

ALTER, CONSTRAIN, TRIGGER

P R E P A R E D B Y : L U I S M E I N G

OBJECTIVES:

01

Revisit the conceptual and physical

02

Trigger

03

Constraints

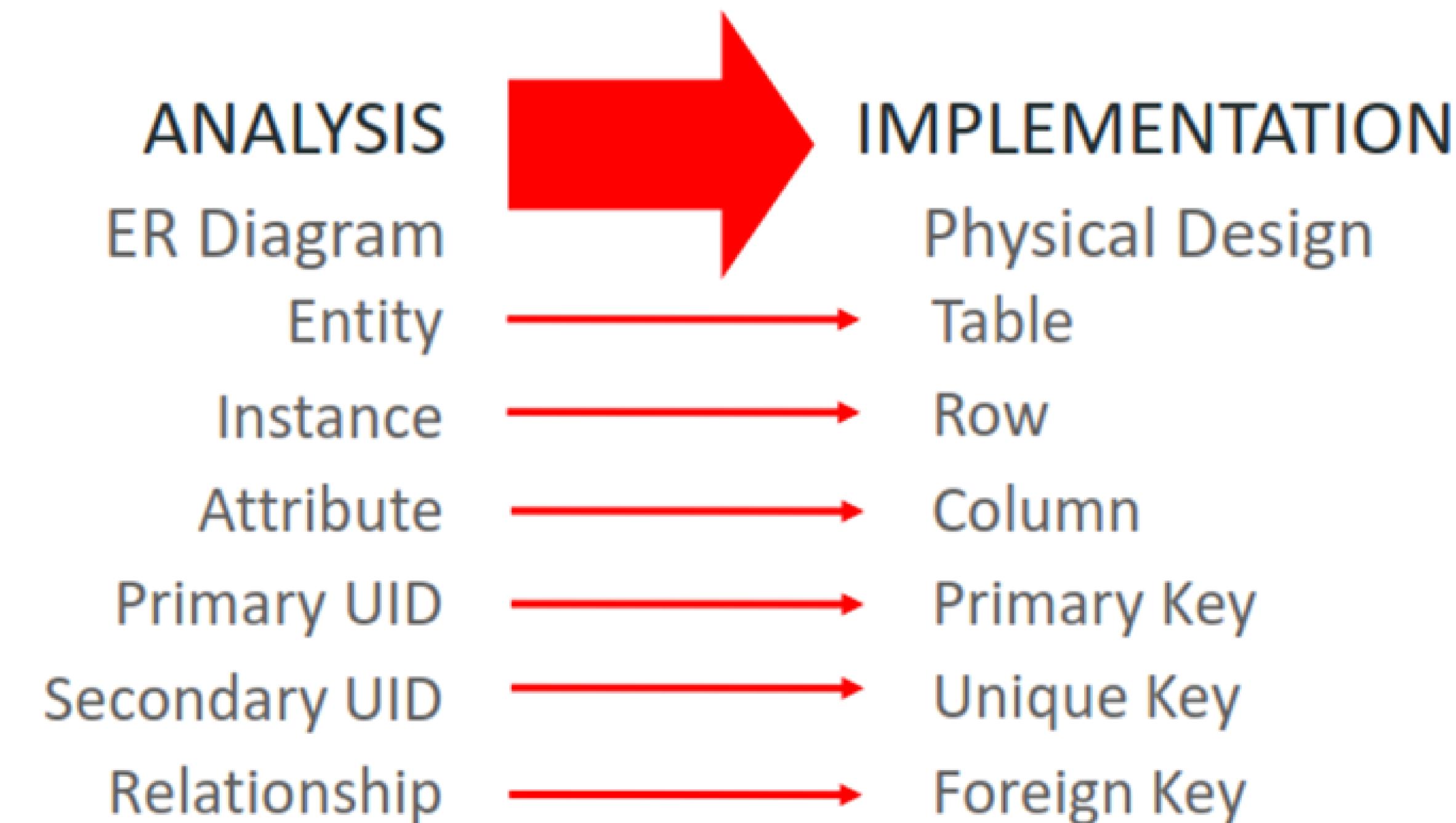
03

Alter Table



1.1 Revisit the conceptual and physical

Terminology Mapping

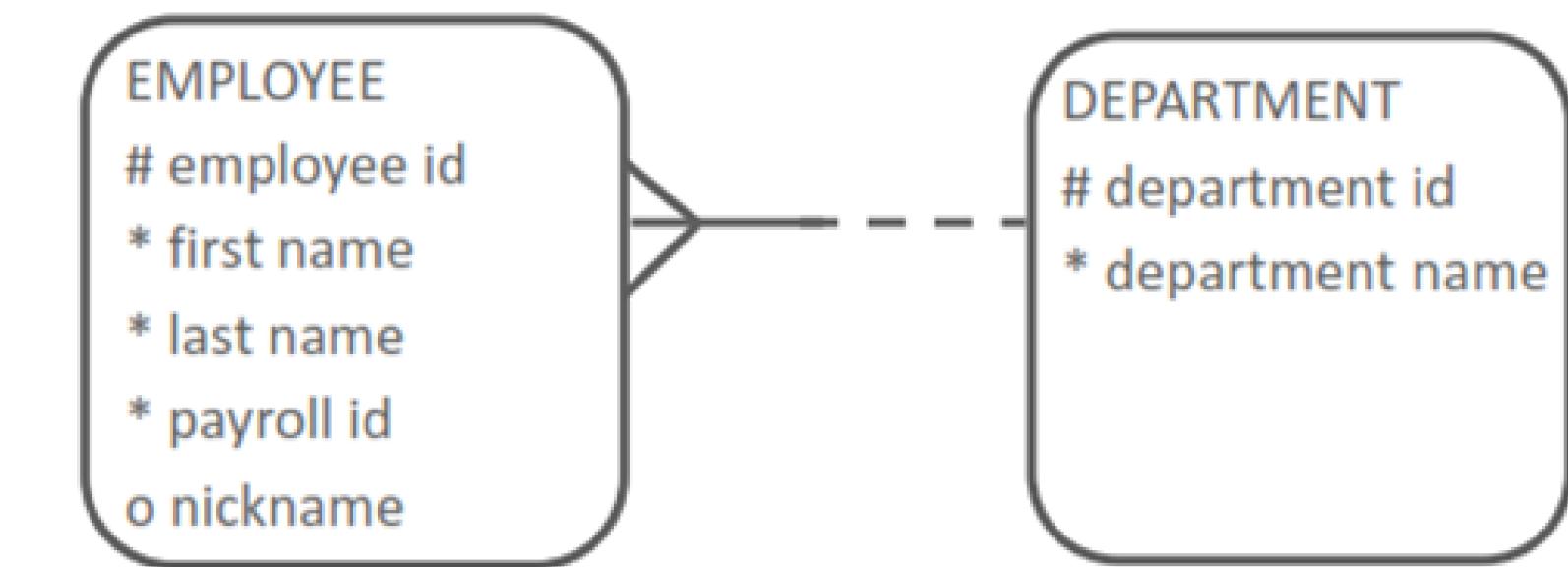


1.1 Revisit the conceptual and physical

Transforming Conceptual To Physical

Conceptual Model (ERD)

Transformation
process



Physical Implementation: Relational Database

EMPLOYEES (EPE)		
Key type	Optionality	Column name
pk	*	employee_id
uk	*	payroll_id
	*	last_name
	*	first_name
	o	nickname
fk	*	department_id

DEPARTMENTS (DPT)		
Key type	Optionality	Column name
pk	*	department_id
	*	department_name

Trigger

- are procedures that are stored in the database and are implicitly run, or fired, when something happens
- are instructions that tell what happens when data is inserted or updated

2.1 Trigger

Trigger



- uses the 'CREATE OR REPLACE TRIGGER' keywords
- usually used in automatically adding ID's when a new instance is added to the table

2.1 Trigger



Trigger

```
CREATE OR REPLACE TRIGGER <trigger_name>
  before insert or update on <table_name>
  for each row
begin
  if inserting and :new.<attribute> is null then
    :new.<attribute> := to_number(sys_guid(),
      '<number_of_characters>');
  end if;
end;
/
```

2.2 Trigger Example

Trigger

- We make use of the employee and department entities. Each time a new employee is added to the system by HR, an ID for them is generated. Each of them as well is assigned to a department.

2.2 Trigger Example



Physical Implementation: Relational Database

EMPLOYEES (EPE)

Key type	Optionality	Column name
pk	*	employee_id
uk	*	payroll_id
	*	last_name
	*	first_name
	o	nickname
fk	*	department_id

DEPARTMENTS (DPT)

Key type	Optionality	Column name
pk	*	department_id
	*	department_name



```
create table DEPARTMENTS (
    deptno          number,
    name            varchar2(50) not null,
    location        varchar2(50),
    constraint pk_departments primary key (deptno)
);

create table EMPLOYEES (
    empno           number,
    name            varchar2(50) not null,
    job             varchar2(50),
    manager         number,
    hiredate        date,
    salary          number(7,2),
    commission      number(7,2),
    deptno          number,
    constraint pk_employees primary key (empno),
    constraint fk_employees_deptno foreign key (deptno)
        references DEPARTMENTS (deptno)
);
```

