

CSE-2007 LAB ASSIGNMENT

Exercise- 2



17BCE7066

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Alter the Tables to:

Question 1:

Add foreign keys using alter command

```
SQL> alter table employee add constraint employee_ssn_pk primary key(SSN);
```

Table altered.

```
SQL> alter table employee add constraint employee_supssn_fk foreign key(SUPERVISORSSN) references employee(SSN);
```

Table altered.

```
SQL> alter table employee modify (lastname varchar2(15) constraint emp_lname_nn not null);
```

Table altered.

```
SQL> alter table employee modify (firstname varchar2(15) constraint emp_fname_nn not null);
```

Table altered.

```
SQL> alter table employee add constraint emp_sex_ck check (sex in('M','F'));
```

Table altered.

```
SQL> alter table department add constraint dept_depno_pk primary key (departmentnumber);
```

Table altered.

```
SQL> alter table employee add constraint emp_dno_fk foreign key(departmentnumber) references department(departmentnumber);
```

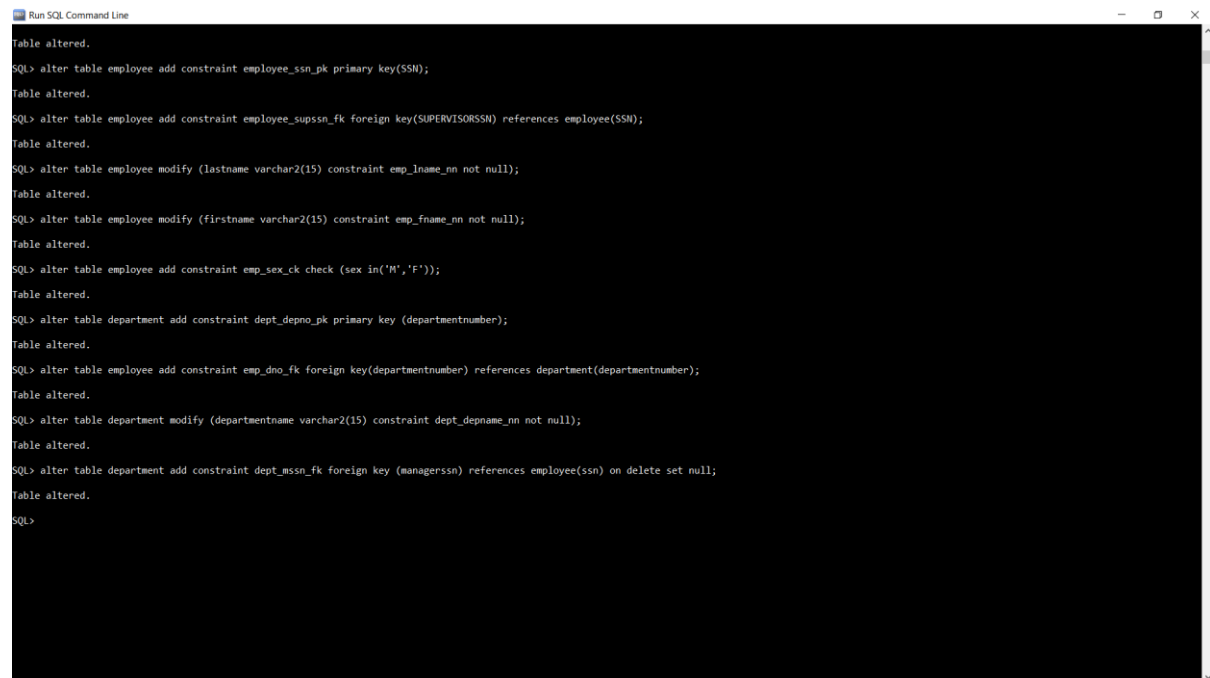
Table altered.

```
SQL> alter table department modify (departmentname varchar2(15) constraint dept_depname_nn not null);
```

Table altered.

```
SQL> alter table department add constraint dept_mssn_fk foreign key (managerssn) references employee(ssn) on delete set null;
```

