

EXERCISE-3

INCLUDING CONSTRAINTS

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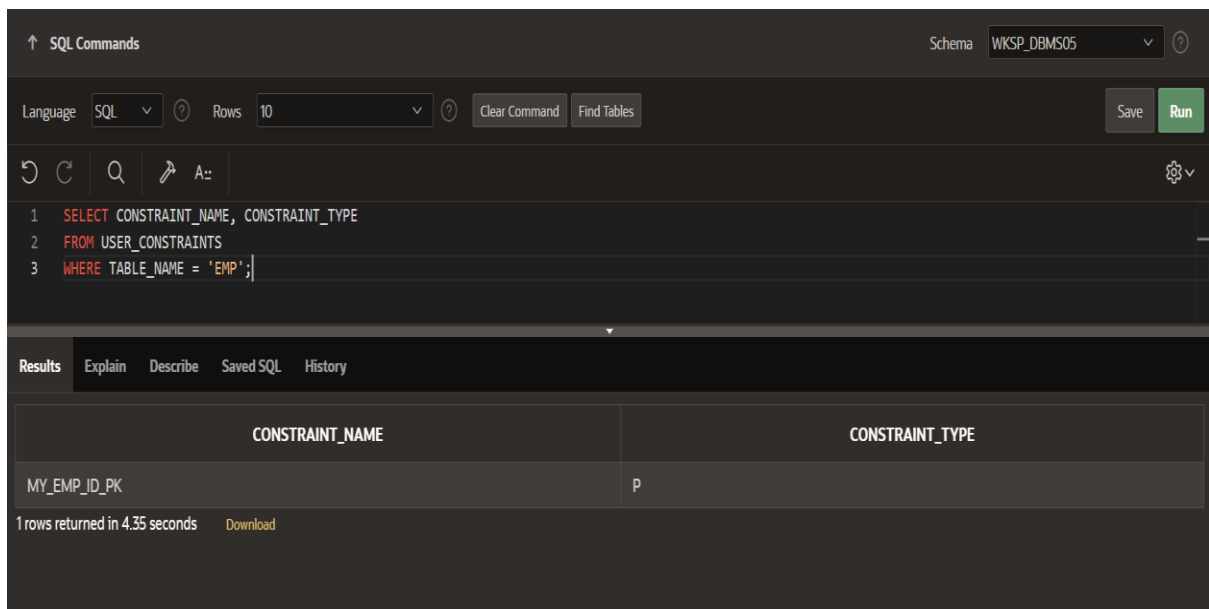
1. Add a table-level PRIMARY KEY constraint to the EMP table on the ID column. The constraint should be named at creation. Name the constraint my_emp_id_pk.

The screenshot displays the Oracle APEX SQL Workshop interface. At the top, the navigation bar includes the APEX logo and links to App Builder, SQL Workshop (selected), Team Development, and Gallery. Below the navigation bar, the 'SQL Commands' section is active, showing a list of commands. The first command is selected, displaying the following SQL code:

```
1 ALTER TABLE EMP
2 ADD CONSTRAINT my_emp_id_pk
3 PRIMARY KEY (ID);
```

Below the command list, the 'Results' tab is selected, showing the message 'Table altered.' and the execution time '0.08 seconds'.

To confirm the constraint was added:

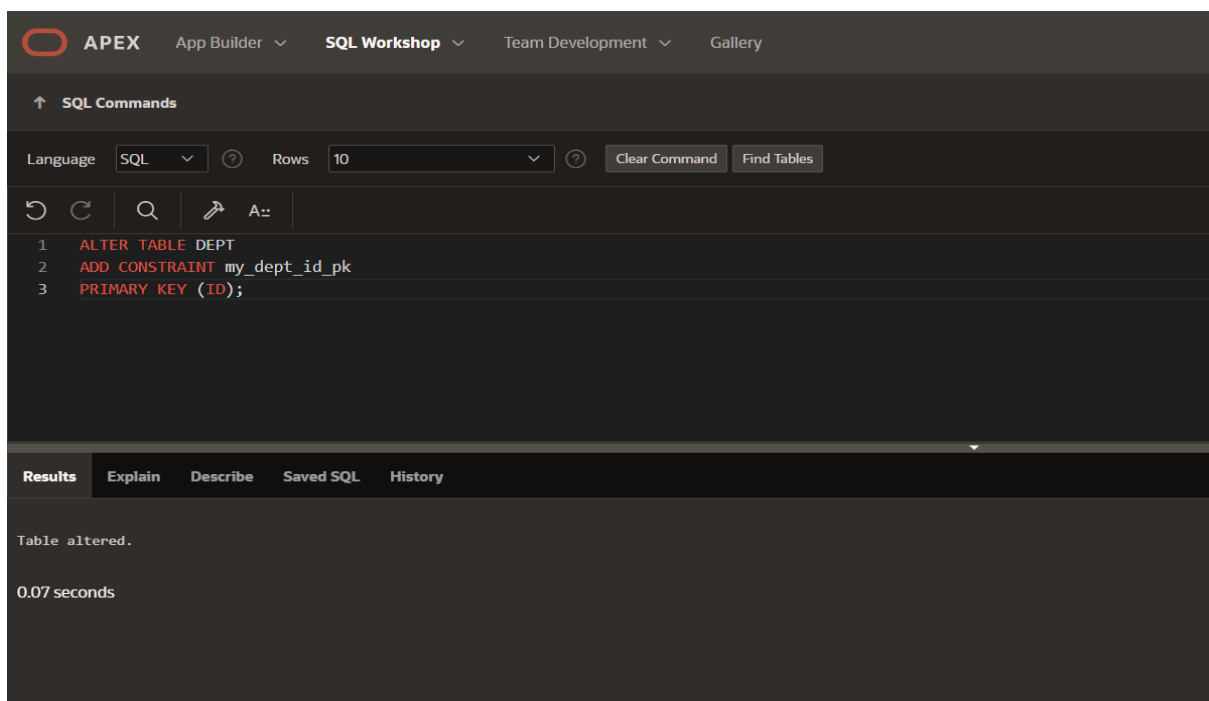


The screenshot shows the SQL Workshop interface with the following details:

- SQL Commands** panel: Schema is set to `WKSP_DBMS05`. Language is `SQL`, Rows is `10`. Buttons for `Clear Command`, `Find Tables`, `Save`, and `Run` are visible.
- Query text:

```
1 SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
2 FROM USER_CONSTRAINTS
3 WHERE TABLE_NAME = 'EMP';
```
- Results** panel: Shows a table with two columns: `CONSTRAINT_NAME` and `CONSTRAINT_TYPE`. One row is displayed: `MY_EMP_ID_PK` with type `P`.
- Footer: `1 rows returned in 4.35 seconds` and a `Download` link.

2. Create a PRIMARY KEY constraint to the DEPT table using the ID column. The constraint should be named at creation. Name the constraint `my_dept_id_pk`.

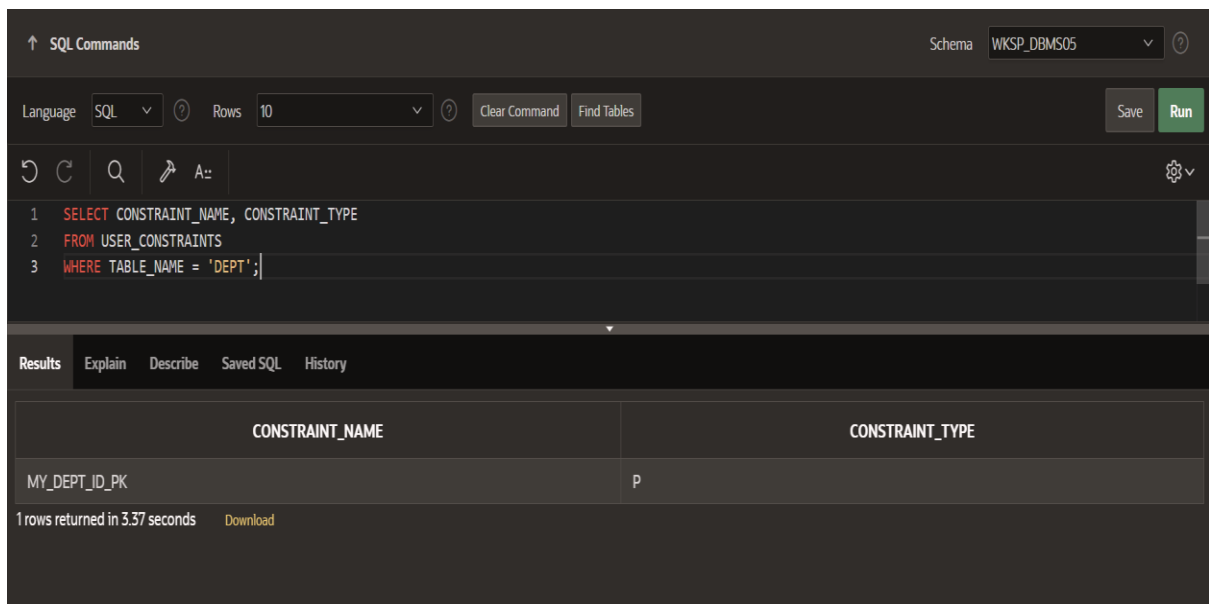


The screenshot shows the SQL Workshop interface with the following details:

- SQL Commands** panel: Language is `SQL`, Rows is `10`. Buttons for `Clear Command` and `Find Tables` are visible.
- Query text:

```
1 ALTER TABLE DEPT
2 ADD CONSTRAINT my_dept_id_pk
3 PRIMARY KEY (ID);
```
- Results** panel: Shows the message `Table altered.` and the execution time `0.07 seconds`.

To confirm the constraint was added:



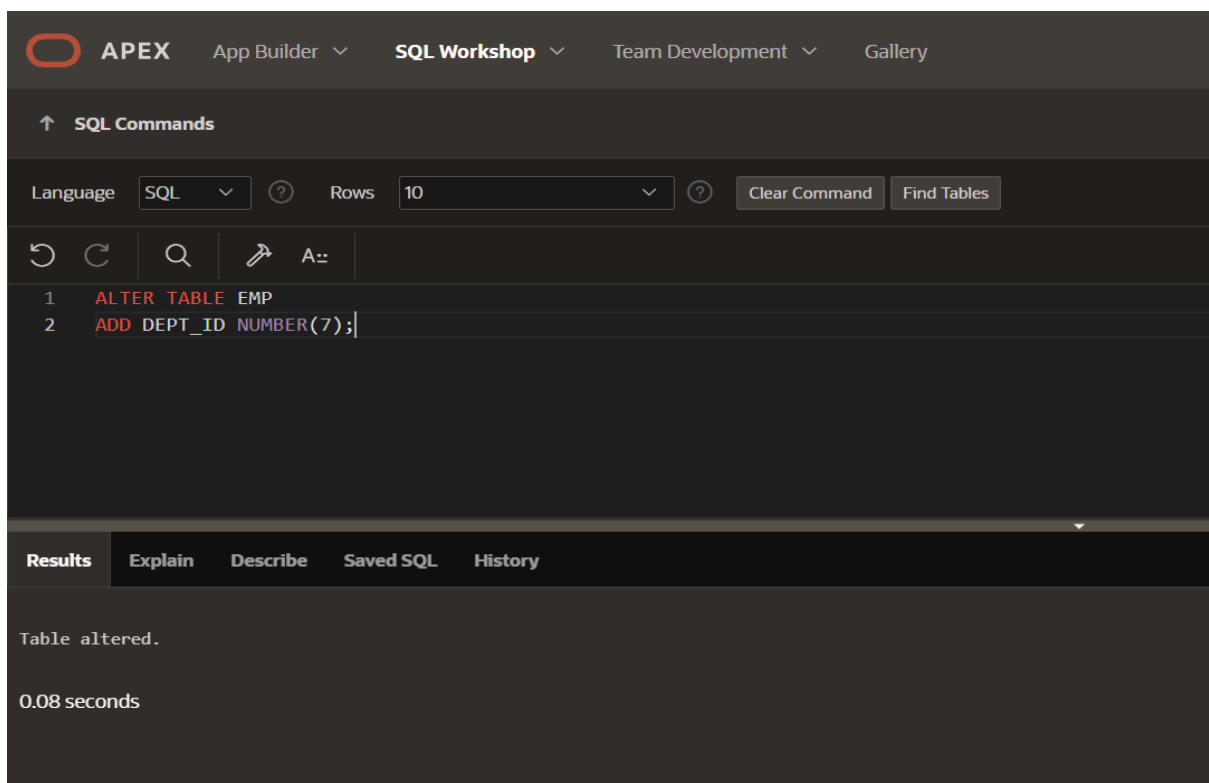
The screenshot shows the SQL Workshop interface with the following details:

- Schema:** WKSP_DBMS05
- Language:** SQL
- Rows:** 10
- Buttons:** Clear Command, Find Tables, Save, Run
- SQL Command:**

```
1 SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
2 FROM USER_CONSTRAINTS
3 WHERE TABLE_NAME = 'DEPT';
```
- Results:** A table with two columns: CONSTRAINT_NAME and CONSTRAINT_TYPE. The result is MY_DEPT_ID_PK and P.
- Footer:** 1 rows returned in 3.37 seconds, Download

CONSTRAINT_NAME	CONSTRAINT_TYPE
MY_DEPT_ID_PK	P

3. Add a column DEPT_ID to the EMP table. Add a foreign key reference on the EMP table that ensures that the employee is not assigned to non-existent department. Name the constraint my_emp_dept_id_fk.



