SQL> @z:lab1.sql

SQL> DROP TABLE ORDER\_DETAILS;

Table dropped.

SQL> DROP TABLE ORDERS;

Table dropped.

SQL> DROP TABLE PART;

Table dropped.

SQL> DROP TABLE EMPLOYEE;

Table dropped.

SQL> DROP TABLE CUSTOMER;

Table dropped.

SQL> DROP TABLE AREA\_DETAILS;

Table dropped.

SQL>

SQL> REM Consider a mail order database in which employees take orders for parts from customers.

SQL>

SQL> CREATE TABLE AREA\_DETAILS(

2 PINCODE NUMBER(6) CONSTRAINT pn\_pk PRIMARY KEY,

3 AREA VARCHAR2(10));

Table created.

SQL>

SQL> DESC AREA\_DETAILS;

Name Null? Type

----------------------------------------- -------- -------------

PINCODE NOT NULL NUMBER(6)

AREA VARCHAR2(10)

SQL>

SQL> CREATE TABLE EMPLOYEE(

2 E\_NO VARCHAR2(6) CONSTRAINT e\_no\_pk PRIMARY KEY,

3 E\_NAME VARCHAR2(10) CONSTRAINT e\_name NOT NULL,

4 DOB DATE,

5 PINCODE NUMBER(6),

6 CONSTRAINT pn\_fk FOREIGN KEY (PINCODE) REFERENCES AREA\_DETAILS(PINCODE),

7 CONSTRAINT E\_BEGIN CHECK ( E\_NO LIKE 'E%'));

Table created.

SQL>

SQL> DESC EMPLOYEE;

Name Null? Type

----------------------------------------- -------- ------------------

E\_NO NOT NULL VARCHAR2(6)

E\_NAME NOT NULL VARCHAR2(10)

DOB DATE

PINCODE NUMBER(6)

SQL>

SQL> CREATE TABLE CUSTOMER(

2 C\_NO VARCHAR2(6),

3 C\_NAME VARCHAR2(10) CONSTRAINT c\_name NOT NULL,

4 STREET\_NAME VARCHAR2(10),

5 PINCODE NUMBER(6),

6 CONSTRAINT cpn\_fk FOREIGN KEY (PINCODE) REFERENCES AREA\_DETAILS(PINCODE),

7 DOB DATE,

8 PHONE\_NO NUMBER(10),

9 CONSTRAINT c\_no\_pk PRIMARY KEY(C\_NO),

10 CONSTRAINT phone\_no\_uni UNIQUE(PHONE\_NO),

11 CONSTRAINT C\_BEGIN CHECK ( C\_NO LIKE 'C%' ));

Table created.

SQL>

SQL> DESC CUSTOMER;

Name Null? Type

----------------------------------------- -------- ------------------

C\_NO NOT NULL VARCHAR2(6)

C\_NAME NOT NULL VARCHAR2(10)

STREET\_NAME VARCHAR2(10)

PINCODE NUMBER(6)

DOB DATE

PHONE\_NO NUMBER(10)

SQL>

SQL> CREATE TABLE PART(

2 P\_NO VARCHAR2(6) CONSTRAINT p\_no\_pk PRIMARY KEY,

3 P\_NAME VARCHAR2(10),

4 PRICE NUMBER(5) CONSTRAINT price\_no NOT NULL,

5 QTY\_AVL NUMBER(5),

6 CONSTRAINT P\_BEGIN CHECK ( P\_NO LIKE 'P%' ));

Table created.

SQL>

SQL> DESC PART;

Name Null? Type

----------------------------------------- -------- ------------------

P\_NO NOT NULL VARCHAR2(6)

P\_NAME VARCHAR2(10)

PRICE NOT NULL NUMBER(5)

QTY\_AVL NUMBER(5)

SQL>

SQL> CREATE TABLE ORDERS(

2 O\_NO VARCHAR2(6) CONSTRAINT o\_no PRIMARY KEY,

3 C\_NO VARCHAR2(6),

4 CONSTRAINT c\_no\_fk FOREIGN KEY (C\_NO) REFERENCES CUSTOMER(C\_NO),

5 E\_NO VARCHAR2(6),

6 CONSTRAINT e\_no\_fk FOREIGN KEY (E\_NO) REFERENCES EMPLOYEE(E\_NO),

7 RCD\_DT DATE,

8 SHIP\_DT DATE,

9 CONSTRAINT dt CHECK (RCD\_DT<SHIP\_DT),

10 CONSTRAINT O\_BEGIN CHECK ( O\_NO LIKE 'O%' ));

Table created.

