

# CCT395, Week 6

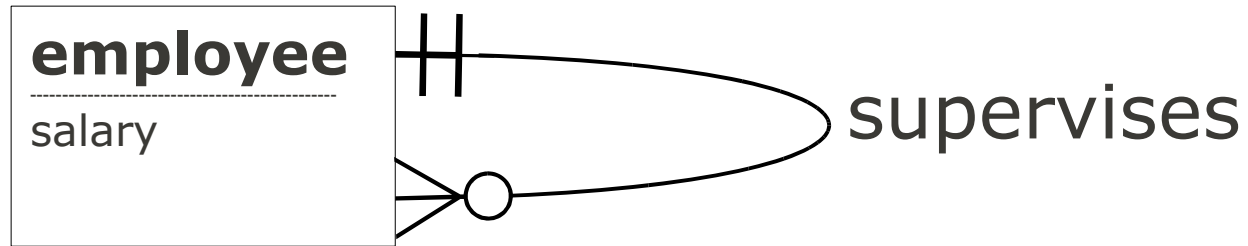
## Implementing a Database with SQL and a Case Study Exercise

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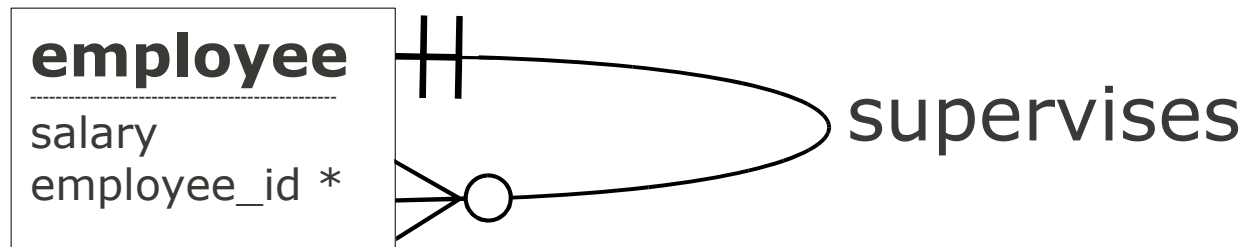


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# Recursive Relationships



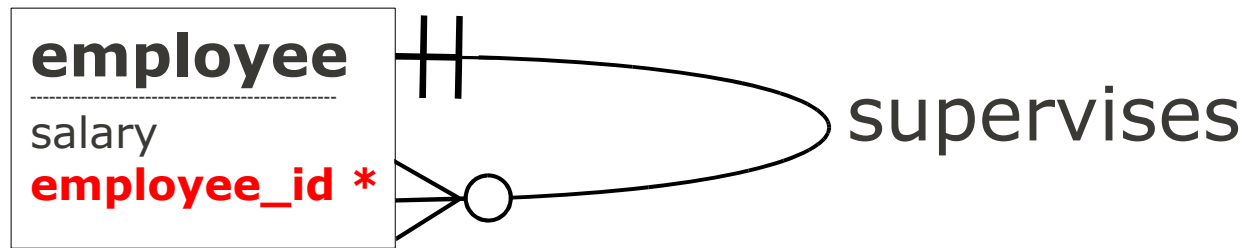
# Recursive Relationships



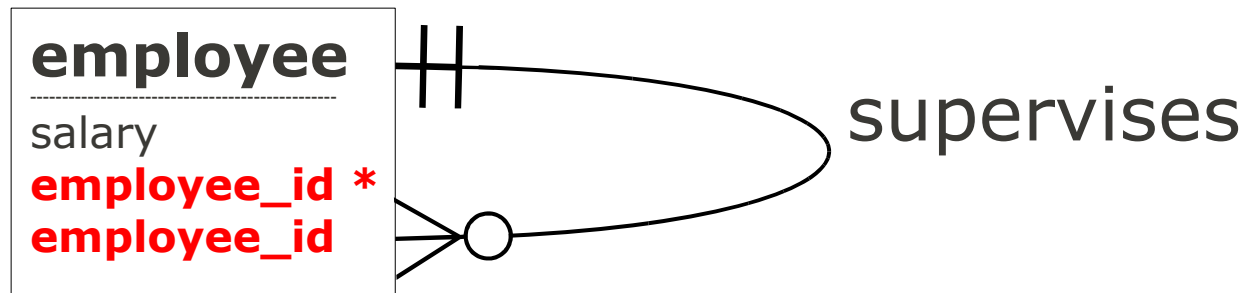
# Step 3

“For each entity that is at the ‘many’ end of one or more relationships, include the primary key of each parent entity in the table as foreign keys.”

