



Database Management System
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Introduction:

Manpower Management System:

The database has been designed for the project Manpower Management System. It can be also considered as Human Resources Management System. This kind of databases are used by all the offices not only in IT industry but also in various other industries.

This type of Databases mainly keeps the record about employees, admins, managers, location and regions of each offices.

Our database mainly consists of 7 tables.

1 : Region

2 : Admin

3 : Manager

4 : Employee

5 : Department

6 : Job_History

7 : Location

Development Environment & Tools :

We have used MYSQL database management system to develop our database.

Tools : MySQL Workbench has been used to make the Relational Model and MySQL CLI has been used to show the database to the user.

Basic Description of MySQL

MySQL is an Oracle-backed open source relational database management system (RDBMS) based on Structured Query Language (SQL). MySQL runs on virtually all platforms, including Linux, UNIX and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web applications and online publishing. MySQL is an important component of an open source enterprise stack called LAMP. LAMP is a web development platform that uses Linux as the operating system, Apache as the web server, MySQL as the relational database management system and PHP as the object-oriented scripting language. (Sometimes Perl or Python is used instead of PHP.)

Originally conceived by the Swedish company MySQL AB, MySQL was acquired by Sun Microsystems in 2008 and then by Oracle when it bought Sun in 2010. Developers can use MySQL under the GNU General Public License (GPL), but enterprises must obtain a commercial license from Oracle.

Today, MySQL is the RDBMS behind many of the top websites in the world and countless corporate and consumer-facing web-based applications, including Facebook, Twitter and YouTube.

How MySQL works

MySQL is based on a client-server model. The core of MySQL is MySQL server, which handles all of the database instructions (or commands). MySQL server is available as a separate program for use in a client-server networked environment and as a library that can be embedded (or linked) into separate applications.

MySQL operates along with several utility programs which support the administration of MySQL databases. Commands are sent to MySQLServer via the MySQL client, which is installed on a computer.

MySQL was originally developed to handle large databases quickly. Although MySQL is typically installed on only one machine, it is able to send the database to multiple locations, as users are able to access it via different MySQL client interfaces. These interfaces send SQL statements to the server and then display the results.

Core MySQL features

MySQL enables data to be stored and accessed across multiple storage engines, including InnoDB, [CSV](#), and NDB. MySQL is also capable of replicating data and partitioning tables for better performance and durability. MySQL users aren't required to learn new commands; they can access their data using standard SQL commands. MySQL is written in [C](#) and [C++](#) and accessible and available across over 20 platforms, including Mac, Windows, Linux and Unix. The RDBMS supports large databases with millions records and supports many data types including signed or unsigned integers 1, 2, 3, 4, and 8 bytes long; FLOAT; DOUBLE; CHAR; VARCHAR; BINARY; VARBINARY; TEXT; BLOB; DATE; TIME; DATETIME; TIMESTAMP; YEAR; SET; ENUM; and OpenGIS spatial types. Fixed- and variable-length string types are also supported.

For security, MySQL uses an access privilege and encrypted password system that enables host-based verification. MySQL clients can connect to MySQL Server using several protocols, including TCP/IP sockets on any platform. MySQL also supports a number of client and utility programs, command-line programs and administration tools such as MySQL Workbench.

Offshoots of MySQL, also known as [forks](#), include the following:

- [Drizzle](#), a lightweight open source database management system in development based on MySQL 6.0;
- [MariaDB](#), a popular community-developed "drop-in" replacement for MySQL that uses MySQL APIs and commands; and
- Percona Server with XtraDB, an enhanced version of MySQL known for [horizontal scalability](#).

MySQL vs SQL

Before 2016, the main difference between MySQL and SQL was that the former could be used on multiple platforms, whereas the latter could only be used on Windows. Microsoft has since expanded SQL to support Linux, a change which went into effect in 2017. When MySQL is installed via Linux, its package management system requires custom configuration to adjust security and optimization settings.

