

EXERCISE 1 AND 2

DDL and DML Constraints

LIVESQL LINKS:

Exercise 1: <https://livesql.oracle.com/apex/livesql/s/o7ny02su6dtr8n79pebdaa6q>

Exercise 2: <https://livesql.oracle.com/apex/livesql/s/o7rwvd94zg3ejfp9otiuiqkd>

Exercise 1

1. Create tables

The screenshot shows the Live SQL interface with three statements:

- Statement 1: `CREATE TABLE EMPLOYEE(FNAME VARCHAR(15), MIDNAME CHAR(2), LNAME VARCHAR(15), SSN CHAR(9), BDAY DATE, ADDRESS VARCHAR(50), SEX CHAR(1), SALARY NUMBER(7), SUPERVISORSSN CHAR(9), DEPTNUM NUMBER(5))`
Table created.
- Statement 2: `CREATE TABLE PROJECT(NAME VARCHAR(15), NUM NUMBER(5), LOCAT3ION VARCHAR(15), DEPTNUM NUMBER(5))`
Table created.
- Statement 3: `CREATE TABLE DEPARTMENT(NAME VARCHAR(15), NUM NUMBER(15), MANAGERSSN CHAR(9), MANAGERSTART DATE)`
Table created.

2. Change data type of a column in a relation

The screenshot shows the Live SQL interface with the following statement:

- Statement 24: `ALTER TABLE EMPLOYEE MODIFY MIDNAME VARCHAR(2)`
Table altered.

3. Rename a column in a relation

The screenshot shows the Live SQL interface with the following statement:

- Statement 25: `ALTER TABLE EMPLOYEE RENAME COLUMN BDAY TO DOB`
Table altered.

4. Drop a column in a relation

The screenshot shows the Live SQL interface. The top bar includes a menu icon, the 'Live SQL' logo, and user information 'aathira.s2021@vitstudent.ac.in'. Below the bar, the 'My Scripts' tab is active, showing a script named 'Script'. The script editor contains the statement: `ALTER TABLE EMPLOYEE DROP COLUMN MIDNAME`. The status bar indicates 'Table altered.'

5. Increase size of a column in a relation

The screenshot shows the Live SQL interface. The top bar includes a menu icon, the 'Live SQL' logo, and user information 'aathira.s2021@vitstudent.ac.in'. Below the bar, the 'My Scripts' tab is active, showing a script named 'Script'. The script editor contains the statement: `ALTER TABLE PROJECT MODIFY LOCATION VARCHAR(20)`. The status bar indicates 'Table altered.'

6. Rename a relation

The screenshot shows the Live SQL interface. The top bar includes a menu icon, the 'Live SQL' logo, and user information 'aathira.s2021@vitstudent.ac.in'. Below the bar, the 'My Scripts' tab is active, showing a script named 'Script'. The script editor contains the statement: `RENAME DEPARTMENT TO DEPT`. The status bar indicates 'Statement processed.'

7. Insert values in each table (minimum of 5 records in each table)

The screenshot shows the Live SQL interface. The top bar includes a menu icon, the 'Live SQL' logo, and user information 'aathira.s2021@vitstudent.ac.in'. Below the bar, the 'My Scripts' tab is active, showing a script named 'Script'. The script editor contains six INSERT statements, each followed by a confirmation message: '1 row(s) inserted.'