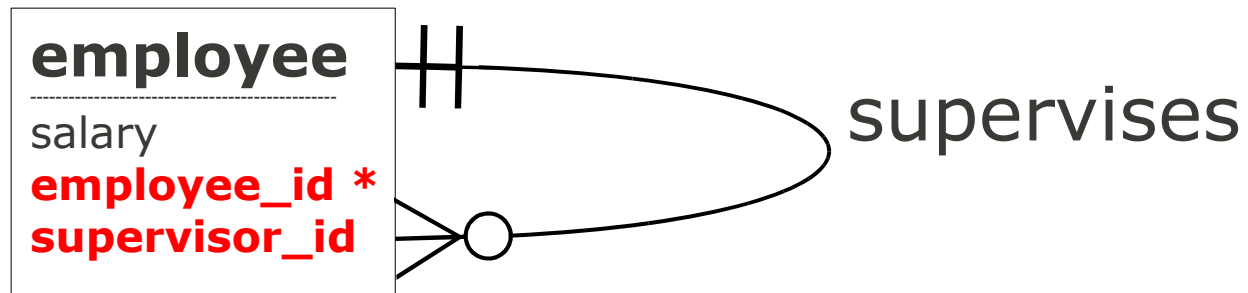
# Recursive Relationships



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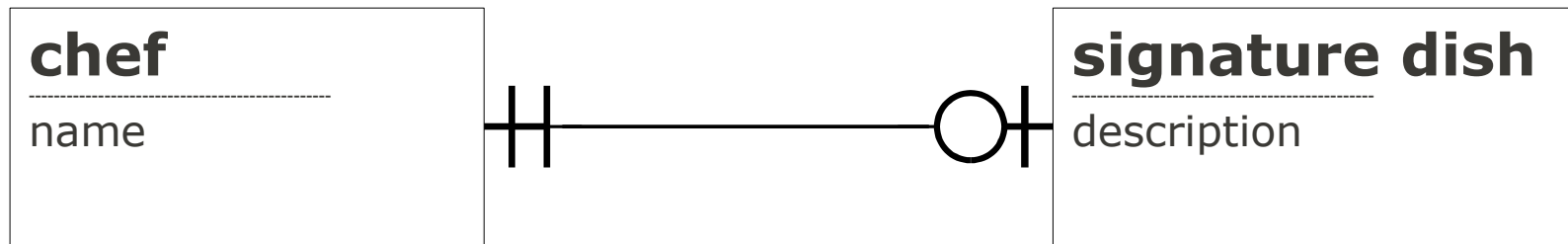