SQL>

SQL> DESC ORDERS;

Name Null? Type

----------------------------------------- -------- ---------------

O\_NO NOT NULL VARCHAR2(6)

C\_NO VARCHAR2(6)

E\_NO VARCHAR2(6)

RCD\_DT DATE

SHIP\_DT DATE

SQL>

SQL> CREATE TABLE ORDER\_DETAILS(

2 O\_NO VARCHAR2(6) CONSTRAINT or\_no REFERENCES ORDERS(O\_NO),

3 P\_NO VARCHAR2(6),

4 CONSTRAINT p\_no\_fk FOREIGN KEY (P\_NO) REFERENCES PART(P\_NO),

5 QTY\_ORD NUMBER(5),

6 CONSTRAINT qty\_ord\_nz CHECK ( QTY\_ORD>0 ),

7 CONSTRAINT o\_p\_pk PRIMARY KEY (O\_NO,P\_NO));

Table created.

SQL>

SQL> DESC ORDER\_DETAILS;

Name Null? Type

----------------------------------------- -------- --------------

O\_NO NOT NULL VARCHAR2(6)

P\_NO NOT NULL VARCHAR2(6)

QTY\_ORD NUMBER(5)

SQL>

SQL> INSERT INTO AREA\_DETAILS VALUES(600010,'KILPAUK');

1 row created.

SQL> INSERT INTO AREA\_DETAILS VALUES(600082,'PERAMBUR');

1 row created.

SQL> INSERT INTO AREA\_DETAILS VALUES(600011,'KALAVAKKAM');

1 row created.

SQL> INSERT INTO AREA\_DETAILS VALUES(600013,'CHETPET');

1 row created.

SQL>

SQL> INSERT INTO EMPLOYEE VALUES('E5390','AISHU','13-NOV-2000',600010);

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E4181','VAISHALI','13-DEC-1999',600082);

1 row created.

SQL> INSERT INTO EMPLOYEE VALUES('E3912','ABI','13-OCT-1999',600010);

1 row created.

SQL>

SQL> REM violates constraints

SQL>

SQL> INSERT INTO EMPLOYEE VALUES('3780','santhi','13-NOV-1978',600011);

INSERT INTO EMPLOYEE VALUES('3780','santhi','13-NOV-1978',600011)

\*

ERROR at line 1:

ORA-02290: check constraint (4181.E\_BEGIN) violated

SQL>

SQL> INSERT INTO CUSTOMER VALUES('C7541','JAISRI','3RD STREET', 600013, '26-JAN-1996', 9451263478);

1 row created.

SQL> INSERT INTO CUSTOMER VALUES('C8191','MADHU','1ST STREET',600011,'04-JUL-1993',9348764514);

1 row created.

SQL> INSERT INTO CUSTOMER VALUES('C9173','ASHWIN','5TH STREET',600010,'19-APR-1990',9545756281);

1 row created.

SQL>

SQL> REM violates constraints

SQL>

SQL> INSERT INTO CUSTOMER VALUES ('C2343','RAJ','6TH STREET',600082,'19-AUG-1989', 9348764514);

INSERT INTO CUSTOMER VALUES ('C2343','RAJ','6TH STREET',600082,'19-AUG-1989', 9348764514)

\*

ERROR at line 1:

ORA-00001: unique constraint (4181.PHONE\_NO\_UNI) violated

SQL>

SQL> INSERT INTO PART VALUES('P23456','NUT',23,20);

1 row created.

SQL> INSERT INTO PART VALUES('P87910','HAMMER',50,200);

1 row created.

SQL> INSERT INTO PART VALUES('P63729','BOLT', 65,410);

1 row created.

SQL> INSERT INTO PART VALUES('P01023','SPANNER',45,150);

1 row created.

SQL>

SQL> REM violates constraints

SQL>

SQL> INSERT INTO PART VALUES('P40952','SAW',NULL,200);

INSERT INTO PART VALUES('P40952','SAW',NULL,200)

\*

ERROR at line 1:

ORA-01400: cannot insert NULL into ("4181"."PART"."PRICE")

SQL>

SQL> INSERT INTO ORDERS VALUES('O70850','C9173','E4181','05-DEC-2018','07-DEC-2018');

1 row created.