Statement	SQL Statement	Result
4	<code>INSERT INTO EMPLOYEE VALUES ('DOUG', 'E', 'GILBERT', 554433221, '89-JUN-89', '11 S 59 E, SALT LAKE CITY, UT', 'H', '80000', NULL, 3)</code>	1 row(s) inserted.
5	<code>INSERT INTO EMPLOYEE VALUES ('JOYCE', NULL, 'PAN', 543226789, '87-FEB-78', '35 S 8 E, SALT LAKE CITY, UT', 'F', 70000, NULL, 2)</code>	1 row(s) inserted.
6	<code>INSERT INTO EMPLOYEE VALUES ('FRANKIN', 'T', 'WONG', 333445555, '88-DEC-45', '638 VOSS, HOUSTON, TX', 'H', 40000, 554433221, 5)</code>	1 row(s) inserted.
7	<code>INSERT INTO EMPLOYEE VALUES ('JENNIFER', 'S', 'WALLACE', 987654321, '20-JUN-31', '291 BERRY, BELLAIRE, TX', 'F', 43000, 554433221, 4)</code>	1 row(s) inserted.
8	<code>INSERT INTO EMPLOYEE VALUES ('JOHN', 'B', 'SHEITH', 123456789, '89-JAN-55', '731 FONDREN, HOUSTON, TX', 'H', 30000, 333445555, 5)</code>	1 row(s) inserted.
9	<code>INSERT INTO EMPLOYEE VALUES ('RAHESH', 'K', 'NARAYAN', 666884444, '15-SEP-52', '975 FIRE OAK, HUMBLE, TX', 'H', 38000, 333445555, 5)</code>	1 row(s) inserted.

Live SQL

My Scripts \ Script

Statement 10

```
INSERT INTO EMPLOYEE VALUES ('JOYCE','A','ENGLISH', 453453453, '31-JUL-62', '5631 RICE, HOUSTON, TX', 'F', '25000', 333445555, 5)
```

1 row(s) inserted.

Statement 11

```
INSERT INTO EMPLOYEE VALUES ('JAMES','E','BORG', 888665555, '10-NOV-27', '450 STONE, HOUSTON, TX', 'M', '55000', 543216789, 1)
```

1 row(s) inserted.

Statement 12

```
INSERT INTO EMPLOYEE VALUES ('ALICIA','J','ZELAYA', 999887777, '19-JUL-58', '3321 CASTLE, SPRING, TX', 'F', '25000', 987654321, 4)
```

1 row(s) inserted.

Statement 13

```
INSERT INTO EMPLOYEE VALUES ('AHMAD','V','JABBAR', 987987987, '29-MAR-59', '900 DALLAS, HOUSTON, TX', 'M', '25000', 987654321, 4)
```

1 row(s) inserted.

Statement 14

```
INSERT INTO PROJECT VALUES ('PROJECTA', 3388, 'HOUSTON', 1)
```

1 row(s) inserted.

Statement 15

```
INSERT INTO PROJECT VALUES ('PROJECTB', 1945, 'SALT LAKE CITY', 3)
```

1 row(s) inserted.

Live SQL

My Scripts \ Script

Statement 16

```
INSERT INTO PROJECT VALUES ('PROJECTC', 6688, 'HOUSTON', 5)
```

1 row(s) inserted.

Statement 17

```
INSERT INTO PROJECT VALUES ('PROJECTD', 2423, 'BELALIRE', 4)
```

1 row(s) inserted.

Statement 18

```
INSERT INTO PROJECT VALUES ('PROJECTE', 7745, 'SUGARLAND', 5)
```

1 row(s) inserted.

Statement 19

```
INSERT INTO DEPARTMENT VALUES ('MANUFACTURE', 1, 888665555, '19-JUN-71')
```

1 row(s) inserted.

Statement 20

```
INSERT INTO DEPARTMENT VALUES ('ADMINISTRATION', 2, 543216789, '04-JUN-99')
```

1 row(s) inserted.

Statement 21

```
INSERT INTO DEPARTMENT VALUES ('HEADQUARTER', 3, 554433221, '22-SEP-55')
```

1 row(s) inserted.

Live SQL

My Scripts \ Script

Statement 22

```
INSERT INTO DEPARTMENT VALUES ('FINANCE', 4, 987654321, '01-JAN-85')
```

1 row(s) inserted.

Statement 23

```
INSERT INTO DEPARTMENT VALUES ('RESEARCH', 5, 333445555, '22-MAY-78')
```

1 row(s) inserted.

8. Update values in a relation

Live SQL

My Scripts \ Script

Statement 29

```
UPDATE EMPLOYEE SET SALARY = 65000 WHERE SSN = 543216789
```

1 row(s) updated.

