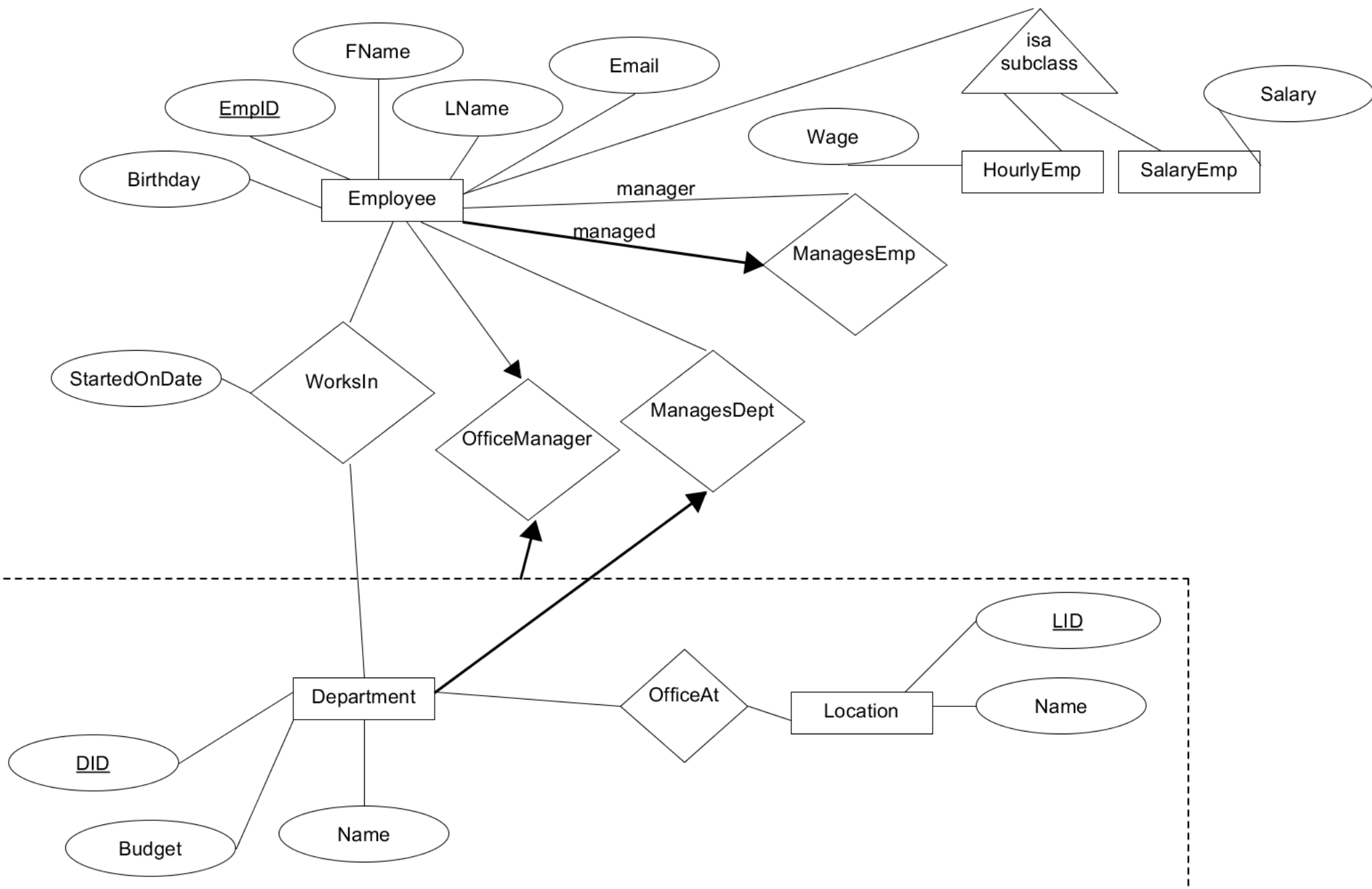


# CS 445

# The Relational Model

## Chapter 3

September 5, 2019



# Relational Model

- Read Chapter 3
- The database is a collection of *relations*
  - each relation is a table
- Data Definition Language
  - subset of SQL
- Integrity constraints
- Views <https://mariadb.com/kb/en/the-mariadb-library/create-table>

today we will just do basic table creation

MariaDB 10.2.25

# Relation

- Relation schema
  - example:
- Relation instance
  - set of {tuples|records|rows}
- Column
  - Domain
- Relational database
  - Relational database schema
  - Relational database instance

# Keys

- Candidate Key
- Super Key
- Primary Key

# Translation

- Translate E-R diagram to Relational Model
  - E-R Diagram to SQL!
  - must represent:

