

DATABASE MANAGEMENT SYSTEM

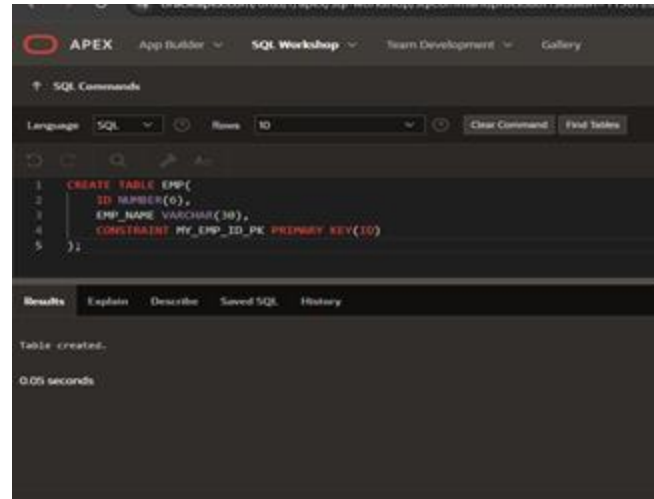
CS23332

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.

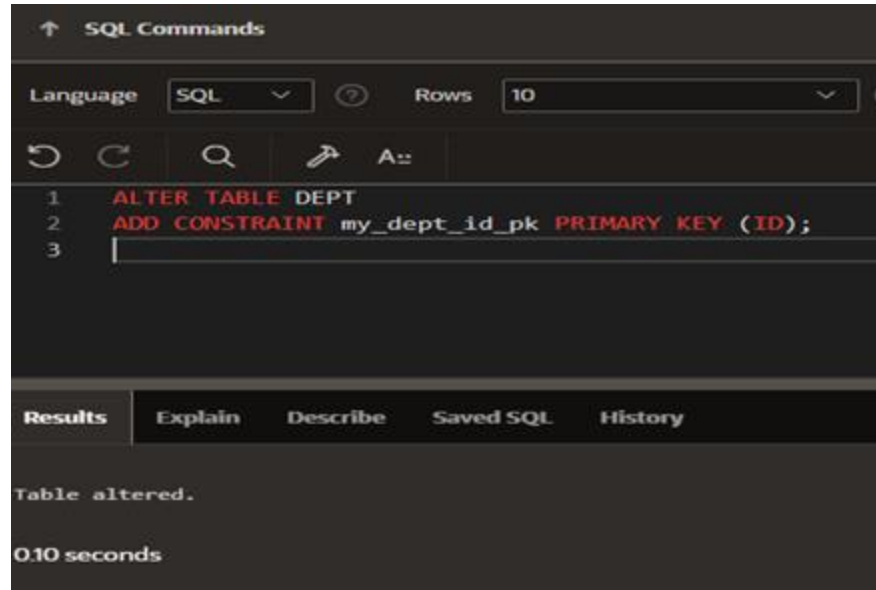


The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes 'APEX', 'App Builder', 'SQL Workshop', 'Team Development', and 'Gallery'. Below this, the 'SQL Commands' section is active, showing a list of commands with '10' selected. The main editor displays the following SQL code:

```
1 CREATE TABLE EMP(  
2   ID NUMBER(4),  
3   EMP_NAME VARCHAR(30),  
4   CONSTRAINT MY_EMP_ID_PK PRIMARY KEY(ID)  
5 );
```

Below the editor, the 'Results' tab is selected, showing the message 'Table created.' and the execution time '0.05 seconds'.

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 a SQL command window with a dark theme. At the top, it says "SQL Commands" with an upward arrow. Below that, there's a "Language" dropdown set to "SQL" and a "Rows" dropdown set to "10". A toolbar contains icons for undo, redo, search, and a command prompt icon. The main area shows three lines of SQL code:
1 ALTER TABLE DEPT
2 ADD CONSTRAINT my_dept_id_pk PRIMARY KEY (ID);
3
Below the code, there's a tabbed interface with "Results" selected. The results pane shows the message "Table altered." and the execution time "0.10 seconds".