9. Delete rows in a relation

Live SQL

My Scripts \ Script

Statement 30

DELETE FROM EMPLOYEE WHERE SSN = 999887777

1 row(s) deleted.

10. Retrieve all rows from a relation

Live SQL

My Scripts \ Script

Statement 31

SELECT * FROM EMPLOYEE

FNAME	LNAME	SSN	DOB	ADDRESS	SEX	SALARY	SUPERVISORSSN	DEPTNUM
DOUG	GILBERT	554433221	09-JUN-60	11 S 59 E, SALT LAKE CITY, UT	M	80000	-	3
JOYCE	PAN	543216789	07-FEB-78	35 S 8 E, SALT LAKE CITY, UT	F	65000	-	2
FRANKIN	WONG	333445555	08-DEC-45	638 VOSS, HOUSTON, TX	M	40000	554433221	5
JENNIFER	WALLACE	987654321	20-JUN-31	291 BERRY, BELLAIRE, TX	F	43000	554433221	4
JOHN	SMITH	123456789	09-JAN-55	731 FONDREN, HOUSTON, TX	M	30000	333445555	5
RAMESH	NARAYAN	666884444	15-SEP-52	975 FIRE OAK, HUMBLE, TX	M	38000	333445555	5
JOYCE	ENGLISH	453453453	31-JUL-62	5631 RICE, HOUSTON, TX	F	25000	333445555	5
JAMES	BORG	888665555	10-NOV-27	450 STONE, HOSUTON, TX	M	55000	543216789	1
AHMAD	JABBAR	987987987	29-MAR-59	980 DALLAS, HOUSTON, TX	M	25000	987654321	4

9 rows selected.

Live SQL

My Scripts \ Script

Statement 32

SELECT * FROM DEPT

NAME	NUM	MANAGERSSN	MANAGERSTART
MANUFACTURE	1	888665555	19-JUN-71
ADMINISTRATION	2	543216789	04-JUN-99
HEADQUARTER	3	554433221	22-SEP-55
FINANCE	4	987654321	01-JAN-85
RESEARCH	5	333445555	22-MAY-78

5 rows selected.

Live SQL

My Scripts \ Script

Statement 33

`SELECT * FROM PROJECT`

NAME	NUM	LOCATION	DEPTNUM
PROJECTA	3388	HOUSTON	1
PROJECTB	1945	SALT LAKE CITY	3
PROJECTC	6688	HOUSTON	5
PROJECTD	2423	BELALIRE	4
PROJECTE	7745	SUGARLAND	5

Download CSV

5 rows selected.

11. Retrieve certain column from a relation

Live SQL

My Scripts \ Script

Statement 34

`SELECT NAME, LOCATION FROM PROJECT`

NAME	LOCATION
PROJECTA	HOUSTON
PROJECTB	SALT LAKE CITY
PROJECTC	HOUSTON
PROJECTD	BELALIRE
PROJECTE	SUGARLAND

Download CSV

5 rows selected.

12. Retrieve certain rows from a relation

Live SQL

My Scripts \ Script

Statement 35

`SELECT NAME, LOCATION FROM PROJECT WHERE DEPTNUM = 5`

NAME	LOCATION
PROJECTC	HOUSTON
PROJECTE	SUGARLAND

Download CSV

2 rows selected.

13. Create copy of a table

The screenshot shows the Live SQL interface. At the top, there's a header with the Live SQL logo, a feedback icon, a help icon, a user profile icon with the email 'aathira.s2021@vitstudent.ac.in', and a dark mode toggle. Below the header, there's a breadcrumb 'My Scripts \ Script' and a toolbar with an info icon, an 'Actions' dropdown, an 'Edit Attributes' button, and a 'Run Script' button. The main area shows 'Statement 36' with a trash icon and an 'Edit' button. The SQL code is 'CREATE TABLE PROJECT_COPY AS SELECT * FROM PROJECT'. Below the code, a message says 'Table created.'