# Create Table Syntax

```
CREATE [OR REPLACE] [TEMPORARY] TABLE  
[IF NOT EXISTS] tbl_name  
(  
  column_definitions...  
  [constraints...]  
)  
[table_options] ;
```

column\_definition: col\_name datatype decorations

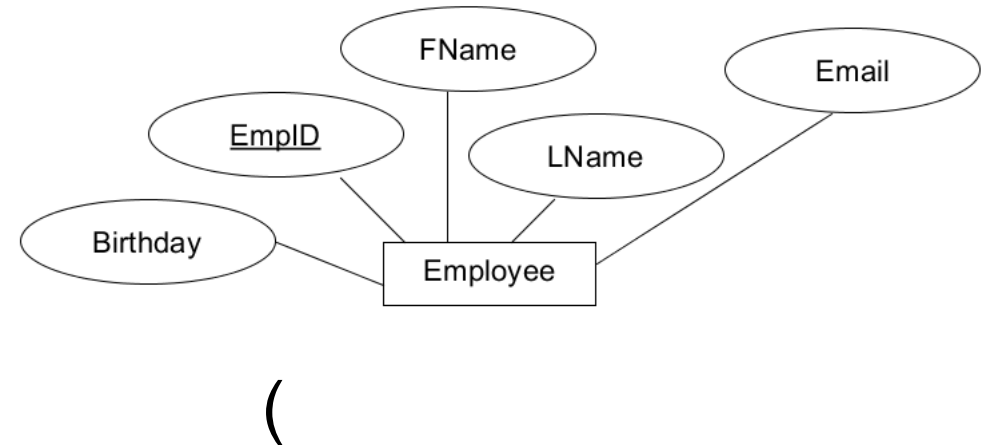
<https://mariadb.com/kb/en/the-mariadb-library/create-table>

# MySQL Types

- <https://mariadb.com/kb/en/mariadb/data-types/>
- Char/Varchar vs Binary/Varbinary
- Int
- Real Numbers
- Date
- Blob/Text
- Set
- Enum



# Create an Entity Set



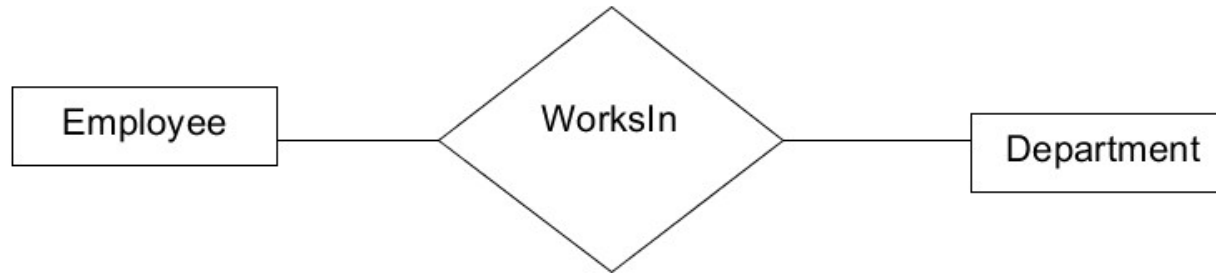
- SQL
- CREATE TABLE

(

# Insert

- INSERT INTO  
(  
  
VALUES  
(

# Data: Foreign Key References



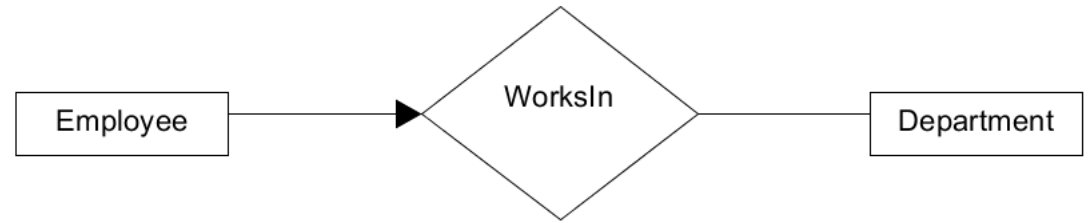
# Constraints

- PRIMARY KEY
- UNIQUE
- INDEX/KEY
- FULLTEXT
- FOREIGN KEY

# Constraint expressions

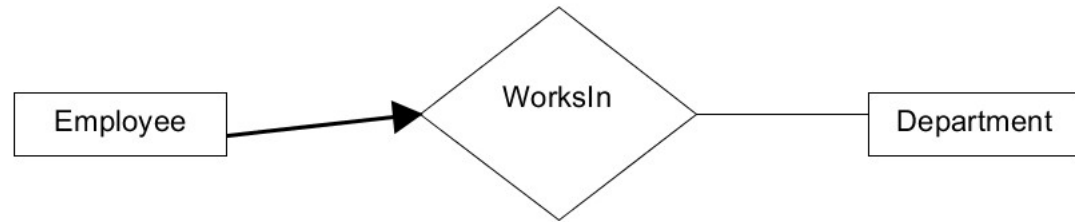
- <https://mariadb.com/kb/en/the-mariadb-library/create-table/#constraint-expressions>
- Only in version 10.2.1 or later of MariaDB