## employee

name	type	null	key
employee_id	int	NO	PRI
supervisor_id	int		
salary	decimal		



# 1-1 Relationships



# Option 1: Merge

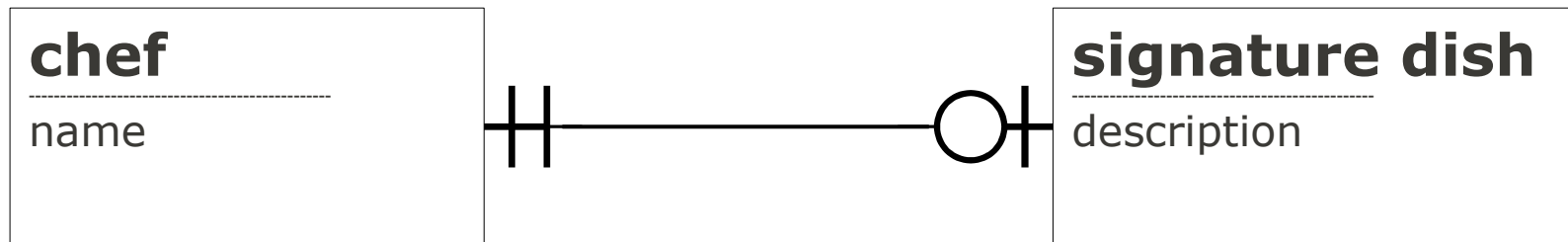


# Option 1: Merge

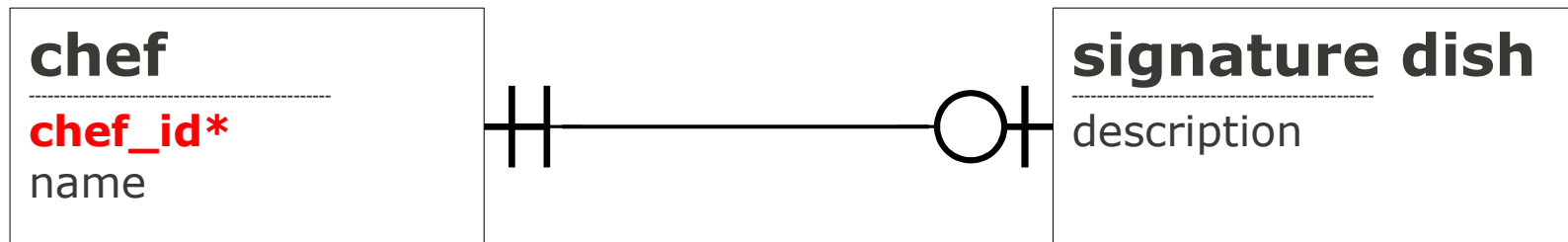
## **chef**

name	type	null	key
