

CCT395, Week 6

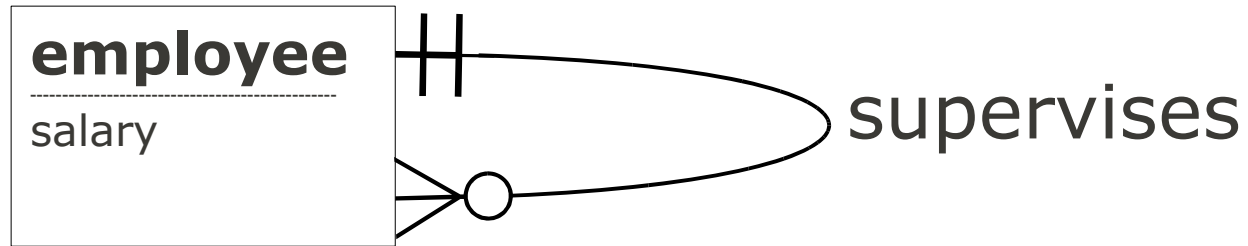
Implementing a Database with SQL and a Case Study Exercise

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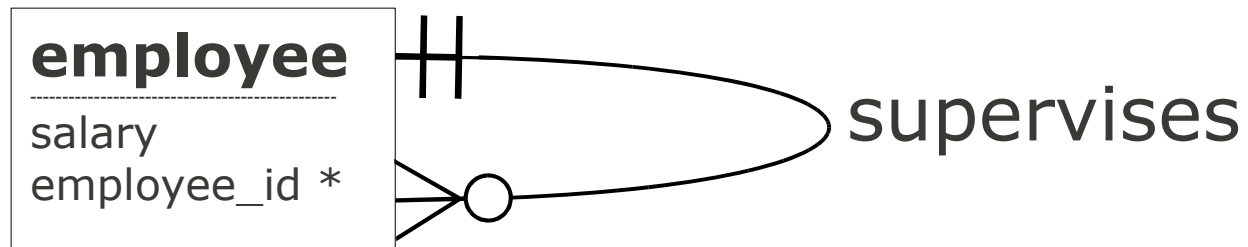


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Recursive Relationships



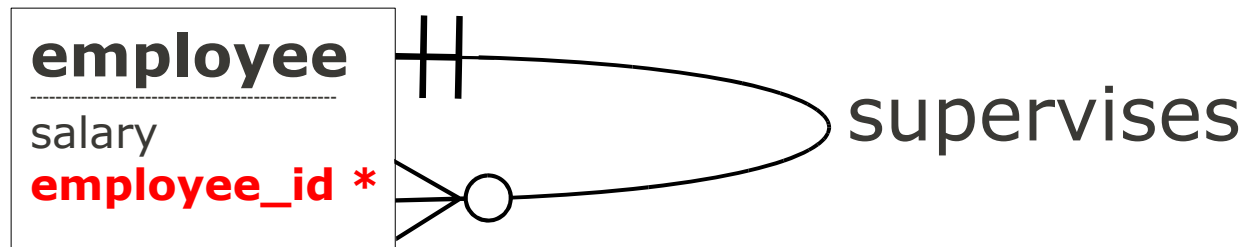
Recursive Relationships



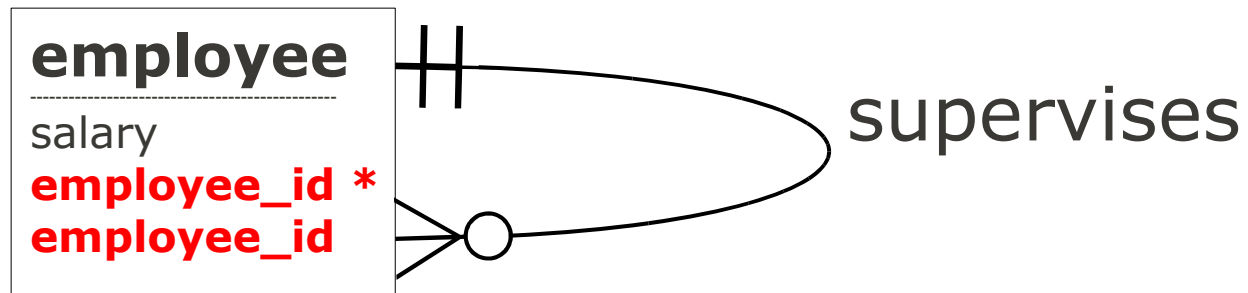
Step 3

“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.”