# Data: Adding constraints



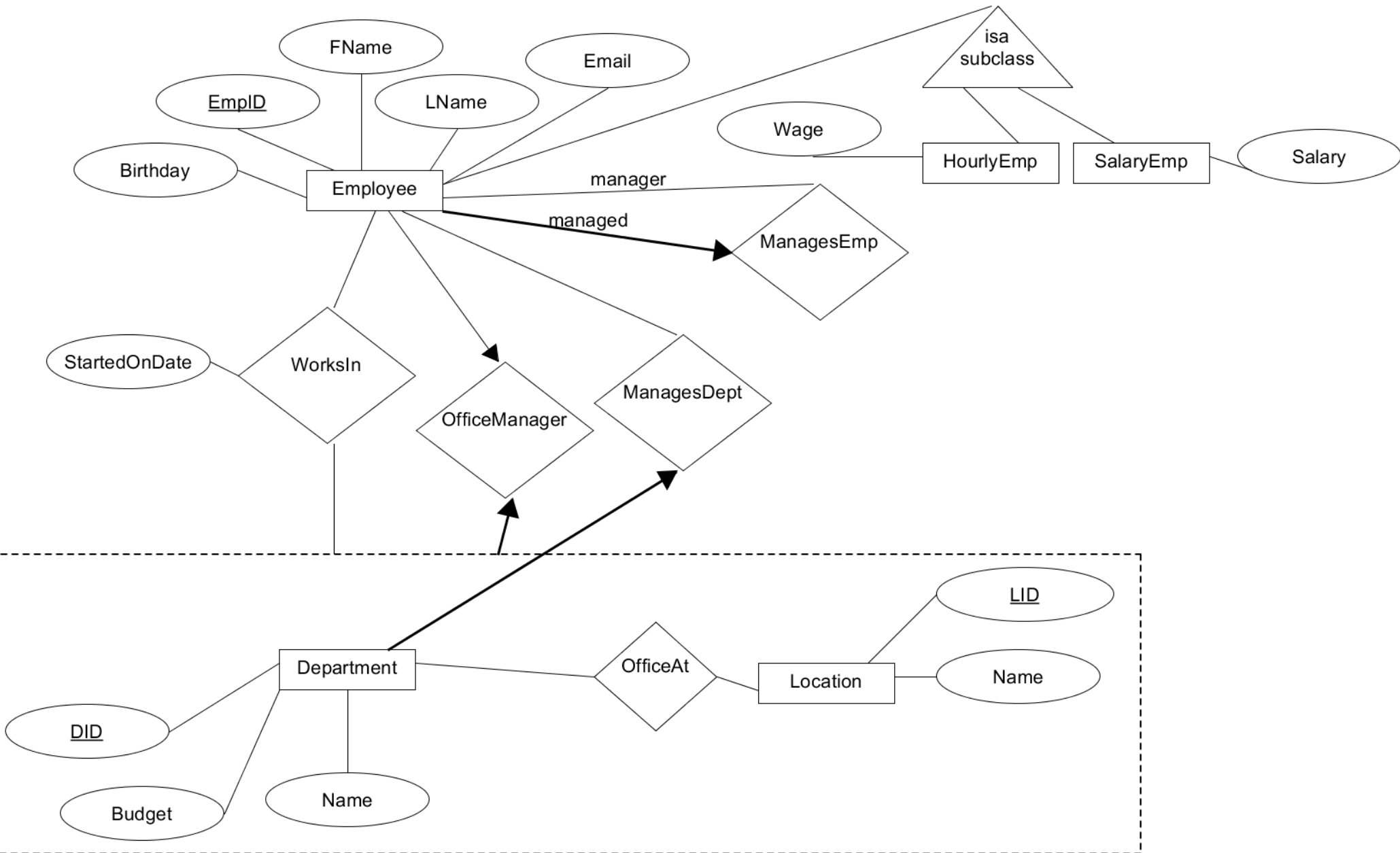
Describe this in English.

# Data: Adding constraints



Describe this in English.

# Practice





# Practice

- Write Create Table statements for everything necessary for
  - OfficeAt
  - OfficeManager
  - ManagesEmp