

SQLI-DPL

Part 1

1. 10 tables have been created using CREATE TABLE statement.
2. 6 columns are created for price history table
3. NOT NULL statement
4. customer_address - customer_fk
5. Lowest value is -99 and highest value is 99.
6. Lowest value is -99999.99 and highest value is 99999.99.
7. itm_number, start_date and start_time.

Part 2

Modifying a column

1.

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
94 CREATE TABLE orders (  
95     id          VARCHAR2(9) NOT NULL,  
96     odr_date     DATE NOT NULL,  
97     odr_time     DATE NOT NULL,  
98     number_of_units NUMBER(2) NOT NULL,  
99     ctr_number   VARCHAR2(6) NOT NULL,  
100     CONSTRAINT orders_pk PRIMARY KEY ( id )  
101 );  
102  
103 DESCRIBE orders;  
104
```

The Results pane shows the table structure for '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. ALTER TABLE orders

MODIFY odr_date DATE DEFAULT SYSDATE;

3.

The screenshot shows the Oracle APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
101 );  
102  
103 ALTER TABLE orders  
104 MODIFY odr_date DATE DEFAULT SYSDATE;  
105 DESCRIBE orders;  
106  
107 CREATE TABLE ordered_items (  
108     quantity_ordered NUMBER(3) NOT NULL,  
109     quantity_shipped NUMBER(3) NOT NULL,  
110     itm_number        VARCHAR2(10) NOT NULL,  
111     odr_id            VARCHAR2(9) NOT NULL,  
112 )
```

The Results pane shows the table structure for '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.

The screenshot shows the APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
75 CREATE TABLE customers (  
76     loyalty_card_number VARCHAR2(6),  
77     CONSTRAINT customer_pk PRIMARY KEY ( ctr_number ),  
78     CONSTRAINT ctr_email_uk UNIQUE (email),  
79     CONSTRAINT ctr_lcn_uk UNIQUE (loyalty_card_number)  
80 );  
81 DESCRIBE customers;  
82
```

The Results pane shows the table structure for the CUSTOMERS table:

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. ALTER TABLE customers

ADD CONSTRAINT ctr_crn_balance CHECK (current_balance >= 0);

3.

The screenshot shows the APEX SQL Workshop interface. The SQL Commands pane contains the following code:

```
80 ALTER TABLE customers  
81 ADD CONSTRAINT ctr_crn_balance CHECK (current_balance >= 0);  
82  
83 DESCRIBE customers;  
84 DROP TABLE customers;  
85
```

The Results pane shows the table structure for the CUSTOMERS table:

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.

The screenshot shows the Oracle APEX SQL Workshop interface. The 'Object Browser' tab is active, displaying the 'CUSTOMERS' table. The 'Constraints' sub-tab is selected, showing a list of constraints for the table. The constraints are as follows:

Constraint	Type	Search Condition	Related Constraint	Columns	Delete Rule	Status	Last Change
CTR_CRN_BALANCE	Check	current_balance >= 0				ENABLED	11/09/2023
SYS_C00149234641	Check	"CTR_NUMBER" IS NOT NULL				ENABLED	11/09/2023
SYS_C00149234642	Check	"EMAIL" IS NOT NULL				ENABLED	11/09/2023
SYS_C00149234643	Check	"FIRST_NAME" IS NOT NULL				ENABLED	11/09/2023
SYS_C00149234644	Check	"LAST_NAME" IS NOT NULL				ENABLED	11/09/2023
SYS_C00149234645	Check	"PHONE_NUMBER" IS NOT NULL				ENABLED	11/09/2023
SYS_C00149234646	Check	"CURRENT_BALANCE" IS NOT NULL				ENABLED	11/09/2023
CUSTOMER_PK	Primary			CTR_NUMBER		ENABLED	11/09/2023
CTR_EMAIL_UK	Unique			EMAIL		ENABLED	11/09/2023
CTR_LCN_UK	Unique			LOYALTY_CARD_NUMBER		ENABLED	11/09/2023

Adding a column

1.

The screenshot shows the Oracle APEX SQL Workshop interface. The 'SQL Commands' tab is active, displaying the following SQL commands:

```

80 ALTER TABLE customers
81 ADD CONSTRAINT ctr_crn_balance CHECK (current_balance >= 0);
82
83 DESCRIBE customers;
84 DROP TABLE customers;
85

```

The 'Results' tab is active, displaying the table structure for the 'CUSTOMERS' table:

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. ALTER TABLE customers

ADD mobile_phone_number VARCHAR2(11);

3.

SQL Commands

```
81 ALTER TABLE customers
82 ADD CONSTRAINT check_balance_non_negative CHECK (current_balance >= 0);
83
84 ALTER TABLE customers
85 ADD mobile_phone_number VARCHAR2(11);
86 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	-	-	-	✓	-	-
	MOBILE_PHONE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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1. Dropping a column

SQL Commands

```
81 ALTER TABLE customers
82 ADD CONSTRAINT check_balance_non_negative CHECK (current_balance >= 0);
83
84 ALTER TABLE customers
85 ADD mobile_phone_number VARCHAR2(11);
86 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	-	-	-	✓	-	-
	MOBILE_PHONE_NUMBER	VARCHAR2	11	-	-	-	✓	-	-

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2. ALTER TABLE customers
DROP COLUMN mobile_phone_number;

3.

The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. A search bar and user profile 'LM LIM MING ZE' are on the right. The 'SQL Commands' panel is active, displaying the following SQL script:

```
84 ALTER TABLE customers
85 ADD mobile_phone_number VARCHAR2(11);
86
87 ALTER TABLE customers
88 DROP COLUMN mobile_phone_number;
89 DESCRIBE customers;
90
91
```

Below the SQL editor, the 'Describe' tab is selected, showing the structure of the 'CUSTOMERS' table. The table has the following columns:

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	-	-	-	✓	-	-

The bottom of the interface shows the user 'samsung8102929@gmail.com', the workspace 'mz', and the version 'Oracle APEX 23.2.0-20'.