

# Welcome to Section 7

Database

# Database

- Another component of IT or computers

## Database

- Data is a collection of facts, such as numbers, words, measurements, observations or just descriptions of things. E.g. your name, age, height, weight, etc. are some data related to you. A picture, image, file, pdf, etc. can also be considered data.

- System
- Foundation
- Hub
- Central location



## Database

A database is an organized and systematic collection of data generally stored and accessed electronically from a computer system. Databases make data management easy

# Database

- **Question**

Data can be stored in a spreadsheet or a text document as well so why we need a database?

- Databases store information more efficiently, databases can handle volumes of information that would be unmanageable in a spreadsheet.
- Spreadsheets have record limitations whereas databases do not
- Compared to databases, spreadsheets can require a large amount of hard-drive space for data storage
- Joining records is a lot easier in DB than compared to text or spreadsheets.



# RDBMS

- RDBMS stands for relational database management system
- A relational database is a type of database. It uses a structure that allows us to identify and access data in relation to another piece of data in the database. Often, data in a relational database is organized into tables



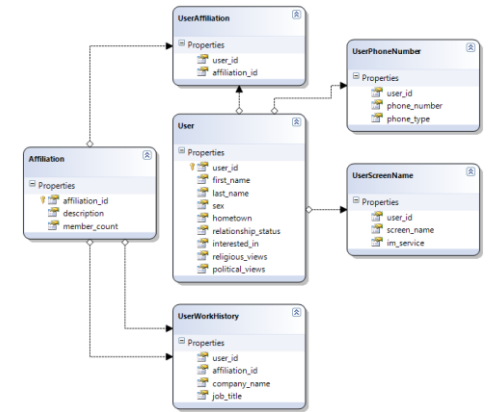
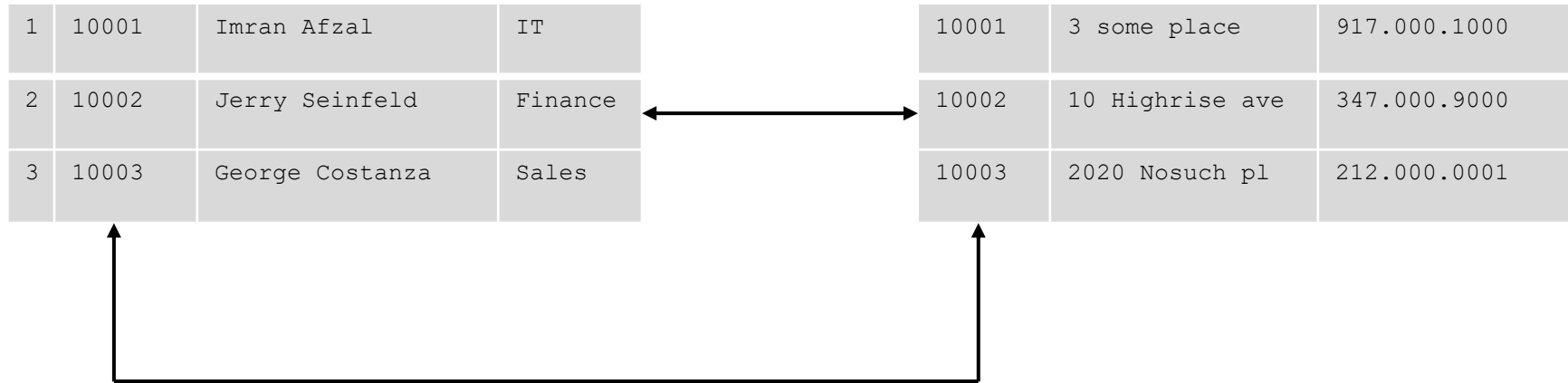
## Database

1	10001	Imran Afzal	IT	10001	3 some place	917.000.1000
2	10002	Jerry Seinfeld	Finance	10002	10 Highrise ave	347.000.9000
3	10003	George Costanza	Sales	10003	2020 Nosuch pl	212.000.0001

# RDBMS

## RDBMS

1	10001	Imran Afzal	IT		10001	3 some place	917.000.1000
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# What is SQL?



- SQL (**S**tructured **Q**uery **L**anguage) is a programming language used to communicate with data stored in a relational database management system. SQL syntax is similar to the English language, which makes it relatively easy to read, write, update or translate data
- SQL is often pronounced in one of two ways. You can pronounce it by speaking each letter individually like “**S Q L**”, or pronounce it using the word “sequel”.)
- It was invented in 1970s by IBM and the first version was called SEQUEL (**S**tructured **E**nglish **Q**Uery **L**anguage). Later it was changed to SQL because SEQUEL was already trademarked by an airline company
- SQL is NOT a database; it is a command line language that many RDBMSs use to access the data from tables
- Example statement: **SELECT \* FROM tablename;**

# Top 5 RDBMS using SQL

- **Oracle DB**

- It is a database product by Oracle and its enterprise version was released in 1979
- It is a database commonly used for running online transaction processing, data warehousing and mixed database workloads
- Oracle is one of the biggest vendor in the IT market



- **Microsoft SQL Server**

- MS SQL server is a relational database server by Microsoft
- Its first version was released in 1988
- It is among the most stable, secure and reliable database solutions
- It supports wide variety of transaction processing, analytics, and business intelligence applications in corporate IT environments
- MS SQL server competes primarily against Oracle DB and IBM DB2



# Top 5 RDBMS using SQL

- **MySQL**

- A Swedish company called MySQL AB originally developed MySQL in 1994
- It is community developed open source and its first version was release in 1995
- The US tech company Sun Microsystems then took full ownership when they bought MySQL AB in 2008
- US tech giant Oracle in 2009 acquired Sun Microsystems itself, and MySQL has been practically owned by Oracle since
- Even though MySQL is open-source software, you can buy a commercial license version from Oracle to get premium support services
- The main advantages of MySQL are that it is easy to use, inexpensive, reliable (has been around since 1995), and has a large community of developers who can help answer questions.



- **PostgreSQL**

- Community developed open source and its first version was released in 1987
- It was originally named POSTGRES, referring to its origins as a successor to the Ingres database developed at the University of California, Berkeley.
- In 1996, the project was renamed to PostgreSQL to reflect its support for SQL
- After a review in 2007, the development team decided to keep the name PostgreSQL.





# Top 5 RDBMS using SQL

- **MariaDB**

- Community developed open source and its first version was released in 2009
- Development is led by some of the original developers of MySQL, who forked it due to concerns over its acquisition by Oracle Corporation in 2009
- MariaDB is named after Monty's younger daughter, Maria



**In this course our focus will be on:**