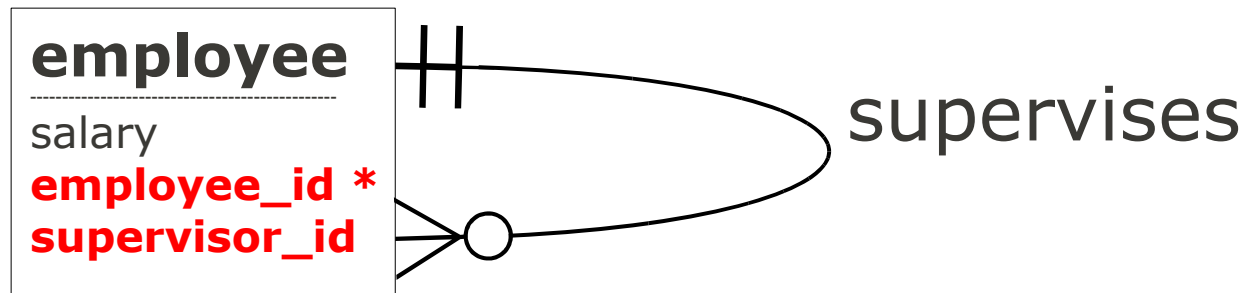
Recursive Relationships



Recursive Relationships



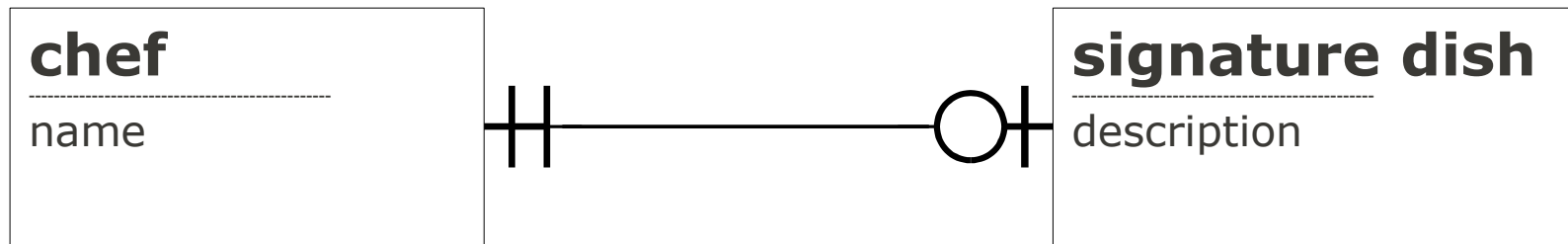
Recursive Relationships



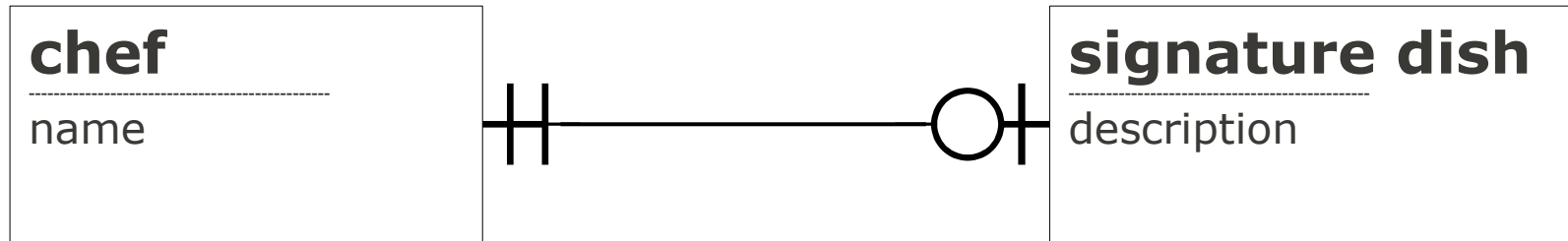