SQL> INSERT INTO ORDERS VALUES('O80791','C7541','E3912','20-JAN-2019','21-JAN-2019');

1 row created.

SQL> INSERT INTO ORDERS VALUES('O53865','C8191','E5390','10-JAN-2019','15-JAN-2019');

1 row created.

SQL>

SQL> REM violates constraints

SQL>

SQL> INSERT INTO ORDERS VALUES('O24355', 'C8191','E4181' ,'18-FEB-2018','15-FEB-2018');

INSERT INTO ORDERS VALUES('O24355', 'C8191','E4181' ,'18-FEB-2018','15-FEB-2018')

\*

ERROR at line 1:

ORA-02290: check constraint (4181.DT) violated

SQL>

SQL> INSERT INTO ORDER\_DETAILS VALUES('O70850','P01023',45);

1 row created.

SQL> INSERT INTO ORDER\_DETAILS VALUES('O80791','P01023',15);

1 row created.

SQL> INSERT INTO ORDER\_DETAILS VALUES('O80791','P87910',80);

1 row created.

SQL> INSERT INTO ORDER\_DETAILS VALUES('O53865','P63729',100);

1 row created.

SQL>

SQL> REM violates constraints

SQL>

SQL> INSERT INTO ORDER\_DETAILS VALUES('O53865','P23456',-2);

INSERT INTO ORDER\_DETAILS VALUES('O53865','P23456',-2)

\*

ERROR at line 1:

ORA-02290: check constraint (4181.QTY\_ORD\_NZ) violated

SQL>

SQL> SELECT \* FROM AREA\_DETAILS;

PINCODE AREA

---------- ----------

600010 KILPAUK

600082 PERAMBUR

600011 KALAVAKKAM

600013 CHETPET

SQL> SELECT \* FROM PART;

P\_NO P\_NAME PRICE QTY\_AVL

------ ---------- ---------- ----------

P23456 NUT 23 20

P87910 HAMMER 50 200

P63729 BOLT 65 410

P01023 SPANNER 45 150

SQL> SELECT \* FROM EMPLOYEE;

E\_NO E\_NAME DOB PINCODE

------ ---------- --------- ----------

E5390 AISHU 13-NOV-00 600010

E4181 VAISHALI 13-DEC-99 600082

E3912 ABI 13-OCT-99 600010

SQL> SELECT \* FROM CUSTOMER;

C\_NO C\_NAME STREET\_NAM PINCODE DOB PHONE\_NO

------ ---------- ---------- ---------- --------- ----------

C7541 JAISRI 3RD STREET 600013 26-JAN-96 9451263478

C8191 MADHU 1ST STREET 600011 04-JUL-93 9348764514

C9173 ASHWIN 5TH STREET 600010 19-APR-90 9545756281

SQL> SELECT \* FROM ORDERS;

O\_NO C\_NO E\_NO RCD\_DT SHIP\_DT

------ ------ ------ --------- ---------

O70850 C9173 E4181 05-DEC-18 07-DEC-18

O80791 C7541 E3912 20-JAN-19 21-JAN-19

O53865 C8191 E5390 10-JAN-19 15-JAN-19

SQL> SELECT \* FROM ORDER\_DETAILS;

O\_NO P\_NO QTY\_ORD

------ ------ ----------

O70850 P01023 45

O80791 P01023 15

O80791 P87910 80

O53865 P63729 100

SQL>

SQL> REM It is identified that the following attributes are to be included in respective relations:Parts (reorder level), Employees (hiredate)

SQL>

SQL> ALTER TABLE EMPLOYEE

2 ADD (HIRE\_DATE DATE);

Table altered.

SQL>

SQL> DESC EMPLOYEE;

Name Null? Type

----------------------------------------- -------- ----------------

E\_NO NOT NULL VARCHAR2(6)

E\_NAME NOT NULL VARCHAR2(10)

DOB DATE

PINCODE NUMBER(6)

HIRE\_DATE DATE

SQL>

SQL> ALTER TABLE PART

2 ADD (REORDER\_LEVEL NUMBER(5));

Table altered.

