

```
@E:084_A72.sql
SQL> REM A.Likhitha Verma
SQL> REM 185001084 Assignment-7 triggers
SQL> REM ALL tables for this experiment are run using a separate file which is not shown in spool file
SQL> REM 1. The date of arrival should be always later than or on the same date of departure.
SQL>
SQL> CREATE OR REPLACE TRIGGER date_trigger
2 BEFORE INSERT OR UPDATE
3 ON fl_schedule
4 FOR EACH ROW
5 WHEN (NEW.arrives<NEW.departs OR NEW.arrives<OLD.departs OR OLD.arrives<NEW.departs)
6 BEGIN
7 RAISE_APPLICATION_ERROR(-20001,'Date of arrival is before the date of departure');
8 END;
9 /
```

Trigger created.

```
SQL>
SQL> REM *****
SQL>
SQL> REM Table before insertion
SQL> SELECT * FROM fl_schedule WHERE flno='9E-3851';
```

FLNO	DEPARTS	DTIME	ARRIVES	ATIME	PRICE
9E-3851	12-APR-05	710	12-APR-05	800	120.4
9E-3851	15-APR-05	1035	15-APR-05	1140	120.4

```
SQL> REM *****
SQL>
SQL> REM Invalid insertion dep_date>arr_date so throws trigger
SQL> INSERT INTO fl_schedule VALUES ('9E-3851','29-apr-2005',0710,'28-apr-2005',0800,120.40);
INSERT INTO fl_schedule VALUES ('9E-3851','29-apr-2005',0710,'28-apr-2005',0800,120.40)
*
```

```
ERROR at line 1:
ORA-20001: Date of arrival is before the date of departure
ORA-06512: at "HR.DATE_TRIGGER", line 2
ORA-04088: error during execution of trigger 'HR.DATE_TRIGGER'
```

```
SQL> REM *****
SQL>
SQL> REM Valid Insertion
SQL> INSERT INTO fl_schedule VALUES ('9E-3851','28-apr-2005',0700,'29-apr-2005',0800,500);
```

1 row created.

```
SQL> REM *****
SQL>
SQL> REM Table after insertion
SQL> SELECT * FROM fl_schedule WHERE flno='9E-3851';
```

FLNO	DEPARTS	DTIME	ARRIVES	ATIME	PRICE
9E-3851	12-APR-05	710	12-APR-05	800	120.4
9E-3851	15-APR-05	1035	15-APR-05	1140	120.4
9E-3851	28-APR-05	700	29-APR-05	800	500

```
SQL> REM *****
SQL>
SQL> REM BEFORE Update demo
SQL> SELECT * FROM fl_schedule where flno='VS-26';
```

FLNO	DEPARTS	DTIME	ARRIVES	ATIME	PRICE
VS-26	21-APR-05	1340	22-APR-05	1230	250.5

```
SQL> REM *****
SQL>
SQL> REM Invalid update
SQL> UPDATE fl_schedule SET departs='24-APR-05' WHERE flno='VS-26';
UPDATE fl_schedule SET departs='24-APR-05' WHERE flno='VS-26'
*
```

```
ERROR at line 1:
ORA-20001: Date of arrival is before the date of departure
ORA-06512: at "HR.DATE_TRIGGER", line 2
ORA-04088: error during execution of trigger 'HR.DATE_TRIGGER'
```

```
SQL> REM *****
SQL>
SQL> REM Valid update
SQL> UPDATE fl_schedule SET departs='20-APR-05' WHERE flno='VS-26';
```

1 row updated.

```
SQL> REM *****
SQL>
SQL> REM After Update demo
SQL> SELECT * FROM fl_schedule where flno='VS-26';
```

FLNO	DEPARTS	DTIME	ARRIVES	ATIME	PRICE
VS-26	20-APR-05	1340	22-APR-05	1230	250.5

```
SQL> REM *****
SQL>
SQL> REM *****
SQL>
SQL> REM 2. Flight number CX 7520 is scheduled only on Tuesday, Friday and Sunday.
SQL>
SQL> CREATE OR REPLACE TRIGGER flightdaycheck
2 BEFORE INSERT OR UPDATE ON fl_schedule
```

```

3 FOR EACH ROW
4 WHEN (NEW.flno='CX-7520' AND TO_CHAR(NEW.departs,'DY') NOT IN ('TUE','FRI','SUN'))
5 BEGIN
6     RAISE_APPLICATION_ERROR(-20002,'Flight CX-7520 is only scheduled on TUESDAY FRIDAY AND
SATURDAY');
7 END;
8 /

```

Trigger created.

```

SQL>
SQL> REM *****
SQL>
SQL> REM Before operations
SQL> SELECT * FROM fl_schedule where flno='CX-7520';

```

FLNO	DEPARTS	DTIME	ARRIVES	ATIME	PRICE
CX-7520	12-APR-05	730	12-APR-05	840	225.43
CX-7520	17-APR-05	730	17-APR-05	840	225.43
CX-7520	22-APR-05	730	22-APR-05	840	225.43

```

SQL> REM *****
SQL>
SQL> REM Invalid insertion:28-apr-2005 is a Thursday
SQL> INSERT INTO fl_schedule VALUES ('CX-7520','28-apr-2005',0740,'28-apr-2005',0830,250);
INSERT INTO fl_schedule VALUES ('CX-7520','28-apr-2005',0740,'28-apr-2005',0830,250)
*

