SECD2523 – DATABASE

SEMESTER 1/20232024

SECTION 10

LAB 1: DDL

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Database Design Project

Oracle Baseball League Store Database

Project Scenario:

You are a small consulting company specializing in database development. You have just been awarded the contract to develop a data model for a database application system for a small retail store called Oracle Baseball League (OBL).

The Oracle Baseball League store serves the entire surrounding community selling baseball kit. The OBL has two types of customer, there are individuals who purchase items like balls, cleats, gloves, shirts, screen printed t-shirts, and shorts. Additionally customers can represent a team when they purchase uniforms and equipment on behalf of the team.

Teams and individual customers are free to purchase any item from the inventory list, but teams get a discount on the list price depending on the number of players. When a customer places an order we record the order items for that order in our database.

OBL has a team of three sales representatives that officially only call on teams but have been known to handle individual customer complaints.

Section 6 Lesson 3 Exercise : Data Definition Language

Use DDL to build and maintain database tables (S6L3 Objective 3)

Part 1: Reading information from a script

In this exercise you will use the "obl Sports.ddl" file to consolidate your knowledge of DDL.

Open the "obl Sports.ddl" in a text editor.

1. How many tables have been created using the CREATE TABLE statement?

   10 tables have been created.

2. How many columns are created for the price history table?

   6 columns are created.

3. What statement is used to enforce the constraint that the category column of the items table must have a value?

   NOT NULL.

4. What is the name of the foreign key constraint between the customers and customer addresses tables?

   ctr_number.

5. What are the lowest and highest values that can be stored in the commission_rate column for the sales_representatives table?

   Lowest = -99, Highest = 99.

6. What are the lowest and highest values that can be stored in the price column for the price_history table?

   Lowest = -99999.99, Highest = 99999.99.

7. What are the 3 columns that make up the primary key for the price_history table?

   START_DATE, START_TIME, ITM_NUMBER.

Part 2 : Updating Constraints

Log-in to APEX and go to the SQL commands environment

Modifying a column

1. Run the DESCRIBE command on the orders table to view its structure.

   DESCRIBE orders

```
1   DESCRIBE orders
```

Results | Explain | **Describe** | Saved SQL | History

Object Type **TABLE** Object **ORDERS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	-	-
	ODR_TIME	DATE	7	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

2. **Task**: Add a default constraint that will use todays date to assign a value to the odr_date column of the orders table if no date is provided.

   ALTER TABLE orders

   MODIFY odr_date DATE DEFAULT SYSDATE;

```
1   ALTER TABLE orders
2   MODIFY odr_date DATE DEFAULT SYSDATE;
3
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.

0.05 seconds
```

3. Run the DESCRIBE command again to verify the command was successful.

   DESCRIBE orders

```
1  DESCRIBE orders
2
```

Results | Explain | **Describe** | Saved SQL | History

Object Type **TABLE** Object **ORDERS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
ORDERS	ID	VARCHAR2	9	-	-	1	-	-	-
	ODR_DATE	DATE	7	-	-	-	-	SYSDATE	-
	ODR_TIME	DATE	7	-	-	-	-	-	-
	NUMBER_OF_UNITS	NUMBER	-	2	0	-	-	-	-
	CTR_NUMBER	VARCHAR2	6	-	-	-	-	-	-

Adding a check constraint

1. Run the DESCRIBE command on the customers table to view its structure.

   DESCRIBE customers

```
1  DESCRIBE customers
2
```

Results | Explain | **Describe** | Saved SQL | History

Object Type **TABLE** Object **CUSTOMERS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

2. **Task**: Add a check constraint that will not allow the customers current balance to go below zero.

   ALTER TABLE customers

   MODIFY current_balance CONSTRAINT ctr_crn CHECK (current_balance>=0);

```
1  ALTER TABLE customers
2  MODIFY current_balance CONSTRAINT ctr_crn CHECK (current_balance>=0);
3
4
```

Results | Explain | Describe | Saved SQL | History

```
Table altered.

0.06 seconds
```

3. Run the DESCRIBE command again to verify the command was successful.

DESCRIBE customers

```
1  DESCRIBE customers
2
3
```

Results | Explain | Describe | Saved SQL | History

Object Type TABLE Object CUSTOMERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

4. A check constraint is not shown in the results of a describe command.
    a. Go to the Object Browser
    b. Select the customers table.
    c. Click on the CONSTRAINTS tab.
    d. You will see your constraint here.