SQL>

SQL> DESC PART;

Name Null? Type

----------------------------------------- -------- ----------------

P\_NO NOT NULL VARCHAR2(6)

P\_NAME VARCHAR2(10)

PRICE NOT NULL NUMBER(5)

QTY\_AVL NUMBER(5)

REORDER\_LEVEL NUMBER(5)

SQL>

SQL> REM The width of a customer name is not adequate for most of the customers.

SQL>

SQL> ALTER TABLE CUSTOMER

2 MODIFY C\_NAME VARCHAR2(20);

Table altered.

SQL>

SQL> REM The dateofbirth of a customer can be addressed later / removed from the schema.

SQL>

SQL> ALTER TABLE CUSTOMER

2 DROP COLUMN DOB;

Table altered.

SQL>

SQL> DESC CUSTOMER;

Name Null? Type

----------------------------------------- -------- --------------

C\_NO NOT NULL VARCHAR2(6)

C\_NAME NOT NULL VARCHAR2(20)

STREET\_NAME VARCHAR2(10)

PINCODE NUMBER(6)

PHONE\_NO NUMBER(10)

SQL>

SQL> REM An order can not be placed without the receive date

SQL>

SQL> ALTER TABLE ORDERS

2 ADD CONSTRAINT rcd\_dt\_nn CHECK(RCD\_DT IS NOT NULL);

Table altered.

SQL>

SQL> DESC ORDERS;

Name Null? Type

----------------------------------------- -------- ----------------

O\_NO NOT NULL VARCHAR2(6)

C\_NO VARCHAR2(6)

E\_NO VARCHAR2(6)

RCD\_DT DATE

SHIP\_DT DATE

SQL>

SQL> REM A customer may cancel an order or ordered part(s) may not be available in a stock.

SQL> REM Hence on removing the details of the order, ensure that all the corresponding details are also deleted.

SQL>

SQL> ALTER TABLE ORDER\_DETAILS

2 DROP CONSTRAINT or\_no;

Table altered.

SQL> ALTER TABLE ORDER\_DETAILS

2 ADD CONSTRAINT or\_no

3 FOREIGN KEY(O\_NO)

4 REFERENCES ORDERS (O\_NO)

5 ON DELETE CASCADE;

Table altered.

SQL> DESC ORDER\_DETAILS;

Name Null? Type

----------------------------------------- -------- ----------------

O\_NO NOT NULL VARCHAR2(6)

P\_NO NOT NULL VARCHAR2(6)

QTY\_ORD NUMBER(5)

SQL>

SQL> DELETE FROM ORDERS WHERE O\_NO='O70850';

1 row deleted.

SQL>

SQL> SELECT \* FROM AREA\_DETAILS;

PINCODE AREA

---------- ----------

600010 KILPAUK

600082 PERAMBUR

600011 KALAVAKKAM

600013 CHETPET

SQL> SELECT \* FROM PART;

P\_NO P\_NAME PRICE QTY\_AVL REORDER\_LEVEL

------ ---------- ---------- ---------- -------------

P23456 NUT 23 20

P87910 HAMMER 50 200

P63729 BOLT 65 410

P01023 SPANNER 45 150

SQL> SELECT \* FROM EMPLOYEE;

E\_NO E\_NAME DOB PINCODE HIRE\_DATE

------ ---------- --------- ---------- ---------

E5390 AISHU 13-NOV-00 600010

E4181 VAISHALI 13-DEC-99 600082

E3912 ABI 13-OCT-99 600010

SQL> SELECT \* FROM CUSTOMER;

C\_NO C\_NAME STREET\_NAM PINCODE PHONE\_NO

------ -------------------- ---------- ---------- ----------

C7541 JAISRI 3RD STREET 600013 9451263478

C8191 MADHU 1ST STREET 600011 9348764514

C9173 ASHWIN 5TH STREET 600010 9545756281

SQL> SELECT \* FROM ORDERS;

O\_NO C\_NO E\_NO RCD\_DT SHIP\_DT

------ ------ ------ --------- ---------

O80791 C7541 E3912 20-JAN-19 21-JAN-19

O53865 C8191 E5390 10-JAN-19 15-JAN-19

SQL> SELECT \* FROM ORDER\_DETAILS;

O\_NO P\_NO QTY\_ORD

------ ------ ----------

O80791 P01023 15

O80791 P87910 80

O53865 P63729 100

SQL> spool off