employee

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

1-1 Relationships



Option 1: Merge

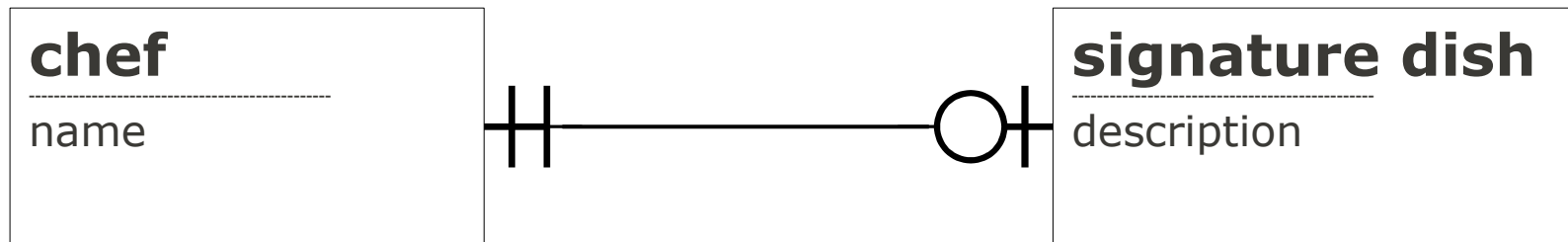


Option 1: Merge

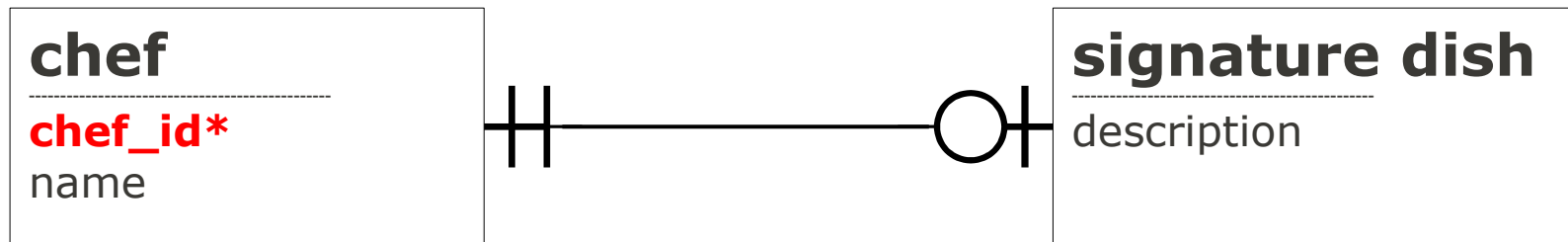