CUSTOMERS

Columns | Data | Indexes | Constraints | Grants | Statistics | Triggers | Dependencies | DDL | Sample Queries

+ Create | Drop | Enable | Disable | Refresh

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status
CTR_CRN	Check	current_balance>=0				ENABLED
SYS_C00150478387	Check	"CTR_NUMBER" IS NOT NULL				ENABLED
SYS_C00150478388	Check	"EMAIL" IS NOT NULL				ENABLED
SYS_C00150478389	Check	"FIRST_NAME" IS NOT NULL				ENABLED
SYS_C00150478390	Check	"LAST_NAME" IS NOT NULL				ENABLED
SYS_C00150478391	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED
SYS_C00150478392	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED
CUSTOMER_SALES_REP_FK	Foreign		SALES_REPRESENTATIVE_PK ...	SRE_ID	NO ACTION	ENABLED
CUSTOMER_TEAM_FK	Foreign		TEAM_PK (WKSP_LXX.TEAMS)	TEM_ID	NO ACTION	ENABLED
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED
CTR_EMAIL_UK	Unique			EMAIL		ENABLED
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED

Adding a column

The client has decided that they would like a separate column for the customer's mobile phone number. This is an optional column that will be required to store 11 digits.

1. Run the DESCRIBE command on the customers table to view its structure.

```
DESCRIBE customers
```

```
1  DESCRIBE customers
```

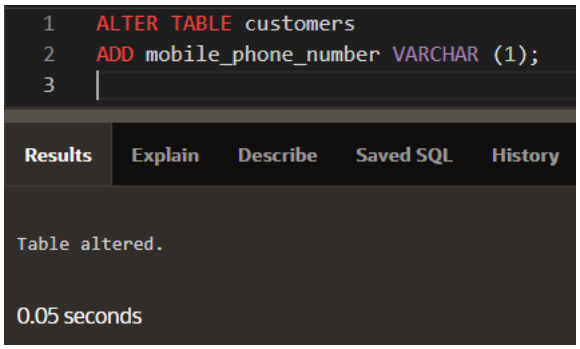
Results | Explain | Describe | Saved SQL | History

Object Type TABLE Object CUSTOMERS

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

2. **Task**: Add column that will satisfy the clients requirements

```
ALTER TABLE customers
ADD mobile_phone_number VARCHAR (1);
```



3. Run the DESCRIBE command on the customers table to view its structure.

```
DESCRIBE customers
```

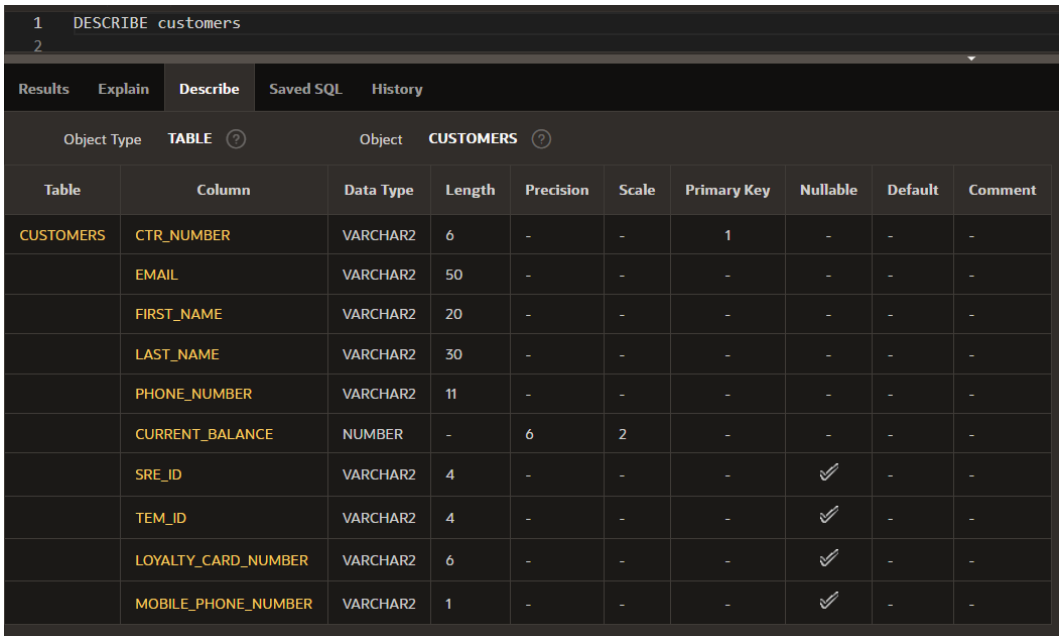


Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-
	MOBILE_PHONE_NUMBER	VARCHAR2	1	-	-	-	✓	-	-

Dropping a column

The client has decided that they don't need the mobile number column as most customers only provide a single contact number and that is already catered for with the existing phone_number column.