chef_id	int	NO	PRI
name	varchar(100)		
signature_dish _description	varchar(1000)		

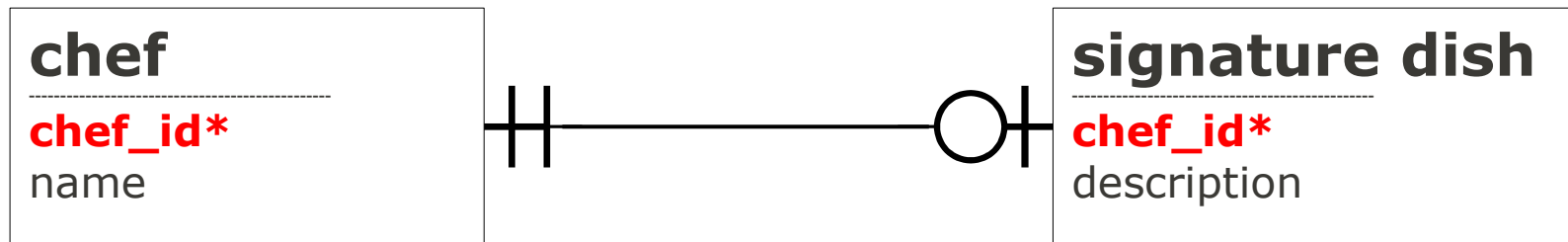
# Option 2: FK as PK



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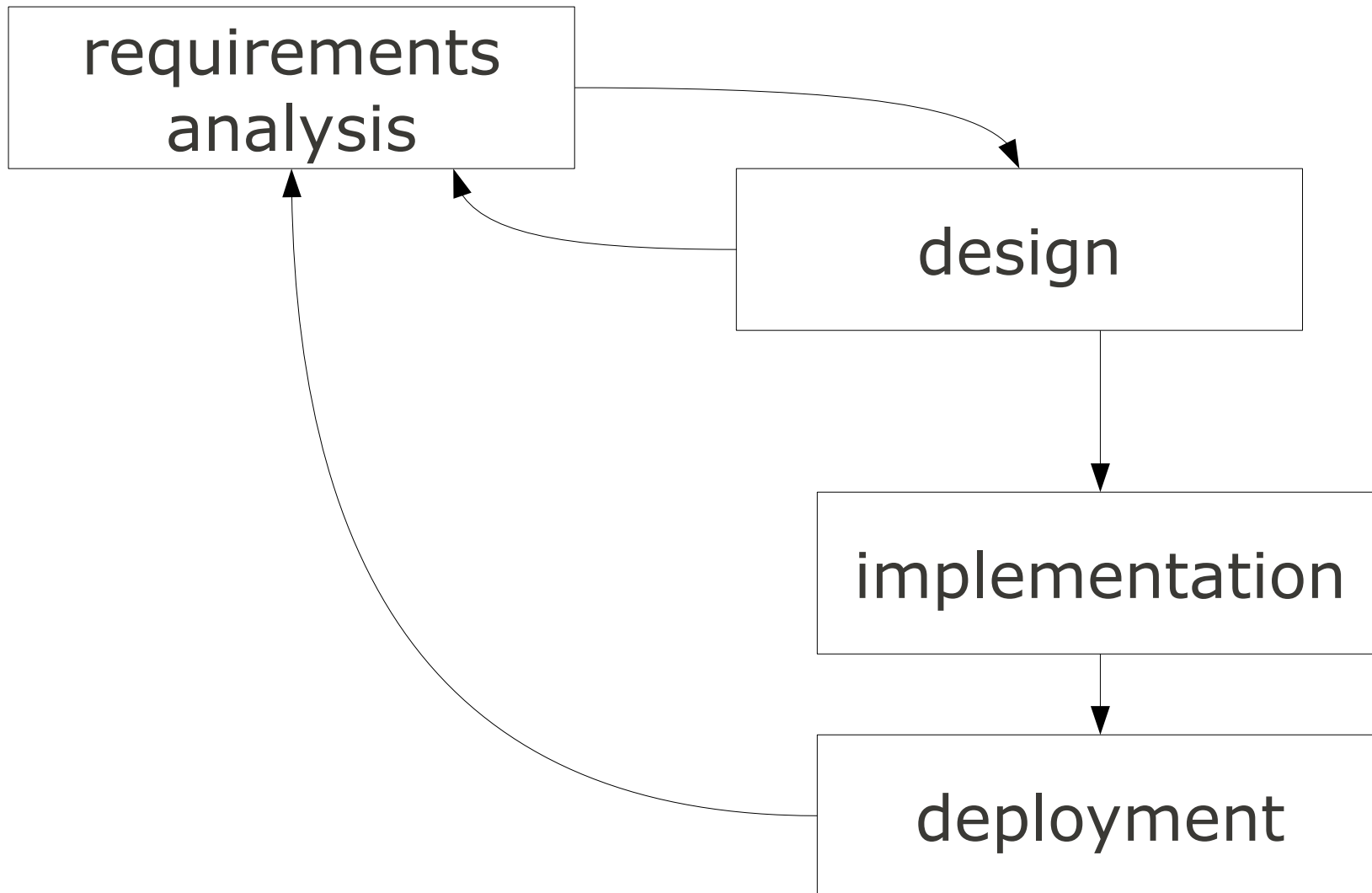
## signature dish