chef

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

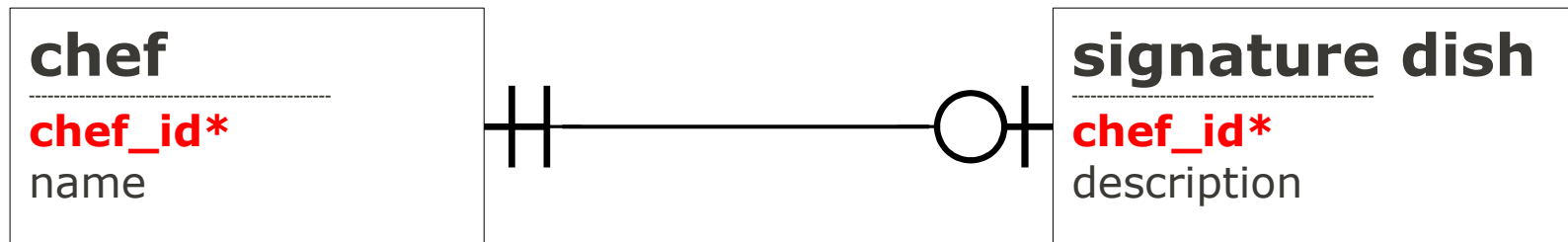
Option 2: FK as PK



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Option 2: FK as PK