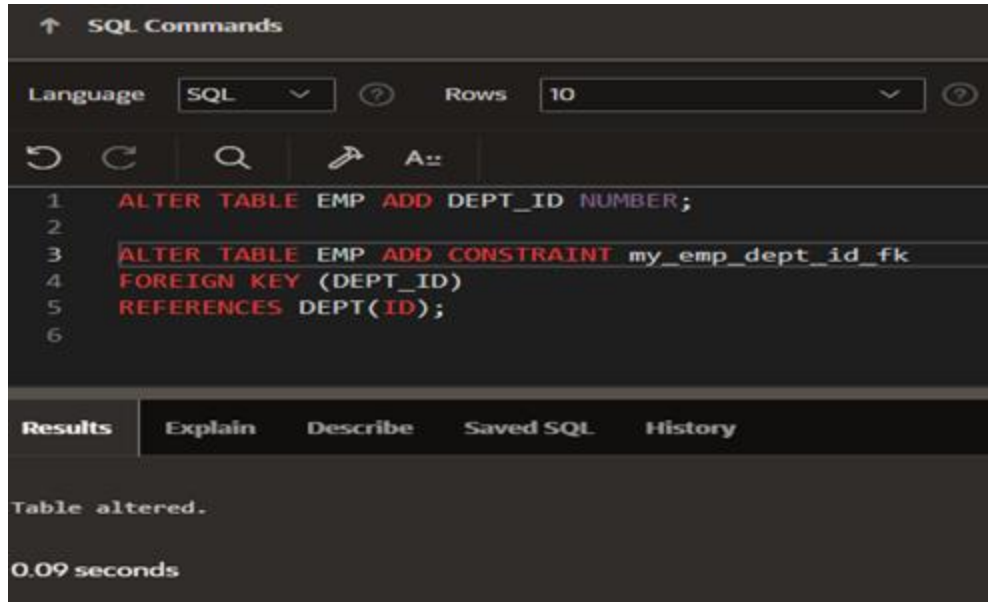
```
SQL Commands

Language: SQL Rows: 10

1 ALTER TABLE DEPT
2 ADD CONSTRAINT my_dept_id_pk PRIMARY KEY (ID);
3

Results | Explain | Describe | Saved SQL | History
Table altered.
0.10 seconds
```

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 nonexistent department. Name the constraint my_emp_dept_id_fk.



The screenshot shows a SQL command window with a dark theme. At the top, it says "SQL Commands". Below that, there are controls for "Language" (set to "SQL") and "Rows" (set to "10"). A toolbar contains icons for undo, redo, search, and a keyboard shortcut "A++". The main area displays two SQL statements: 1. `ALTER TABLE EMP ADD DEPT_ID NUMBER;` 2. `ALTER TABLE EMP ADD CONSTRAINT my_emp_dept_id_fk FOREIGN KEY (DEPT_ID) REFERENCES DEPT(ID);` Below the statements, there are tabs for "Results", "Explain", "Describe", "Saved SQL", and "History". The "Results" tab is active and shows the message "Table altered." followed by the execution time "0.09 seconds".

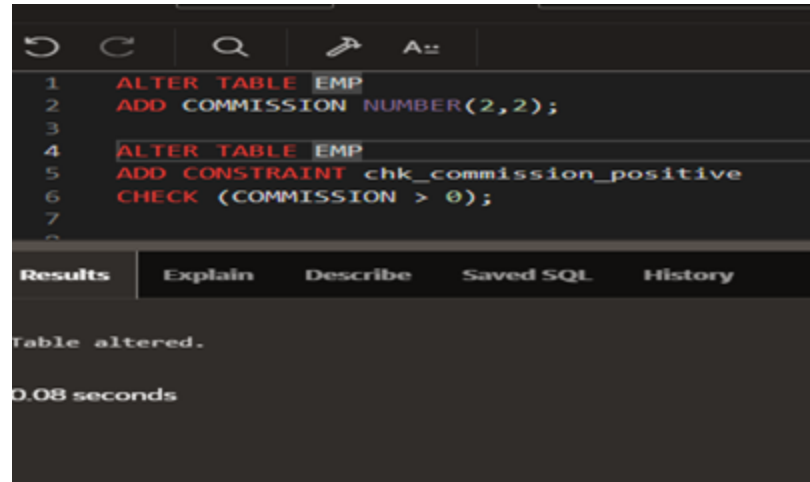
```
1 ALTER TABLE EMP ADD DEPT_ID NUMBER;
2
3 ALTER TABLE EMP ADD CONSTRAINT my_emp_dept_id_fk
4 FOREIGN KEY (DEPT_ID)
5 REFERENCES DEPT(ID);
6
```

Results Explain Describe Saved SQL History

Table altered.

0.09 seconds

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



```
1 ALTER TABLE EMP
2 ADD COMMISSION NUMBER(2,2);
3
4 ALTER TABLE EMP
5 ADD CONSTRAINT chk_commission_positive
6 CHECK (COMMISSION > 0);
7
```

The screenshot shows a SQL IDE interface with a dark theme. The top toolbar contains icons for undo, redo, search, and other standard IDE functions. The main editor area displays the SQL commands for altering the EMP table. Below the editor, there are tabs for 'Results', 'Explain', 'Describe', 'Saved SQL', and 'History'. The 'Results' tab is active, showing the message 'Table altered.' and the execution time '0.08 seconds'.