source databases are a great way to save money on your business. They offer a cost-effective alternative to costly software like Oracle, which can be up to twice as expensive for the same features and functionality. Open-source database solutions also allow you more control over the data schema, meaning that you don't have any limitations in what type of data structures or queries you want to build (Tiemo, 2017).

Personal database

Personal databases are the perfect way to keep track of your personal information. They allow you to store and organize everything from birthdays, addresses, phone numbers, employment history, and bank account information in one place so that it is all accessible with a few clicks. An electronic database is an excellent way to save time and stay organized. If you're looking for a new system, or just want to learn more about them in general, this article might be helpful! It's always great when people can find a method of saving themselves some time. In this case, it's through the use of an electronic database that saves all your information in one place so you don't have to go searching around for what you need later on (Toteng *et al.*, 2013). With a database you can organize your data into different folders so that it's easier to find what you're looking for when you need it. And if something goes missing or gets deleted from the original file, there's always a backup on the hard drive. Plus databases come with a password-protected security system that keeps everything safe and secure. So whether you're at home or work, don't get lost in information overload, get organized today with an electronic database (Okunoye, 2020).

Objectives of database system in educational section in Nigeria

1. Enabling data access easy for the user
2. Providing a source of mass storage of Data
3. Allowing multiple users to access the database at the same time
4. Providing appropriate and quick response to user queries.

Uses of electronic database system

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Computer Network

According to Steward (2013) defined network as a group of computers and other devices, such as printers and modems, connected to each other. This enables the computers to effectively share data and resources. The computers in a network can share data, messages, graphics, printers, fax machines, modems, and other hardware and software resources. He maintained that, computer network, or communications network is defined as a system of interconnected computers, telephones, or other communications devices that can communicate with one another and share information or data. The network must be able to transmit this information quickly with reliable and efficiency.

According to Peterson (2011) a computer network or data network is a telecommunications network that allows computer networks, networked computing devices pass data to each other along data connections. The connections (network links) between nodes are established using either cable media or wireless media.

He further says that, a computer network is a group of computer systems and other computing hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users. He also, enumerated the uses of network thus:

- (i) Networks are used to facilitate communication via e-mail, video conferencing, instant messaging
- (ii) Network enable multiple users to share a single hardware device like a printer or scanner,
- (iii) Network enable file sharing across the network
- (iv) Network allows for the sharing of software or operating programs on remote system.
- (v) Network make information easier to access and maintain among network users.

Network Elements

- a. Servers
- b. Clients
- c. Media
- d. Shared data
- e. Resources

Servers: Servers are the computers that provide the shared resources to network users. There is usually only out server in a small network, but bigger networks may have more than one server.

Clients: Clients are the computers that can access the shared network resources provided by a server.

Media: Refers to the cables linking workstations together.

Shared Data: A server provides shared resources and data over a network. The files that are provided by the server over the network are called shared data.

Resources: Files, printers or other items that can be used by network users are known as resources. These resources can be either hardware or software resources.

Types of Network

According to Oroke (2010) stated that network which consist of various combinations of computers, storage devices and communications devices, can be divided into three main categories, differing primarily in their geographical range.

These includes:

1. Local Area Network LAN
2. Wide Area Network WAN
3. Metropolitan Area Network MAN

Local Area Network (LAN): Connects computers and devices in a limited geographical area, such as one office, one building, or a group of buildings close together (for instance, a college campus).

Wide Area Network (WAN): Is a communications network that covers a wide geographical area, such as country or the world.

A WAN may use a combination of satellites, fibreoptic cable, microwave, and copper wire connections and link a variety of computers, from mainframes to terminals.

Metropolitan Area Network (MAN): Is a communications network covering a city or a sub-urban.

Benefits of the Computer Network

In most organizations, a network offers benefits, such as data sharing and online communication that are not provided by a stand-alone environment (An environment in which there is several computers that are not connected to each other is called a standalone environment/ thus, these are the benefits of a network.

Sharing of Peripheral Devices

Because peripheral devices such as laser printers, disk drives, and scanners are often quite expensive, management wants to maximize their use, to justify their purchase. Usually, the best way to do this is to connect the peripheral to a network serving several computer users.

Data Sharing

The data can be easily shared in a network so other user can access it at any time. For example, a user working in a team wants to share some data with the other team members.

Resource Sharing

Resource sharing is also an important benefit of a computer network. For example, if there are four people in a family, each having their own computer, they will require four printers, if they want to use the resources at the same time.

Centralized Software Management

One of the greatest benefits of installing a network is the fact that all of the software can be loaded on one computer (the file server).

Communication Medium

A computer network can provide a powerful communication medium among people spread widely at different physical locations. It act as a powerful communication medium when it comes to sharing information and resources.

Data Security and Management

In a business environment, a network allows the administrators to better manage the company's critical data.

Disadvantages of the Computer Network

These are as follow:

1. Expensive to install
2. Cables may break
3. Data security
4. File server may fail

Effective Utilization of Electronic Database System in Educational Sector in Nigeria

During the course of a day we might use a telephone directory, a dictionary, an encyclopedia, an airline flight guide, a bibliography, wikipedia or a yahoo or Google index, in fact, we use databases to store all kinds of knowledge that we retrieve on a regular basis.

What is then a database?

A database is an organized list of facts and information.

Database usually contains text and numbers, and frequently they hold still image, sounds and video or film clips.

However, today we are more interested in database constructed on computers where database management programs help people design and build collections of information.

Electronic database can be utilized as follows:

Updating: A typical database is designed around a central set of facts. All databases permit their operators to add new information or to up data old facts whenever needed.

Sorting: In an electronic database stored in a computer, the order of information can be rearranged or sorted quickly. To help people retrieve and print facts, computer databases, sort lists into reports.

Boolean Logic

An electronic database can be searched rapidly for specific items of information. Often, the search commands incorporate Boolean algebra logic so users can use AND, OR or NOT to eliminate unwanted entries.

Electronic Storage

Most academic databases are stored electronically, either on computers serving the internet or on CD-ROM or DVD discs.

Expert System

One kind of database, known as an expert system, presents information on a specialized field. For example, a medical information database might gather expertise from physician specialists, as well as specific facts about drugs. The database might then package and deliver the information as a substitute for direct contact with a physician.

Conclusion

Computer technology application is increasing in daily bases. This computer and communications technology has made the entire world that we live into a "global village". People can easily speak to one another or interact and exchange information in multimedia,

electronically from one part of the world to other part. This development has better implication on all facets of human life such as business, administration, management, education, governance, agriculture, sciences and research purposes.

For any computer system to attain its usefulness, it has to be linked to one another in what is known as computer network.

Recommendation

1. Computing hardware devices should link together through communication channels in order to facilitate communication and resource-sharing among a wide range of users.
2. Database should be well installed that will help people design and build collection of information.
3. In a big networks, many servers should be employed so that resources can be shared to clients who may need it instantly.

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