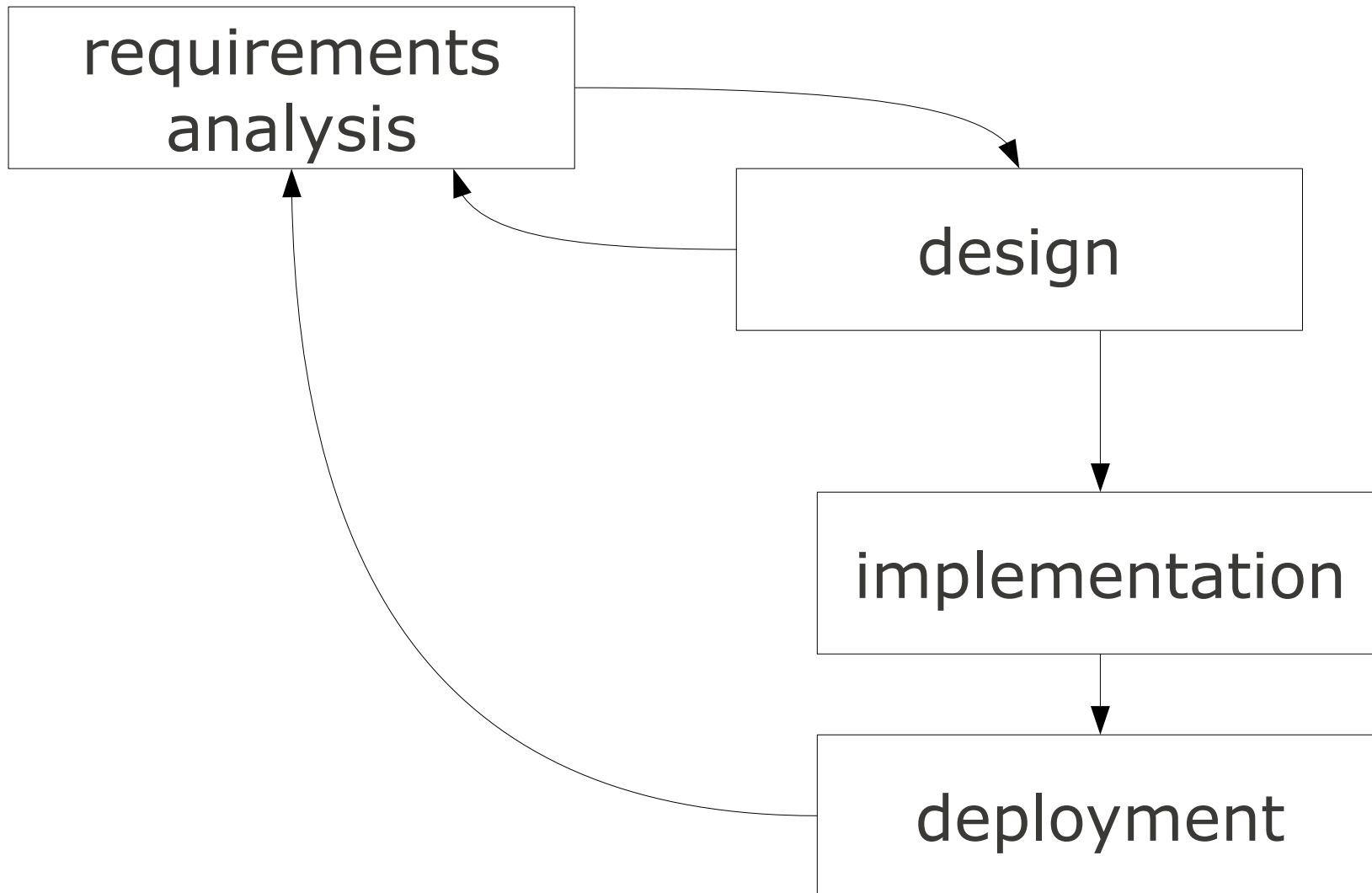
Option 2: FK as PK

signature dish

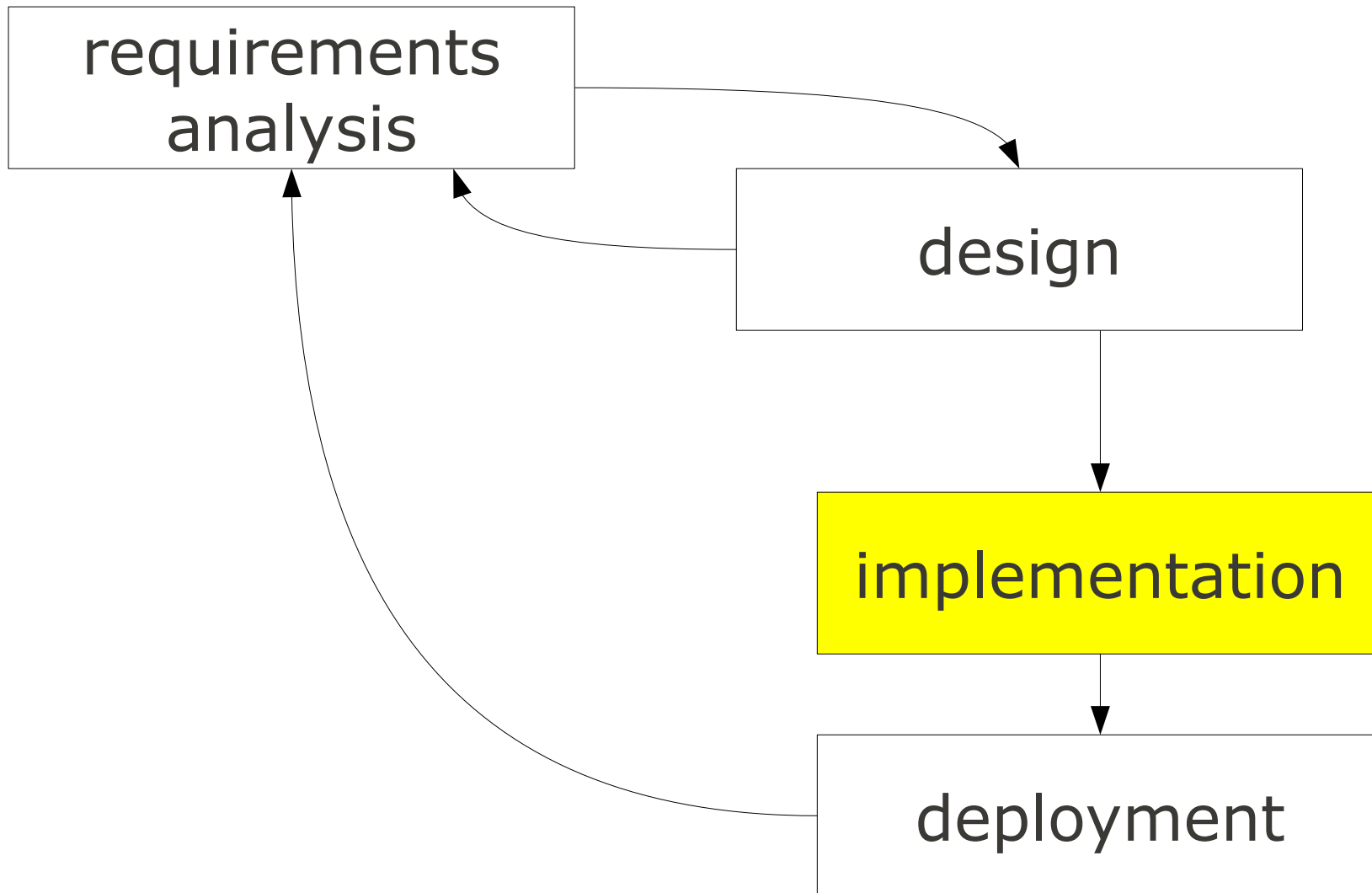
name	type	null	key
chef_id	int	NO	PRI
description	varchar(1000)		

Questions?