name	type	null	key
chef_id	int	NO	PRI
description	varchar(1000)		

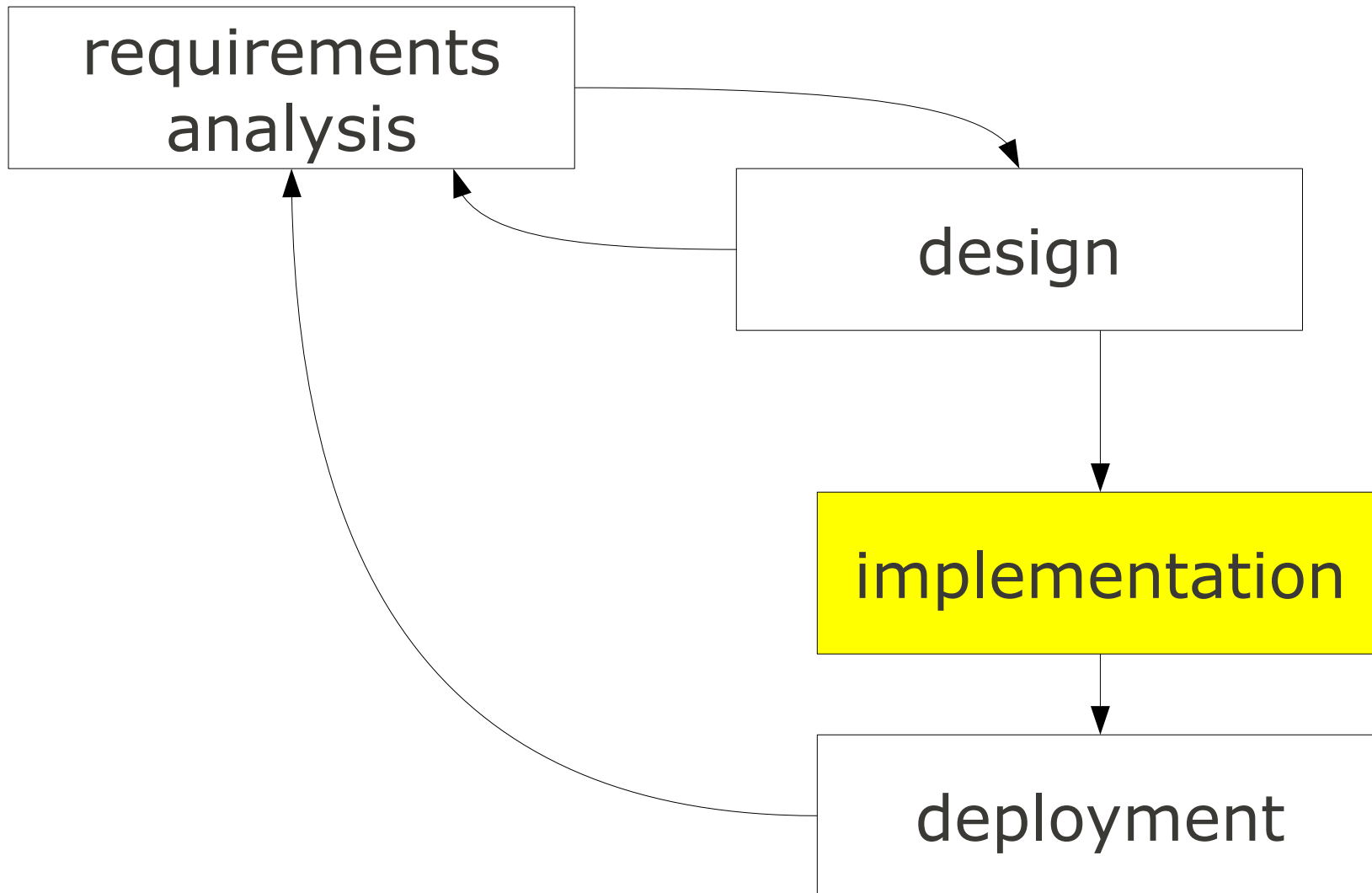
Questions?