Table altered.



```
Run SQL Command Line
Table altered.
SQL> alter table employee add constraint employee_ssn_pk primary key(ssn);
Table altered.
SQL> alter table employee add constraint employee_supssn_fk foreign key(SUPERVISORSSN) references employee(ssn);
Table altered.
SQL> alter table employee modify (lastname varchar2(15) constraint emp_lname_nn not null);
Table altered.
SQL> alter table employee modify (firstname varchar2(15) constraint emp_fname_nn not null);
Table altered.
SQL> alter table employee add constraint emp_sex_ck check (sex in('M','F'));
Table altered.
SQL> alter table department add constraint dept_depno_pk primary key (departmentnumber);
Table altered.
SQL> alter table employee add constraint emp_dno_fk foreign key(departmentnumber) references department(departmentnumber);
Table altered.
SQL> alter table department modify (departmentname varchar2(15) constraint dept_depname_nn not null);
Table altered.
SQL> alter table department add constraint dept_mssn_fk foreign key (managerssn) references employee(ssn) on delete set null;
Table altered.
SQL>
```

```
SQL> create table dept_locations (departmentnumber number(5) ,dept_loc varchar2(15),constraint
deptloc_depno_fk foreign key(departmentnumber) references department (departmentnumber));
```

Table created.

```
SQL> alter table project modify (projectname varchar2(15) constraint pro_proname_nn not null);
```

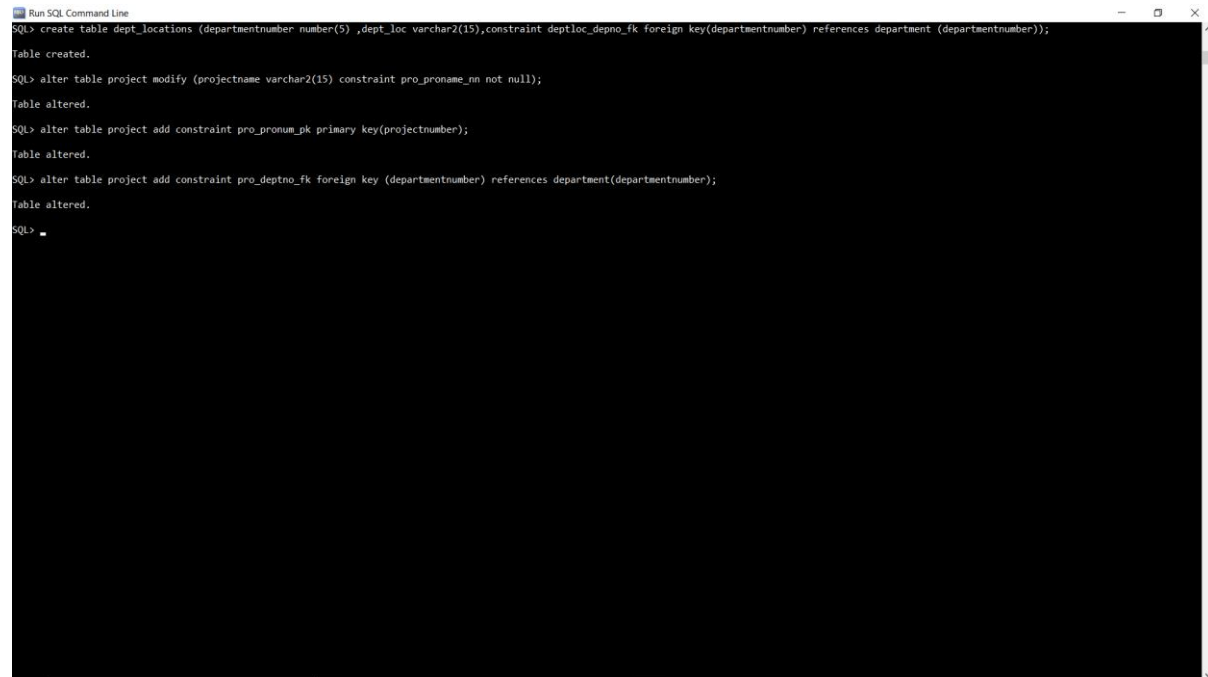
Table altered.

```
SQL> alter table project add constraint pro_pronum_pk primary key(projectnumber);
```