MySQL also allows users to choose the most effective storage engine for any given table, as the program is able to utilize multiple storage engines for individual tables. One of MySQL's engines is InnoDB. InnoDB was designed for [high availability](#). Because of this, it is not as quick as other engines. SQL uses its own storage system, but it does maintain multiple safeguards against loss of data. Both systems are able to run in clusters for high availability.

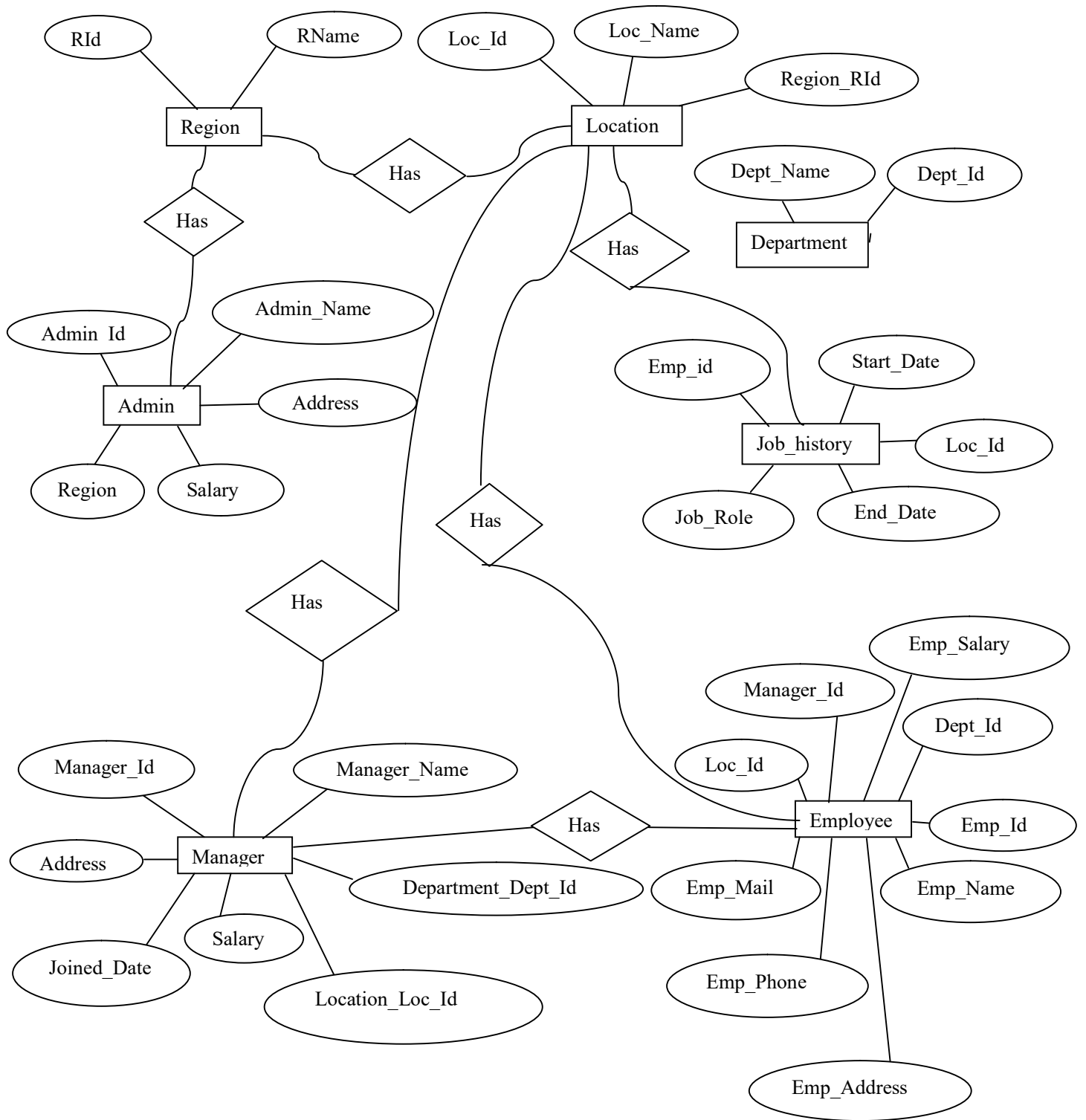
SQL Server offers a wide variety of data analysis and reporting tools. SQL Server Reporting Services is the most popular one and is available as a free download. There are similar analysis tools for MySQL available from third-party software companies, such as Crystal Reports XI and Actuate BIRT.