2.2 Trigger Example

Trigger

- triggers can only be created after a table is formed

2.2

```
create or replace trigger DEPARTMENTS_BIU
  before insert or update on DEPARTMENTS
  for each row
begin
  if inserting and :new.deptno is null then
    :new.deptno := to_number(sys_guid(),
      'XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX') ;
  end if;
end;
/
create or replace trigger EMPLOYEES_BIU
  before insert or update on EMPLOYEES
  for each row
begin
  if inserting and :new.empno is null then
    :new.empno := to_number(sys_guid(),
      'XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX') ;
  end if;
end;
/
```

2.2 Trigger Example

Trigger



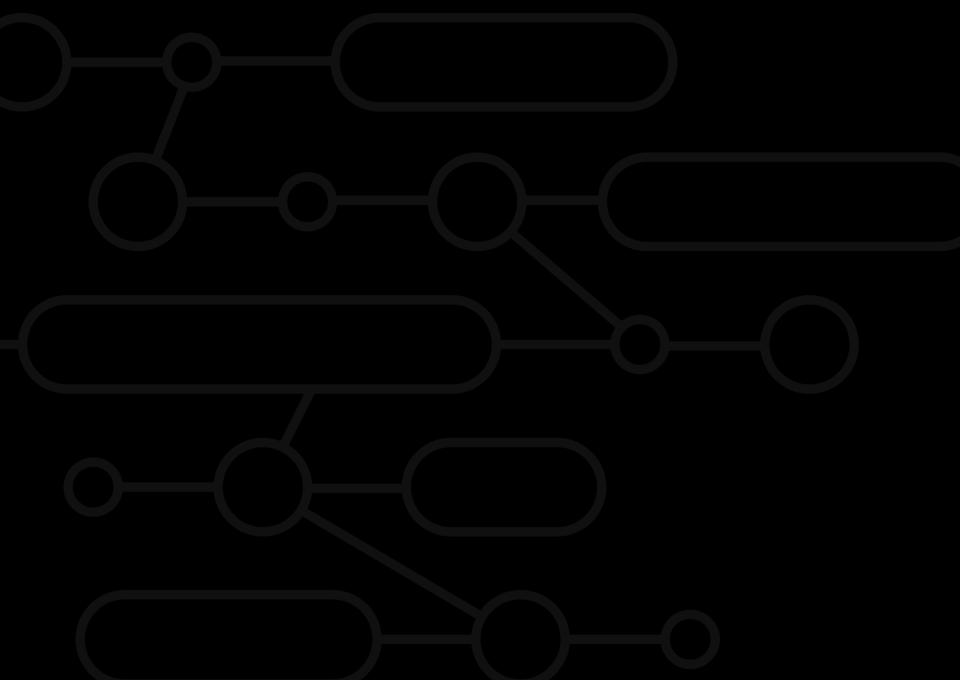
EMPNO	NAME
314774923647696543899828386714744656817	Sam Smith
314774923647698961750659615973094069169	Mara Martin
314774923647701379682298845231443481521	Yun Yates



2.2 Trigger Example

Trigger

- Why use triggers instead of 'Sequences'?





Constraints

- are used to limit the type of data that can go into a table
- sets the optionality of the attribute, the primary key, or the foreign key

3.1 Constraints

Constraints

```
create table DEPARTMENTS (
    deptno          number,
    name            varchar2(50) not null,
    location        varchar2(50),
    constraint pk_departments primary key (deptno)
);
```



Constraints

```
create table EMPLOYEES (
    empno                  number,
    name                   varchar2(50) not null,
    job                    varchar2(50),
    manager                number,
    hiredate               date,
    salary                 number(7,2),
    commission              number(7,2),
    deptno                 number,
    constraint pk_employees primary key (empno),
    constraint fk_employees_deptno foreign key (deptno)
        references DEPARTMENTS (deptno)
);
```



Constraints

```
create table EMPLOYEES (
    empno                  number,
    name                   varchar2(50) not null,
    job                    varchar2(50),
    manager                number,
    hiredate               date,
    salary                 number(7,2),
    commission              number(7,2),
    deptno                 number,
    constraint pk_employees primary key (empno),
    constraint fk_employees_deptno foreign key (deptno)
        references DEPARTMENTS (deptno)
);
```

4.1 Alter Table

Alter Table

- is used to edit a table
- follows the syntax:

```
ALTER TABLE <table_name>  
<action_keyword> <data_type>;
```

4.1 Alter Table

Alter Table



```
alter table EMPLOYEES  
add country_code varchar2(2);
```