Table altered.

```
SQL> alter table project add constraint pro_deptno_fk foreign key (departmentnumber) references
department(departmentnumber);
```

Table altered.



```
Run SQL Command Line
SQL> create table dept_locations (departmentnumber number(5),dept_loc varchar2(15),constraint deptloc_deptno_fk foreign key(departmentnumber) references department (departmentnumber));
Table created.
SQL> alter table project modify (projectname varchar2(15) constraint pro_proname_nn not null);
Table altered.
SQL> alter table project add constraint pro_pronum_pk primary key(projectnumber);
Table altered.
SQL> alter table project add constraint pro_deptno_fk foreign key (departmentnumber) references department(departmentnumber);
Table altered.
SQL> .
```

```
SQL> create table works_on(emp_ssn char(9),projectnumber number(5),hours number(3,1) not
null,constraint work_ssn_fk foreign key(emp_ssn) references employee(ssn) on delete
cascade,constraint work_pronum_fk foreign key(projectnumber) references
project(projectnumber)on delete cascade);
```

Table created.

```
SQL> create table dependent (employee char(9),dependentname varchar2(15),sex char(1) check(sex
in('m','f','M','F')),bdate date,relationship varchar2(8));
```

Table created.

```
SQL> alter table employee modify(salary number(7) default 800);
```

Table altered.

```
Run SQL Command Line
SQL> alter table employee modify (firstname varchar2(15) constraint emp_fname_nn not null);
Table altered.
SQL> alter table employee add constraint emp_sex_ck check (sex in('M','F'));
Table altered.
SQL> alter table department add constraint dept_depto_pk primary key (departmentnumber);
Table altered.
SQL> alter table employee add constraint emp_dno_fk foreign key(departmentnumber) references department(departmentnumber);
Table altered.
SQL> alter table department modify (departmentname varchar2(15) constraint dept_depname_nn not null);
Table altered.
SQL> alter table department add constraint dept_mssn_fk foreign key (managerssn) references employee(ssn) on delete set null;
Table altered.
SQL> create table dept_locations (departmentnumber number(5),dept_loc varchar2(15),constraint deptloc_depto_fk foreign key(departmentnumber) references department (departmentnumber));
Table created.
SQL> alter table project modify (projectname varchar2(15) constraint pro_proname_nn not null);
Table altered.
SQL> alter table project add constraint pro_pronum_pk primary key(projectnumber);
Table altered.
SQL> alter table project add constraint pro_deptno_fk foreign key (departmentnumber) references department(departmentnumber);
Table altered.
SQL> create table works_on(emp_ssn char(9),projectnumber number(5),hours number(3,1) not null,constraint work_ssn_fk foreign key(emp_ssn) references employee(ssn) on delete cascade,constraint work_pronum_fk foreign key(projectnumber) references project(projectnumber) on delete cascade);
Table created.
SQL> create table dependent (employee char(9),dependentname varchar2(15),sex char(1) check(sex in('m','f','M','F')),bdate date,relationship varchar2(8));
Table created.
SQL> alter table employee modify(salary number(7) default 800);
```

SQL> alter table employee add constraint emp_sex_ck check(sex in('M','F','m','f'));

Table altered.

SQL> insert into dept_locations values(&depno,&deploc');

SQL> insert into dept_locations values(1,'Chicago');

SQL> insert into dept_locations values(2,'New York');

SQL> insert into dept_locations values(2,'San Francisco');

SQL> insert into dept_locations values(3,'Salt Lake City');

SQL> insert into dept_locations values(4,'Stafford');

SQL> insert into dept_locations values(4,'Bellaire');

SQL> insert into dept_locations values(5,'Sugarland');

SQL> insert into dept_locations values(5,'Houston');

SQL> insert into works_on values('123456789',3388,32.5);

SQL> insert into works_on values('123456789',1945,7.5);