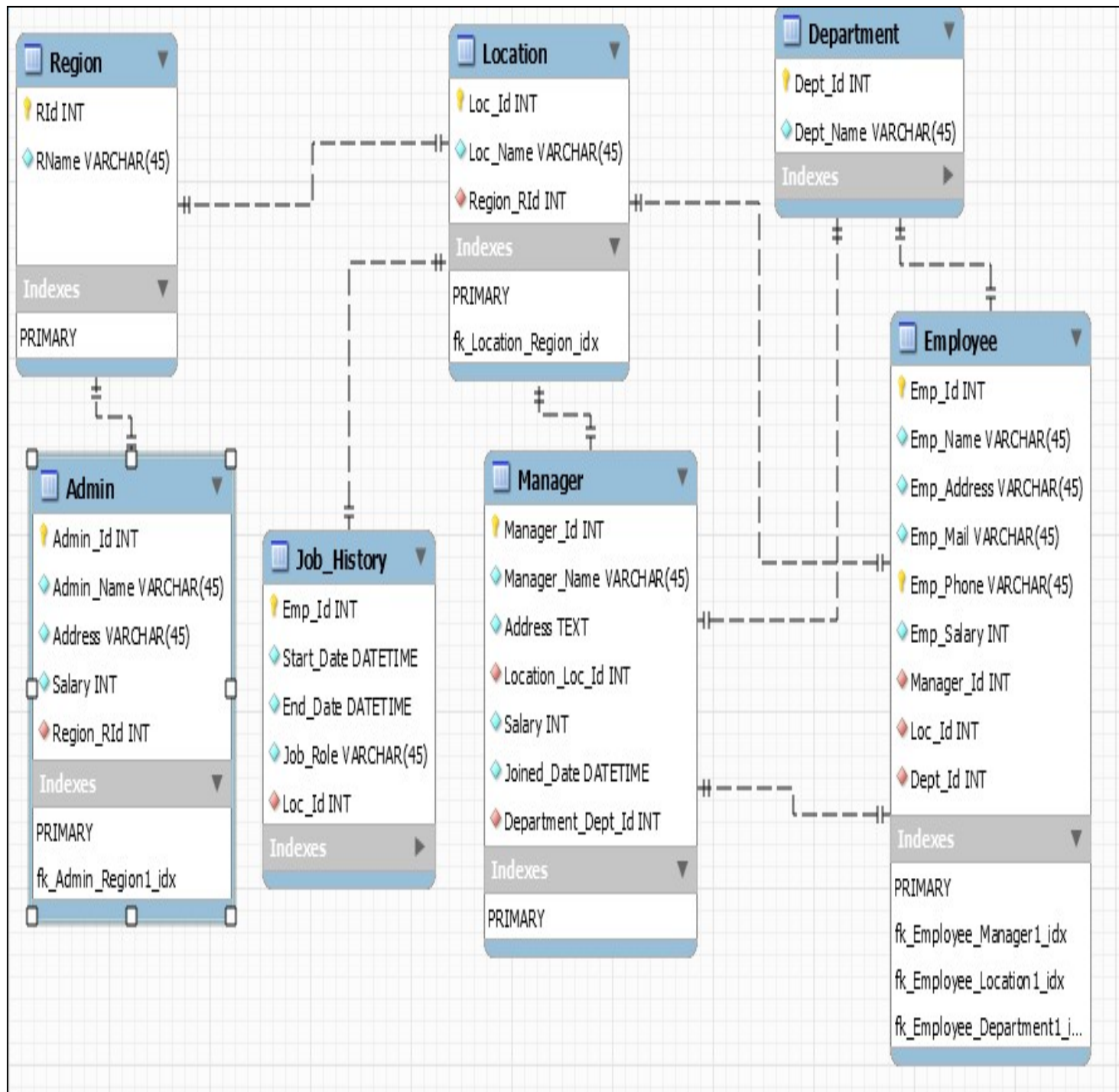
Compatibility with other services

MySQL was designed to be compatible with other systems. It supports deployment in virtualized environments, such as [Amazon RDS](#) for MySQL, Amazon RDS for MariaDB and Amazon Aurora for MySQL. Users can transfer their data to a SQL Server database by using database migration tools like AWS Schema Conversion Tool and the AWS Database Migration Service.

The database object semantics between SQL Server and MySQL are similar, but not identical. There are architectural differences that must be considered when migrating from SQL Server to MySQL. In MySQL, there is no difference between a database and a schema, while SQL Server treats the two as separate entities.

ER- Diagram:





Description Of Each Table of the Database

1 : Region : This table consists of two attributes.

i→Rid : It refers to the Region Id , and accepts only integer data.

ii→RName : It refers to the Region name and accepts string data.

Here in this table Rid is the primary key of this table where the same key is acting as the foreign key of others table and connecting those tables with this table.

2 : Location : Each region can have multiple locations. So that's the reason Location table is containing three columns.

i→ Loc_Id : It refers to the location Id , and accepts only integer data. This is the primary key of this table.

ii→ Loc_Name : It refers to the location Name and accepts String data.

iii→Region_Rid : This is the foreign key of this table which is connecting this table with the region table.

3 : Admin : This table consists of five attributes.

i→ Admin_Id : It refers to the Admin's Id , and accepts only integer data. This is the primary key of this table.

ii→ Admin_Name : It refers to the admin's name and accepts string data.

iii→Salary : This column only accepts integer value.

iv→Region_Rid : This is the foreign key of this table which is connecting this table with the region table.

4: **Manager** : This table consists of seven attributes.

i→ Manager_Id : It refers to the Admin's Id , and accepts only integer data. This is the primary key of this table.