```

ERROR at line 1:
ORA-20002: Flight CX-7520 is only scheduled on TUESDAY FRIDAY AND SATURDAY
ORA-06512: at "HR.FLIGHTDAYCHECK", line 2
ORA-04088: error during execution of trigger 'HR.FLIGHTDAYCHECK'

```

SQL> REM *****
SQL>
SQL> REM Valid insertion:29-apr-2005 is a Friday
SQL> INSERT INTO fl_schedule VALUES ('CX-7520','29-apr-2005',0740,'29-apr-2005',0830,250);

```

1 row created.

```

SQL> REM *****
SQL>
SQL> REM Invalid updation:27-apr-2005 is a wednesday
SQL> UPDATE fl_schedule SET departs='27-APR-2005' WHERE flno='CX-7520' AND departs='12-APR-2005';
UPDATE fl_schedule SET departs='27-APR-2005' WHERE flno='CX-7520' AND departs='12-APR-2005'
*

```

ERROR at line 1:
ORA-20002: Flight CX-7520 is only scheduled on TUESDAY FRIDAY AND SATURDAY
ORA-06512: at "HR.FLIGHTDAYCHECK", line 2
ORA-04088: error during execution of trigger 'HR.FLIGHTDAYCHECK'

```
SQL> REM *****
SQL>
SQL> REM Invalid updation:26-apr-2005 is a tuesday
SQL> UPDATE fl_schedule SET departs='26-APR-2005' WHERE flno='CX-7520' AND departs='29-APR-2005';

1 row updated.
```

```
SQL> REM *****
SQL>
SQL> REM After operations
SQL> SELECT * FROM fl_schedule where flno='CX-7520';
```

FLNO	DEPARTS	DTIME	ARRIVES	ATIME	PRICE
CX-7520	12-APR-05	730	12-APR-05	840	225.43
CX-7520	17-APR-05	730	17-APR-05	840	225.43
CX-7520	22-APR-05	730	22-APR-05	840	225.43
CX-7520	26-APR-05	740	29-APR-05	830	250

```
SQL> REM *****
SQL> REM *****
SQL>
SQL> REM 3. An aircraft is assigned to a flight only if its cruising range is more than the distance of the
SQL> REM flights' route.
SQL>
SQL> CREATE OR REPLACE TRIGGER air_range_check
2 BEFORE INSERT OR UPDATE
3 ON flights
4 for each row
5 DECLARE
6     c_range aircraft.cruisingrange%type;
7     dist routes.distance%type;
8 BEGIN
9     select cruisingrange into c_range from aircraft where aid=:new.aid;
10    select distance into dist from routes where routeID=:new.rid;
11    IF(c_range<dist)
12    THEN
13        raise_application_error(-20003, 'Cruising Range of aircraft must be greater than the distance of the route.');
```

Trigger created.

```
SQL> REM *****
SQL> SELECT aid,cruisingrange FROM Aircraft;
```

AID CRUISINGRANGE

1	8430
---	------

2	3383
3	7120
4	1502
5	1530
6	2128
7	520
8	4103
16	300
9	6900
10	4010

AID CRUISINGRANGE

11	6441
12	6475
13	2605
14	1805
15	1504

16 rows selected.

SQL> SELECT * FROM Routes WHERE ROUTEID='LW100';

ROUTEI	ORIG_AIRPORT	DEST_AIRPORT	DISTANCE
LW100	Los Angeles	Washington D.C.	2308

SQL> REM *****

SQL> REM Invalid insertion

SQL> INSERT INTO flights values ('BV-27','LW100',7);

INSERT INTO flights values ('BV-27','LW100',7)

*

ERROR at line 1:

ORA-20003: Cruising Range of aircraft must be greater than the distance of the route.

ORA-06512: at "HR.AIR_RANGE_CHECK", line 9

ORA-04088: error during execution of trigger 'HR.AIR_RANGE_CHECK'

SQL>

SQL> REM Valid insertion

SQL> INSERT INTO flights values ('BV-27','LW100',1);

1 row created.

SQL> REM *****

SQL> REM Before updation

SQL> SELECT * from flights WHERE flightno='BV-27';

FLIGHTN	RID	AID
BV-27	LW100	1

```
SQL> REM *****
SQL> REM INVALID UPDATION
SQL> UPDATE flights set AID=15 WHERE flightno='BV-27';
UPDATE flights set AID=15 WHERE flightno='BV-27'
*
```

ERROR at line 1:

ORA-20003: Cruising Range of aircraft must be greater than the distance of the route.

ORA-06512: at "HR.AIR_RANGE_CHECK", line 9

ORA-04088: error during execution of trigger 'HR.AIR_RANGE_CHECK'

```
SQL> REM *****
SQL> REM VALID UPDATION
SQL> UPDATE flights set AID=2 WHERE flightno='JJ-7456';
```

1 row updated.

```
SQL> REM *****
SQL> REM After updation
SQL> SELECT * from flights WHERE flightno='BV-27';
```

FLIGHTN	RID	AID
BV-27	LW100	1

```
SQL>
SQL> REM *****
SQL> REM *****
SQL>
```