14. Truncate the contents of the copy table

The screenshot shows the Live SQL interface. The header and toolbar are the same as in the previous screenshot. The breadcrumb is 'My Scripts \ Script'. The main area shows 'Statement 37' with a trash icon and an 'Edit' button. The SQL code is 'TRUNCATE TABLE PROJECT_COPY'. Below the code, a message says 'Table truncated.'

15. Drop the copy table.

The screenshot shows the Live SQL interface. The header and toolbar are the same as in the previous screenshots. The breadcrumb is 'My Scripts \ Script'. The main area shows 'Statement 38' with a trash icon and an 'Edit' button. The SQL code is 'DROP TABLE PROJECT_COPY'. Below the code, a message says 'Table dropped.'

Exercise 2

1. Set primary key in every relation.

The screenshot shows the Live SQL interface with three statements executed:

- Statement 24: `ALTER TABLE EMPLOYEE ADD CONSTRAINT EMP_PK PRIMARY KEY(SSN)`
Table altered.
- Statement 25: `ALTER TABLE PROJECT ADD CONSTRAINT PROJ_PK PRIMARY KEY(NUM)`
Table altered.
- Statement 26: `ALTER TABLE DEPARTMENT ADD CONSTRAINT DEPT_PK PRIMARY KEY(NUM)`
Table altered.

2. Set a referential integrity constraint (foreign key).

The screenshot shows the Live SQL interface with three statements executed:

- Statement 27: `ALTER TABLE EMPLOYEE ADD CONSTRAINT EMPLOYEE_FK FOREIGN KEY(DEPTNUM) REFERENCES DEPARTMENT(NUM)`
Table altered.
- Statement 28: `ALTER TABLE DEPARTMENT ADD CONSTRAINT DEPT_FK FOREIGN KEY(MANAGERSSN) REFERENCES EMPLOYEE(SSN)`
Table altered.
- Statement 29: `ALTER TABLE PROJECT ADD CONSTRAINT PROJ_FK FOREIGN KEY(DEPTNUM) REFERENCES DEPARTMENT(NUM)`
Table altered.

3. Set a not null constraint on a column.

The screenshot shows the Live SQL interface with four statements executed:

- Statement 30: `ALTER TABLE EMPLOYEE MODIFY FNAME VARCHAR(15) CONSTRAINT EMP_NULL_FNAME NOT NULL`
Table altered.
- Statement 31: `ALTER TABLE EMPLOYEE MODIFY (LNAME VARCHAR(15) CONSTRAINT EMP_NULL_LNAME NOT NULL)`
Table altered.
- Statement 32: `ALTER TABLE DEPARTMENT MODIFY NAME VARCHAR(15) CONSTRAINT DEPT_NULL NOT NULL`
Table altered.
- Statement 33: `ALTER TABLE PROJECT MODIFY NAME VARCHAR(15) CONSTRAINT PROJ_NULL NOT NULL`
Table altered.

4. Use check constraint and ensure only certain allowed values are entered in a specific column.

The screenshot shows the Live SQL interface. At the top, there's a header with the Live SQL logo, a menu icon, and user information: aathira.s2021@vitstudent.ac.in. Below the header, there's a "My Session" section with an information icon, an "Actions" dropdown, a "Reset Session" button, and a "Save" button. The main area displays "Statement 34" with the SQL command: `ALTER TABLE EMPLOYEE ADD CONSTRAINT EMP_SEX CHECK (SEX IN ('M', 'F', 'm', 'f'))`. Below the command, it says "Table altered."

5. Set a column as unique

The screenshot shows the Live SQL interface. At the top, there's a header with the Live SQL logo, a menu icon, and user information: aathira.s2021@vitstudent.ac.in. Below the header, there's a "My Session" section with an information icon, an "Actions" dropdown, a "Reset Session" button, and a "Save" button. The main area displays "Statement 35" with the SQL command: `ALTER TABLE PROJECT ADD CONSTRAINT PROJECT_UQ_NAME UNIQUE(NAME)`. Below the command, it says "Table altered."