ii→ Manager_Name : It refers to the admin's name and accepts string data.

iii→ Salary : This column only accepts integer value.

iv→ Joined_Date : This column only accepts date_time value.

v→ Foreign Key : Location_Id and Department_Id these two are the foreign key of this table which is connecting this table with the Department and Location table.

5 : **Department** : This table consists of two attributes.

i→ Dept_Id : It is the primary key of this table and acting as foreign key for others table and connecting this table with other tables.

ii→ Dept_Name : It refers to the Department name and accepts string data.

6 : **Employee** : It consists of nine attributes.

i→ Primary Key : Employee Id and Employee_Phone are acting as the primary key of this table.

ii→ Foreign Key : This table consists of three foreign key.

By which it is connected to three different tables a: Manager b : Location , c : Department

7 : Job Hitory : This table keeps the record of each employee including admins, managers and as well as other employees. Here Employee_Id is the primary key of this table and Loc_Id is the foreign key of this table using which it is connected to Location table.

This table consists of five attributes.

- i→ Employee Id
- ii→ Start Date
- iii→ Ending date
- iv→ Job Role
- v→ Location Id

Future scope of the Project :

Manpower Management System is a huge implementation of databases and as time advances new procedures of implementing reservation of railway seats are coming up. Thus, new GUI's are being developed making it more and more user friendly. If this database is used in making a GUI with or online application using Java Server Pages, this can be devised to be a succesful implementation.

Conclusion:

If all these data's are not stored in a database through a properly programmed GUI then keeping track of these records is quite impossible. That's the reason a database is highly required in order to store , and manipulate those data in an effective and efficient way.

REMARKS:

Date

Teacher's Signature