History of databases

Today, databases are everywhere and are used to enhance our day-to-day life. From personal cloud storage to predicting the weather, many of the services we utilize are possible due to databases.

However, the concept of a database was around way before computers came into the picture: in the past there were index file card systems used to archive data in an easy to find structure. Computerized databases started in the 1960s, when the use of computers became a more cost-effective option for private organizations. There were two popular data models: a network model called CODASYL and a hierarchical model called IMS. One database system that proved to be a commercial success was the SABRE system that was used by IBM to help American Airlines manage its reservations data.

Between 1970 and 1972 Codd published an important paper to propose the use of a relational database model, in which the database schema, or logical organization, is disconnected from physical information storage, and this became the standard principle for database systems.

In the 1970s the concept of a Database Management System or DBMS for short, was born. IBM developed a prototype relational database model in 1974 called System R, which used the SEQUEL query language. The other major relational database system prototype was Ingres, which was developed at UBC, using a query language known as QUEL. In the 1980s Structured Query Language, or SQL, became the standard query language.

Relational database systems became a commercial success as the rapid increase in computer sales boosted the database market, and this caused a major decline in the popularity of network and hierarchical database models. DB2 became the flagship database product for IBM, and the introduction of the IBM PC resulted in the establishments of many new database companies. Object Oriented Databases became popular in the 1990s, leading to the modern implementation of NoSQL, which is gradually starting to be more commonly used than relational database implementations. The reason is that there are many advantages to using NoSQL over traditional relational databases. NoSQL databases are known to be more horizontally scalable and fault-tolerant. NoSQL is more flexible and easier to implement due to the lack of a defined schema.

After a database industry reorganization, most of the surviving companies sold complex database products at high prices. Around this time, new client tools for application development were released, and these included the Oracle Developer, PowerBuilder, VB and others. A number of tools for personal productivity, such as ODBC and Excel/Access, were also developed.

Prototypes for Object Database Management Systems, or ODBMS, were created in the early 1990s, followed by increased investment in online businesses resulting in a rise in demand for internet database connectors, such as Front Page, Active Server Pages, Java Servelets, Dream Weaver, ColdFusion, Enterprise Java Beans, and Oracle Developer 2000.

The use of cgi, gcc, MySQL, Apache, and other systems brought open source solutions to the internet. With the increased use of point-of-sale technology, online transaction processing and online analytic processing began to be successful. Although the Internet industry experienced a decline in the early 2000s, database applications continue to grow. New interactive applications were developed and, presently, the three leading database companies in the western world are Microsoft, IBM, and Oracle.

ACTIVITIES

1 *Read the text and decide if the following statements are true or false. Correct the false ones.*

1 The concept of a database was developed long after the invention of computers.   T ○   F ○

2 Computerized databases began when computers became more effective in relation to their cost.   T ○   F ○

3 IBM was a database system which was a commercial success.   T ○   F ○

4 The relational database which was suggested by Codd became the basis for the standard database.   T ○   F ○

5 DBMS, which was born in the 1980s, stands for Database Management System.   T ○   F ○

6 Both System R and Ingres used the same language.   T ○   F ○

7 QL is the query language which became standard in the 1908s.   T ○   F ○

8 Network and hierarchical database models became less popular because of the success of relational databases.   T ○   F ○

9 The introduction of NoSQL caused the decline of relational databases.   T ○   F ○

10 ODBC and Excel/Access are instances of tools for personal productivity.   T ○   F ○

11 The creation of ODBMS was caused by a rise in the demand for Internet database connectors.   T ○   F ○

12 The use of cgi, gcc, MySQL, Apache, and other systems brought open source solutions to the Internet.   T ○   F ○

2 *Write questions for the following answers.*

1 .... ?
They enhance our daily lives.

2 .... ?
A network model called CODASYL and a hierarchical model called IMS.

3 .... ?
The database schema, or logical organization, is disconnected from physical information storage.

4 .... ?
DB2.

5 .... ?
In the 1990s.

6 .... ?
They are more horizontally scalable and fault-tolerant.

7 .... ?
Online transaction processing and online analytic processing began to be successful.

8 .... ?
Microsoft, IBM, and Oracle.

3 *Match each word or phrase with its meaning.*

1	Into the picture	A	The place at which a retail transaction is carried out
2	Flagship	B	Becomes operative, enter the scene
3	Scalable	C	Most successful
4	Point of sale	D	The best or the most important product of a company
5	Leading	E	Able to be made larger in size

4 *Identify the main steps in the development of databases and write a short text.*