SQL> insert into works_on values('666884444',3388,40.0);

```
Run SQL Command Line
Table altered.
SQL> insert into dept_locations values(1,'Houston');
1 row created.
SQL> insert into dept_locations values(1,'Chicago');
1 row created.
SQL> insert into dept_locations values(2,'New York');
1 row created.
SQL> insert into dept_locations values(2,'San Francisco');
1 row created.
SQL> insert into dept_locations values(3,'Salt Lake City');
1 row created.
SQL> insert into dept_locations values(4,'Stafford');
1 row created.
SQL> insert into dept_locations values(4,'Bellaire');
1 row created.
SQL> insert into dept_locations values(5,'Sugarland');
1 row created.
SQL> insert into dept_locations values(5,'Houston');
1 row created.
SQL> insert into works_on values('123456789',3388,32.5);
1 row created.
SQL> insert into works_on values('123456789',1945,7.5)
2 ;
1 row created.
SQL> insert into works_on values('666884444',3388,40.0);
1 row created.
SQL>
```

SQL> insert into works_on values('333445555',6688,10.0);

SQL> insert into works_on values('554433221',1945,21.5);

SQL> insert into dependent values('333445555','Alice','F','05-Apr-76','Daughter');

SQL> insert into dependent values('333445555','Theodore','M','25-Oct-73','Son');

SQL> insert into dependent values('333445555','Joy','F','03-MAY_48','Spouse');

SQL> insert into dependent values('987654321','Abner','M','29-Feb-32','Spouse');

SQL> insert into dependent values('123456789','Alice','F','31-Dec-78','Daughter');

SQL> insert into dependent values('123456789','Elizabeth','F','05-May-57','Spouse');

```
Run SQL Command Line
1 row created.
SQL> insert into dept_locations values(5,'Houston');
1 row created.
SQL> insert into works_on values('123456789',3388,32.5);
1 row created.
SQL> insert into works_on values('123456789',1945,7.5)
2 ;
1 row created.
SQL> insert into works_on values('666884444',3388,40.0);
1 row created.
SQL> insert into works_on values('333445555',6688,10.0);
1 row created.
SQL> insert into works_on values('554433221',1945,21.5);
1 row created.
SQL> insert into dependent values('333445555','Alice','F','05-Apr-76','Daughter');
1 row created.
SQL> insert into dependent values('333445555','Theodore','M','25-Oct-73','Son');
1 row created.
SQL> insert into dependent values('333445555','Joy','F','03-MAY_48','Spouse');
1 row created.
SQL> insert into dependent values('987654321','Abner','M','29-Feb-32','Spouse');
1 row created.
SQL> insert into dependent values('123456789','Alice','F','31-Dec-78','Daughter');
1 row created.
SQL> insert into dependent values('123456789','Elizabeth','F','05-May-57','Spouse');
1 row created.
SQL>
```

EXECUTE THE FOLLOWING QUERY ON THE DB TO DISPLAY AND DISCUSS THE INTEGRITY CONSTRAINTS VIOLATED BY ANY OF THE FOLLOWING OPERATIONS

- 1) Insert ('Robert', 'F. Scott', 1943775543, '21-JUN-42', 2365 Newcastle Rd, Bellaire, TX, M 58000, 888665555, 1) into EMPLOYEE

SQL> insert into employee values ('Robert','F','Scott','943775543','21-JUN-42','2365 Newcastle Rd,Bellaire,TX','M',58000,'888665555',1);

- 2) Insert ('677678989', null, '40.0') into WORKS ON

SQL> insert into works_on values ('677678989',null,'40.0');

Ans)The referential integrity constraint is violated.

