RELATIONAL DATABASES

INSERT STATEMENT

OBJECTIVES

- INSERT STATEMENT USING THE VALUES CLAUSE

- INSERT SPECIAL VALUES, NULL VALUES AND DATE VALUES

- INSERT TO COPY ROWS FROM ONE TABLE TO ANOTHER

PURPOSE

- MAKING CHANGES TO THE DATABASE

- DATABASES ARE DYNAMIC

- CONSTANTLY INSERTING UPDATING AND DELETING DATA.

INSERT

- THE INSERT STATEMENT IS USED TO ADD A NEW ROW TO A TABLE.

- THE STATEMENT REQUIRES THREE VALUES:

  - THE NAME OF THE TABLE

  - THE NAMES OF THE COLUMNS IN THE TABLE TO POPULATE

  - CORRESPONDING VALUES FOR EACH COLUMN

- WE WANT TO INSERT THE DATA BELOW IN A COPY OF THE DEPARTMENT TABLE:

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
200	Human Resources	205	1500

INSERT

- THE SYNTAX USES INSERT TO ADD A NEW DEPARTMENT TO THE COPY_DEPARTMENT TABLE.

- THIS STATEMENT EXPLICITLY LISTS EACH COLUMN AS IT APPEARS IN THE TABLE.

- THE VALUES FOR EACH COLUMN ARE LISTED IN THE SAME ORDER.

- NOTE THAT THE NUMBER VALUES ARE NOT ENCLOSED IN QUOTES.

```
INSERT INTO copy_departments
    (department_id, department_name, manager_id, location_id)
VALUES
    (200,'Human Resources', 205, 1500);
```

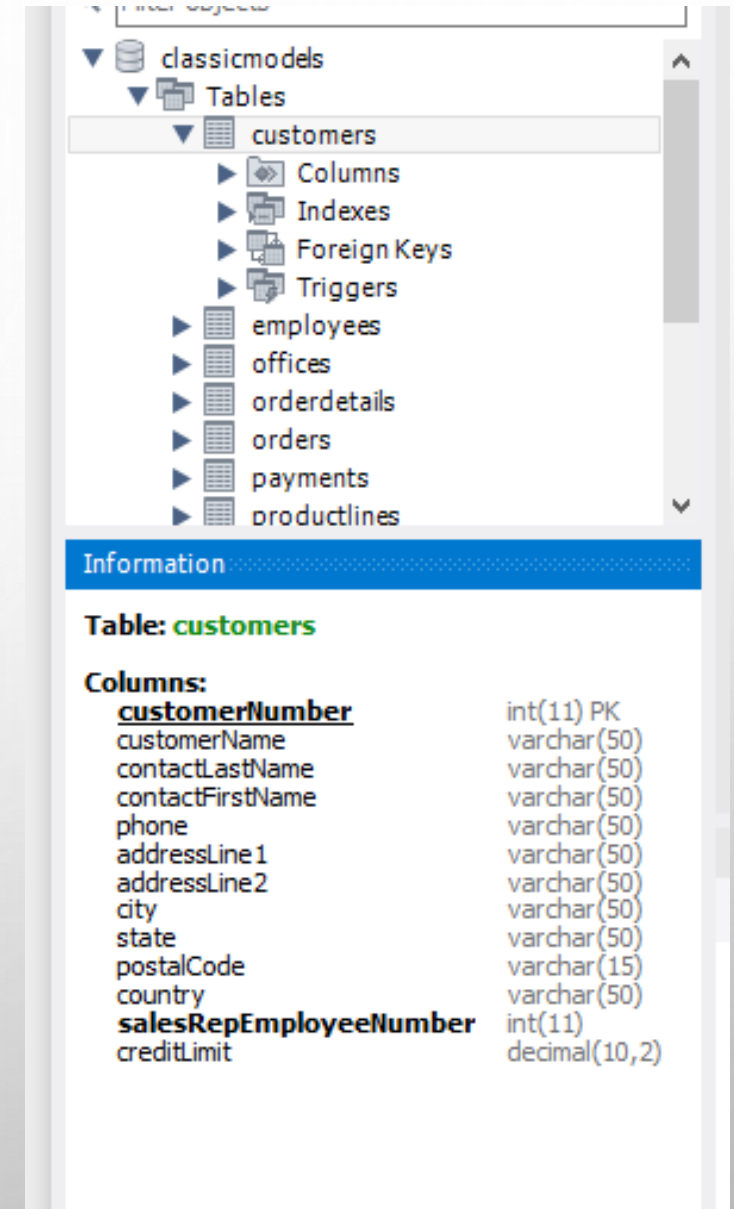| DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
200	Human Resources	205	1500

INSERT

- ANOTHER WAY TO INSERT VALUES IS TO IMPLICITLY ADD THEM BY OMITTING THE COLUMN NAMES.