1. Run the DESCRIBE command on the customers table to view its structure.

   DESCRIBE customers

```
1  DESCRIBE customers
```

Results | Explain | **Describe** | Saved SQL | History

Object Type **TABLE** Object **CUSTOMERS**

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-

2. **Task**: Drop the column that was created to store the mobile phone number.

   ALTER TABLE customers

   DROP COLUMN mobile_phone_number;

```
1  ALTER TABLE customers
2  DROP COLUMN mobile_phone_number;
3
4
```

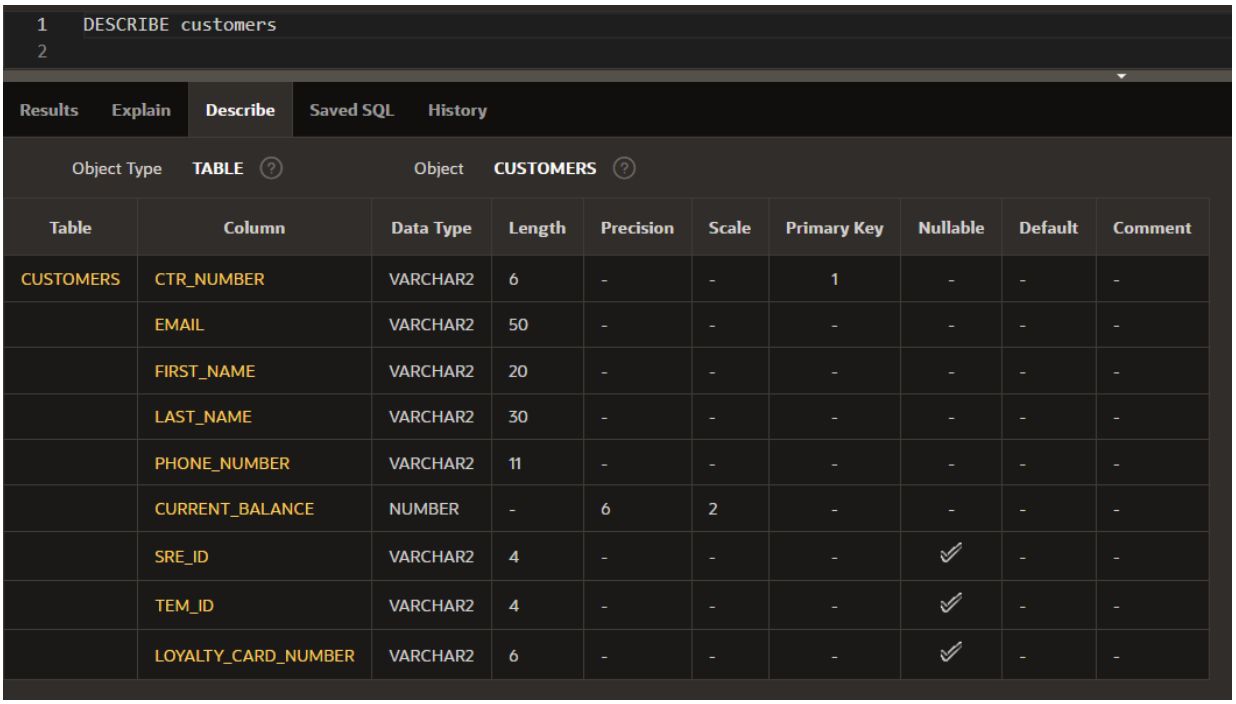
Results | Explain | Describe | Saved SQL | His

```
Table altered.

0.04 seconds
```

3. Run the DESCRIBE command on the customers table to view its structure.

```
DESCRIBE customers
```



```
1  DESCRIBE customers
2
```

Results | Explain | **Describe** | Saved SQL | History

Object Type **TABLE** Object **CUSTOMERS**

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CUSTOMERS	CTR_NUMBER	VARCHAR2	6	-	-	1	-	-	-
	EMAIL	VARCHAR2	50	-	-	-	-	-	-
	FIRST_NAME	VARCHAR2	20	-	-	-	-	-	-
	LAST_NAME	VARCHAR2	30	-	-	-	-	-	-
	PHONE_NUMBER	VARCHAR2	11	-	-	-	-	-	-
	CURRENT_BALANCE	NUMBER	-	6	2	-	-	-	-
	SRE_ID	VARCHAR2	4	-	-	-	✓	-	-
	TEM_ID	VARCHAR2	4	-	-	-	✓	-	-
	LOYALTY_CARD_NUMBER	VARCHAR2	6	-	-	-	✓	-	-