The screenshot shows the SQL Workshop interface with the following details:

- Navigation:** APEX, App Builder, SQL Workshop, Team Development, Gallery
- SQL Commands:** Language: SQL, Rows: 10, Clear Command, Find Tables
- SQL Command:**

```
1 ALTER TABLE EMP
2 ADD DEPT_ID NUMBER(7);
```
- Results:** Table altered.
- Footer:** 0.08 seconds

APEX

App Builder

SQL Workshop

Team Development

Gallery

↑ SQL Commands

Language SQL Rows 10 Clear Command Find Tables

↶ ↷ 🔍 ↵ A::

1 ALTER TABLE EMP

2 ADD CONSTRAINT my_emp_dept_id_fk

3 FOREIGN KEY (DEPT_ID)

4 REFERENCES DEPT(ID);

Results

Explain

Describe

Saved SQL

History

Table altered.

0.06 seconds

To confirm the foreign key constraint:

↑ SQL Commands

Schema WKSP_DBMS05

Language SQL Rows 10 Clear Command Find Tables Save Run

↶ ↷ 🔍 ↵ ⚙

1 SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE, TABLE_NAME, R_CONSTRAINT_NAME

2 FROM USER_CONSTRAINTS

3 WHERE TABLE_NAME = 'EMP';

Results

Explain

Describe

Saved SQL

History

CONSTRAINT_NAME	CONSTRAINT_TYPE	TABLE_NAME	R_CONSTRAINT_NAME
MY_EMP_DEPT_ID_FK	R	EMP	MY_DEPT_ID_PK
MY_EMP_ID_PK	P	EMP	-

2 rows returned in 2.88 seconds Download

4. Modify the EMP table. Add a COMMISSION column of NUMBER data type, precision 2, scale 2. Add a constraint to the commission column that ensures that a commission value is greater than zero.

The screenshot shows the APEX SQL Workshop interface. The top navigation bar includes the APEX logo and links to App Builder, SQL Workshop (selected), Team Development, and Gallery. Below the navigation bar, the 'SQL Commands' section is active. It features a 'Language' dropdown set to 'SQL', a 'Rows' dropdown set to '10', and buttons for 'Clear Command' and 'Find Tables'. The SQL command editor contains two lines of code: `1 ALTER TABLE EMP` and `2 ADD COMMISSION NUMBER(2,2);`. Below the editor, the 'Results' tab is selected, displaying the message 'Table altered.' and the execution time '0.08 seconds'.

The screenshot shows the APEX SQL Workshop interface with the same top navigation bar. In the 'SQL Commands' section, the 'Language' dropdown is still 'SQL' and 'Rows' is '10'. The SQL command editor now contains three lines of code: `1 ALTER TABLE EMP`, `2 ADD CONSTRAINT emp_commission_chk`, and `3 CHECK (COMMISSION > 0);`. The 'Results' tab is selected, showing 'Table altered.' and an execution time of '0.06 seconds'.

To confirm the column was added:

APEX

App Builder

SQL Workshop

Team Development

Gallery

↑ SQL Commands

Language SQL Rows 10 Clear Command Find Tables

↶ ↷ 🔍 📌 A::

1 DESC EMP;

Results Explain Describe Saved SQL History

Object Type TABLE Object EMP

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMP	ID	NUMBER	-	7	0	1	-	-	-
	LAST_NAME	VARCHAR2	50	-	-	-	✓	-	-
	SALARY	NUMBER	-	10	2	-	✓	-	-
	DEPT_ID	NUMBER	-	7	0	-	✓	-	-
	COMMISSION	NUMBER	-	2	2	-	✓	-	-

To confirm the check constraint was added:

APEX

App Builder

SQL Workshop

Team Development

Gallery

↑ SQL Commands

Schema WKSP_DBMS05

Language SQL Rows 10 Clear Command Find Tables Save Run

↶ ↷ 🔍 📌 A:: ⚙️

1 SELECT CONSTRAINT_NAME, CONSTRAINT_TYPE
2 FROM USER_CONSTRAINTS
3 WHERE TABLE_NAME = 'EMP';

Results Explain Describe Saved SQL History

CONSTRAINT_NAME	CONSTRAINT_TYPE
MY_EMP_DEPT_ID_FK	R
EMP_COMMISSION_CHK	C
MY_EMP_ID_PK	P

3 rows returned in 2.89 seconds Download