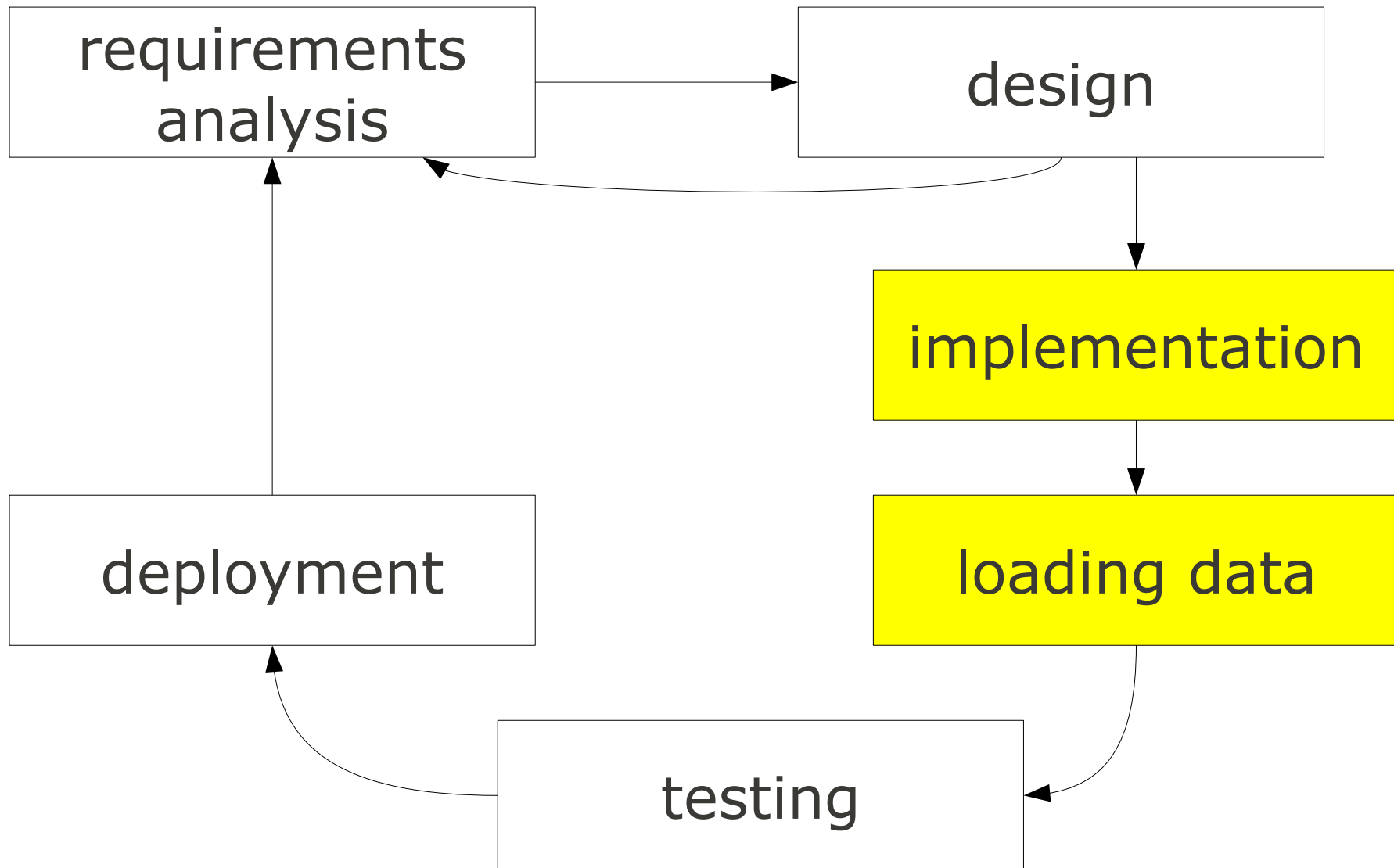
# Database Design



# Database Design



# Database Design



# Implementation

- Create a database/schema
- Define domains (not today)
- Create the tables

# Create a Database

```
create database <name>;
```

For instance:

```
create database university;
```

Query OK, 1 row affected (0.00 sec)

# Delete a Database

```
drop database <name>;
```

For instance:

```
drop database university;
```

Query OK, 0 rows affected (0.01 sec)



# Create a Table

```
create table <name>;
```

For instance:

```
use university;  
create table student;
```

ERROR 1113 (42000): A table must have at least 1 column

# Create a Table

```
create table <name>  
  (<column> <vartype>);
```

For instance:

```
create table student  
  (student_id int);
```

Query OK, 0 rows affected (0.02 sec)

# Create a Table

```
create table <name> (  
  <column1> <vartype1>,  
  <column2> <vartype2>  
);
```

For instance:

```
create table student (  
  student_id int,  
  last_name varchar(100)  
);
```

ERROR 1050 (42S01): Table 'student' already exists

# Delete a Table

```
drop table <name>;
```

For instance:

```
drop table student;
```

Query OK, 0 rows affected (0.00 sec)



# Create a Table

```
create table <name> (  
  <column1> <vartype1>,  
  <column2> <vartype2>  
);
```

For instance:

```
create table student (  
  student_id int,  
  last_name varchar(100)  
);
```

Query OK, 0 rows affected (0.02 sec)

# Required Fields

```
create table student (  
  student_id int not null,  
  last_name varchar(100)  
);
```

# Primary Keys

```
create table student (  
  student_id int not null,  
  last_name varchar(100),  
  primary key (student_id)  
);
```

```
mysql> describe student;
```

Field	Type	Null	Key	Default	Extra
student_id	int(11)	NO	PRI	NULL	
last_name	varchar(100)	YES		NULL	

```
2 rows in set (0.00 sec)
```

# Foreign Keys

```
create table enrollment (  
  student_id int not null,  
  foreign key (student_id)  
    references  
      student (student_id),  
  instance_id int not null  
);
```

# Load Some Data!

```
insert into student values (  
  1, "Jones"  
);
```

Query OK, 1 row affected (0.00 sec)

```
mysql> select * from student;
```

student_id	last_name
1	Jones

1 row in set (0.00 sec)

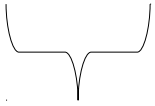


# From a File

```
load data  
infile "/tmp/students.csv"  
into table student;
```

# The File

**1** **Jones**



tab

# Comma-Separated

```
load data  
infile "/tmp/students.csv"  
into table student  
fields terminated by ",";
```

Query OK, 1 row affected (0.00 sec)

```
mysql> select * from student;
```

```
+-----+-----+
| student_id | last_name |
+-----+-----+
|          1 | Jones     |
+-----+-----+
```

1 row in set (0.00 sec)

```
mysql> load data infile "/tmp/students.csv" into table
student;
```

ERROR 1062 (23000): Duplicate entry '1' for key 1

# Deleting Data

```
delete from student;
```

# Deleting Select Data

```
delete from student  
where ... ;
```

# Data

1273	Smith	Robert
1274	Ivanov	Boris
1275	Almeida	João

# Easier

**Smith**

**Robert**

**Ivanov**

**Boris**

**Almeida**

**João**



# Auto-Increment

```
create table student (  
  student_id int not null  
    auto_increment,  
  last_name varchar(100),  
  primary key (student_id)  
);
```

# Auto-Increment

```
load data  
infile "/tmp/students.csv"  
into table student;
```

# Auto-Increment

```
insert into student (last_name)  
values ("Jones");
```

Questions?

# João Almeida's Fair Trade Coffee