- 3) Insert ('453453453', 'John', 'M', '12-DEC-60', 'SPOUSE') into DEPENDENT

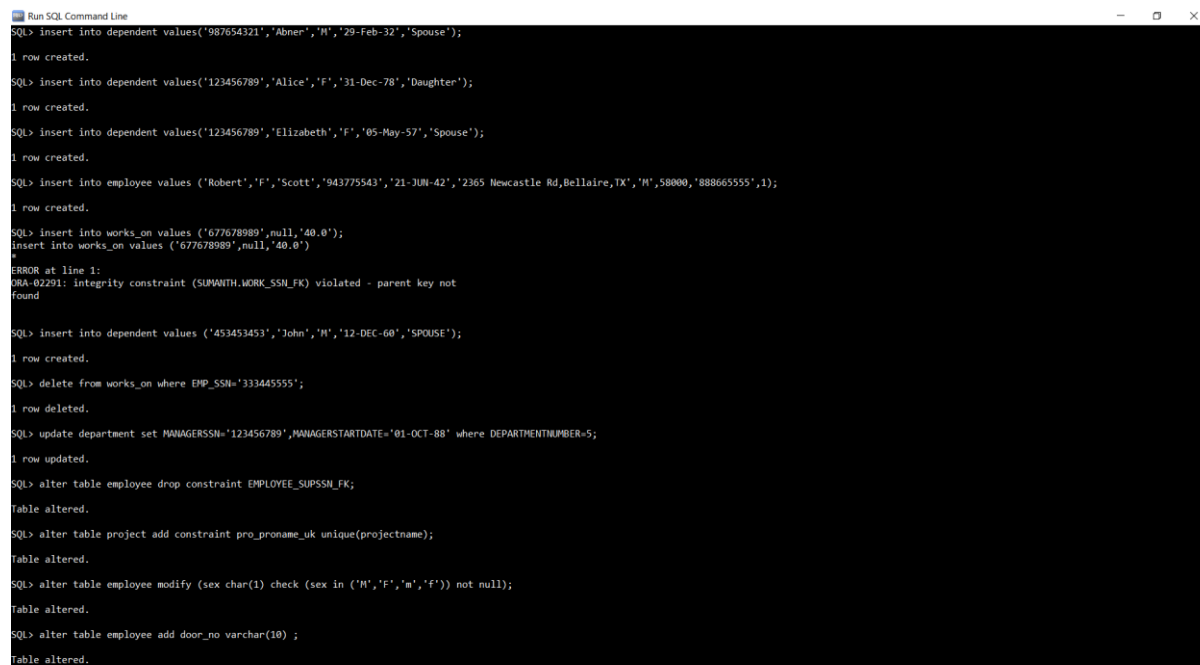
SQL> insert into dependent values ('453453453','John','M','12-DEC-60','SPOUSE');

- 4) Delete the WORKS ON tuples with ESSN='333445555'

SQL> delete from works_on where EMP_SSN='333445555';

- 5) Modify the MGRSSN and MGRSTARTDATE of the DEPARTMENT tuple with DNUMBER=5 to '123456789' and '01-OCT-88' respectively

SQL> update department set MANAGERSSN='123456789',MANAGERSTARTDATE='01-OCT-88' where DEPARTMENTNUMBER=5;



```
Run SQL Command Line
SQL> insert into dependent values ('987654321','Abner','M','29-Feb-32','Spouse');
1 row created.
SQL> insert into dependent values ('123456789','Alice','F','31-Dec-78','Daughter');
1 row created.
SQL> insert into dependent values ('123456789','Elizabeth','F','05-May-57','Spouse');
1 row created.
SQL> insert into employee values ('Robert','F','Scott','943775543','21-JUN-42','2365 Newcastle Rd,Bellaire,TX','M',58000,'888665555',1);
1 row created.
SQL> insert into works_on values ('677678989',null,'40.0');
insert into works_on values ('677678989',null,'40.0')
*
ERROR at line 1:
ORA-02291: integrity constraint (SUPMATH.WORK_SSN_FK) violated - parent key not
found
SQL> insert into dependent values ('453453453','John','M','12-DEC-60','SPOUSE');
1 row created.
SQL> delete from works_on where EMP_SSN='333445555';
1 row deleted.
SQL> update department set MANAGERSSN='123456789',MANAGERSTARTDATE='01-OCT-88' where DEPARTMENTNUMBER=5;
1 row updated.
SQL> alter table employee drop constraint EMPLOYEE_SUPSSN_FK;
Table altered.
SQL> alter table project add constraint pro_proname_uk unique(projectname);
Table altered.
SQL> alter table employee modify (sex char(1) check (sex in ('M','F','m','f')) not null);
Table altered.
SQL> alter table employee add door_no varchar(10) ;
Table altered.
```

