Introduction to Databases

How a Database benefits a Business

IT has taken the strain out of performing many business tasks that used to be done manually. Whether it is the introduction of chip and PIN machines in small High Street shops or the introduction of e-commerce websites for retail businesses, it is clear that technology is playing an ever increasing role in a range of businesses, whether large or small.

Some of the benefits to incorporating a database into a business are listed below:

Customer Relationship Management
One of the best ways to increase profits is to understand your customer. The more information you have about them, the easier it is to target them. Using databases, it is easier to store, sort and create lists of contacts and customers. Knowing the top fifty customers that your business has can let you create specific offers just for them, or even allows for the introduction of a rewards scheme. There are so many ways that this information can be used to the business' advantage.

Customer and Product Analysis
By gathering and placing as much information on your products and customers into an expertly designed and uniquely created database, it is possible to see which products are selling, which customers are returning for repeat orders, what items don't sell so well and so on. These functions are extremely time consuming when done manually.

Effective stock management
Databases can be created specifically for stock control. By simply glancing at a database it is possible to see what is nearly out of stock and what is not. It is even possible to automatically reorder stock once it reaches a certain level.

Reduces Overheads
Reducing the time and labour involved in processing manual transactions can make a significant cost saving for any business. By integrating an effective database into an ecommerce website, businesses can become even more streamlined, and in most cases, more profitable.

Databases really can transform businesses of all sizes. The chances are most of your competitors are using databases. Database design teams can build easy to use databases that are tailor designed to fit each businesses' specific needs. Most design teams should also offer you training on how to use the newly designed database, so that it remains constantly maintained and updated.

The Advantages of Using a Database

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The advantages of using a database are considerable. Without them, you would be hard-pressed to find a decent system of keeping and managing information. In recent years, the increased flexibility and user-friendliness of databases make these systems a crucial business component. Many database solutions are available for any type of business need, ranging from storing a customer information matrix to hosting a WordPress blog. Here are the top reasons for using a database:

Databases Save Time
Instead of rummaging through endless piles of paperwork, a database pulls up information with simple query. A user can enter in specific keywords in order to recall information. The database becomes a more efficient solution than paper files held in a file folder.

Databases Aid Communication
Larger companies can benefit from databases when information must be spread to various users. For example, if a company has two branches but must share central information, it would be prudent to implement a central database that can be viewed by all employees of that company. This way, once information is added, it is viewable by all, aiding in a cohesive work environment. By looking at database records and how data has changed over time, you can also track important trends, such as which product is most popular with your customers, which can make your business more competitive.

Databases Are More Secure
File cabinets can be compromised. They can be stolen, accidentally destroyed, or lost. Databases add another level of security to valuable information. Not only can a database be stored in a remote facility unaffected by devastating events such as fire or thievery, but a database can also be password protected. This locks out any eyes that should not view sensitive reports.

Databases Are Inexpensive Managers
Smaller businesses are always looking for ways to cut costs without cutting quality. A database can be a hefty investment initially, but, over the long term, it will save money by improving the efficiency of all employees, impressing customers who will not need to repeat their information and saving on paper costs.

Types of Database

General-purpose DBMS	A DBMS has evolved into a complex software system and its development typically requires thousands of person-years of development effort. Some general-purpose DBMSs, like Oracle, Microsoft SQL Server, FoxPro, and IBM DB2, have been undergoing upgrades for thirty years or more. General-purpose DBMSs aim to satisfy as many applications as possible, which typically makes them even more complex than special-purpose databases. However, the fact that they can be used "off the shelf", as well as their amortised cost over many applications and instances, makes them an attractive alternative to a bespoke (specially written database) whenever they meet an application's requirements.
Active database	An active database is a database that includes an event-driven architecture which can respond to conditions both inside and outside the database. Possible uses include security monitoring, alerting, statistics gathering and authorization.
Cloud database	A Cloud database is a database that relies on cloud technology (Internet). Both the database and most of its DBMS reside remotely, "in the cloud," while its applications are both developed by programmers and later maintained and utilized by (application's) end-users through a web browser and Open APIs. More and more such database products are emerging as secure use of the Internet becomes more viable.
Data warehouse	Data warehouses archive data from operational databases and often from external sources such as market research firms. Often operational data undergo transformation on their way into the warehouse, getting summarized, anonymised, reclassified, etc. The warehouse becomes the central source of data for use by managers and other end-users who may not have access to operational data. For example, sales data might be aggregated to weekly totals and converted from internal product codes to use UPCs so that they can be compared with ACNielsen data. Some basic and essential components of data warehousing include retrieving, analyzing, and mining data, transforming, loading and managing data so as to make them available for further use.
Distributed database	The definition of a distributed database is broad, and may be utilised in different meanings. In general it typically refers to a modular DBMS architecture that allows distinct DBMS instances to cooperate as a single DBMS over processes, computers, and sites, while managing a single database distributed itself over multiple computers, and different sites. Examples are databases of local work-groups and departments at regional offices, branch offices, manufacturing plants and other work sites. These databases can include both segments shared by multiple sites, and segments specific to one site and used only locally in that site.