- ONE PRECAUTION: THE VALUES FOR EACH COLUMN MUST MATCH EXACTLY THE DEFAULT ORDER IN WHICH THEY APPEAR IN THE TABLE AND A VALUE MUST BE PROVIDED FOR EACH COLUMN

```
INSERT INTO copy_departments
VALUES
    (210,'Estate Management', 102, 1700);
```

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
210	Estate Management	102	1700

CHECK THE TABLE FIRST

- BEFORE INSERTING DATA INTO A TABLE, YOU MUST CHECK SEVERAL TABLE DETAILS.

- IN THE SCHEMA INFORMATION SECTION IN WORKBENCH YOU WILL FIND DETAILS ON EACH TABLE STRUCTURE.

- NUMBER SPECIFIES THE PRECISION AND SCALE. PRECISION IS THE TOTAL NUMBER OF DIGITS, SCALE IS THE NUMBER OF DIGITS TO THE RIGHT OF THE DECIMAL PLACE.

INSERTING ROWS WITH NULL VALUES

- THE INSERT STATEMENT NEED NOT SPECIFY EVERY COLUMN.

- IF EVERY COLUMN THAT REQUIRES A VALUE IS ASSIGNED A VALUE THEN THE INSERT WILL WORK.

- AN IMPLICIT INSERT WILL AUTOMATICALLY INSERT A NULL VALUE IN COLUMNS THAT ALLOW NULLS.

- TO EXPLICITLY ADD A NULL VALUE TO A COLUMN THAT ALLOWS NULLS, USE THE NULL KEYWORD IN THE VALUES LIST.

```
INSERT INTO copy_employees
  (employee_id, first_name, last_name, phone_number, hire_date,
   job_id, salary)
VALUES
  (302,'Grigorz','Polanski', '8586667641', '15/Jun/2015',
   'IT_PROG',4200);
```

```
ORA-01400: cannot insert NULL into
("US_A009EMEA815_PLSQL_T01"."COPY_EMPLOYEES"."EMAIL")
```

INSERTING EMPTY STRINGS

- TO SPECIFY EMPTY STRINGS USE EMPTY SINGLE QUOTATION MARKS FOR MISSING DATA.

```
INSERT INTO copy_employees
   (employee_id, first_name, last_name, email, phone_number,
    hire_date, job_id, salary)
VALUES
   (302,'Grigorz','Polanski', 'gpolanski', '', '15/Jun/2015',
    'IT_PROG',4200);
```

INSERTING DATE VALUES

- THE DEFAULT FORMAT MODEL FOR DATE DATA TYPES IN MYSQL WORKBENCH IS 'YYYY-MM-DD'

```sql
1  INSERT INTO tasks(title, start_date, due_date)
2  VALUES('Insert date into table','2018-01-09','2018-09-15');
```

- IT IS POSSIBLE TO USE EXPRESSIONS IN THE VALUES CLAUSE, FOR EXAMPLE, THE FOLLOWING USES THE CURRENT DATE IN THE INSERT.

```sql
1  INSERT INTO tasks(title,start_date,due_date)
2  VALUES
3   ('Use current date for the task',CURRENT_DATE(),CURRENT_DATE())
```

INSERTING DEFAULT VALUES

- IF YOU WANT TO INSERT A DEFAULT VALUE INTO A COLUMN YOU HAVE TWO OPTIONS:

  - Ignore both column name and its value in the INSERT statement.

  Or

  - Specify the column name in the INSERT INTO clause and use the DEFAULT keyword in the VALUES clause.

INSERTING DEFAULT VALUES

```
1  INSERT INTO
2   tasks(title,priority)
3  VALUES
4   ('Understanding DEFAULT keyword in INSERT statement',DEFAULT);
```

INSERTING MULTIPLE ROWS

```
1  INSERT INTO tasks(title, priority)
2  VALUES
3   ('My first task', 1),
4   ('It is the second task',2),
5   ('This is the third task of the week',3);
```

- TO INSERT MULTIPLE ROWS EACH ROW IS SPECIFIED AS A LIST OF VALUES IN THE VALUES CLAUSE.