ALTER THE TABLES TO

- 1) Add Foreign Keys using Alter Table [if not done earlier]

SQL> alter table employee drop constraint EMPLOYEE_SUPSSN_FK;

2) Drop Foreign key defined on SuperSSN and add it using Alter table command

SQL> alter table project add constraint pro_proname_uk unique(projectname);

3) Make name of Project as Unique and sex of employee as not null

SQL> alter table employee modify (sex char(1) check (sex in ('M','F','m','f')) not null);

**4) Make Address as a new type containing door no. street, city, State, Continent.
Make salary of employee to accept real values.**

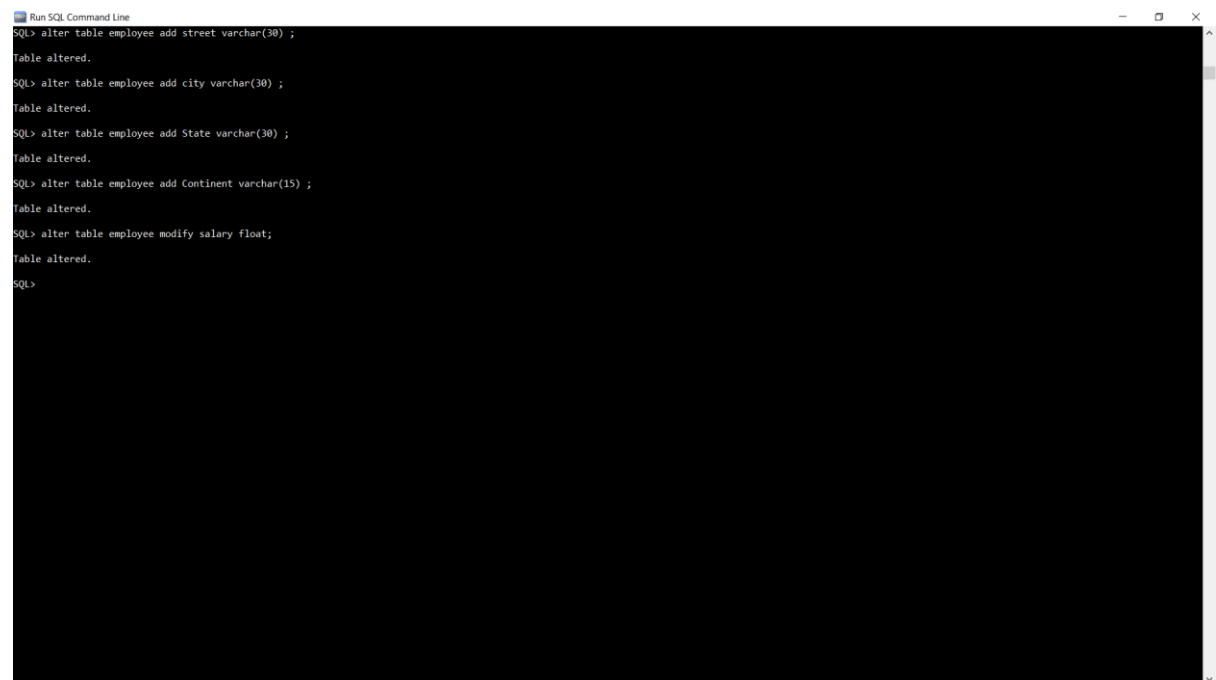
SQL> alter table employee add street varchar(30) ;

SQL> alter table employee add city varchar(30) ;

SQL> alter table employee add State varchar(30) ;

SQL> alter table employee add Continent varchar(15) ;

SQL> alter table employee modify salary float;



```
Run SQL Command Line
SQL> alter table employee add street varchar(30) ;
Table altered.
SQL> alter table employee add city varchar(30) ;
Table altered.
SQL> alter table employee add State varchar(30) ;
Table altered.
SQL> alter table employee add Continent varchar(15) ;
Table altered.
SQL> alter table employee modify salary float;
Table altered.
SQL>
```