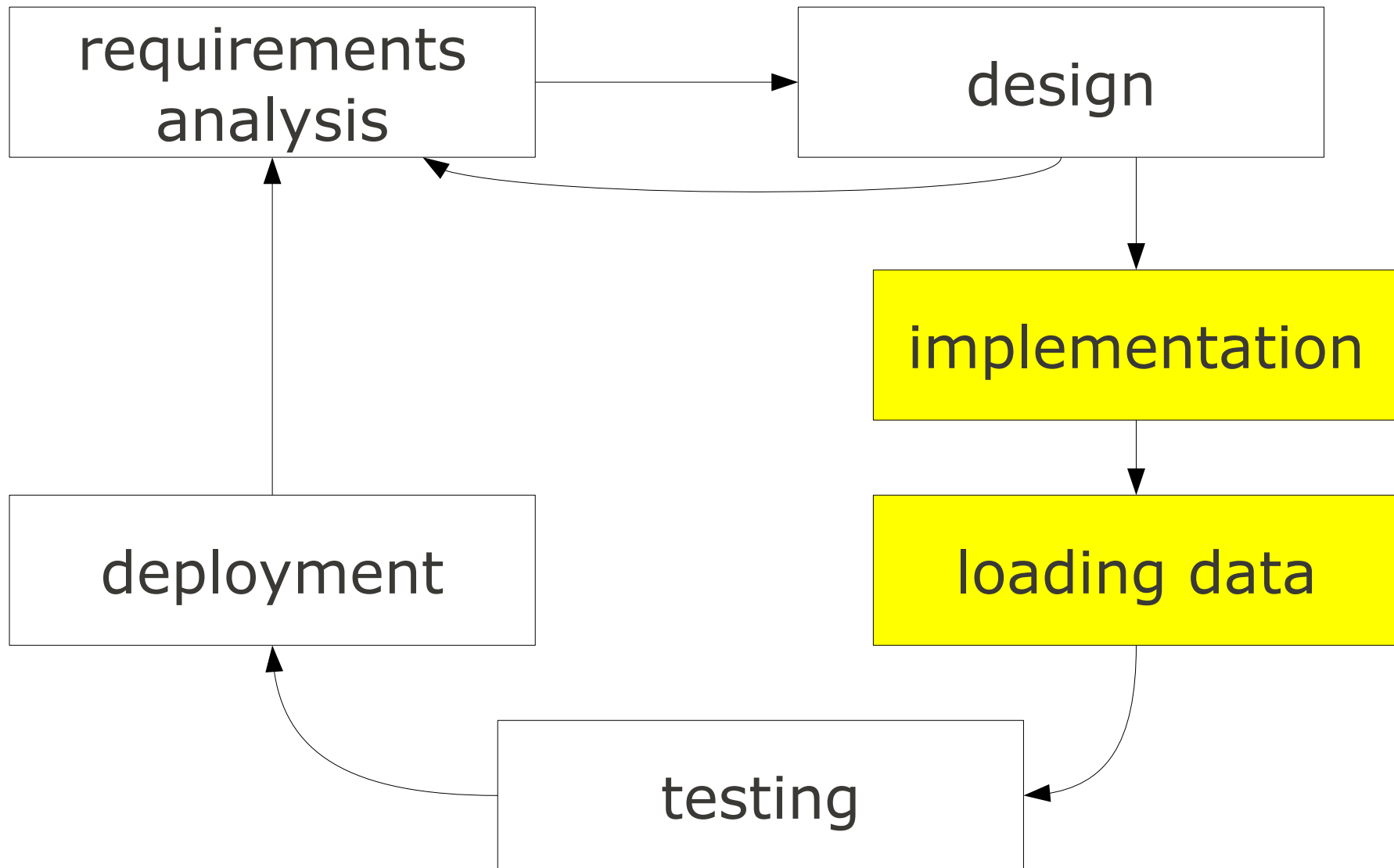
Database Design



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

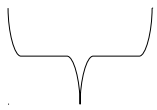
1 row in set (0.00 sec)

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