```
create table employees (
  EID CHAR(5),
  NAME CHAR(20),
  GENDER CHAR(1) NOT NULL,
  SALARY INTEGER,
  PRIMARY KEY(EID));

create table departments (
  DID CHAR(5),
  NAME CHAR(20),
  MANAGER CHAR(5),
  PRIMARY KEY(DID),
FOREIGN KEY(MANAGER) REFERENCES EMPLOYEES(EID));

create table colleges (
  CID CHAR(5),
  NAME CHAR(20),
  PRIMARY KEY(CID));

create table degrees (
  EID CHAR(5),
  CID CHAR(5),
  DEGREE CHAR(1),
  PRIMARY KEY(EID,CID,DEGREE),
  FOREIGN KEY(EID) REFERENCES EMPLOYEES(EID),
  FOREIGN KEY(CID) REFERENCES COLLEGES(CID));

insert into employees values ('E1','Abrahams','M',50);
insert into employees values ('E2','Jones','F',60);
insert into employees values ('E3','Jenkins','F',50);
insert into employees values ('E4','Smith','M',25);
insert into employees values ('E5','Smith','F',30);
insert into employees values ('E6','Zegura','F',40);

insert into departments values ('D1','Systems','E6');
insert into departments values ('D2','Engineering','E1');
insert into departments values ('D3','Accounting','E6');

insert into colleges values ('C1','Baylor');
insert into colleges values ('C2','GT');
insert into colleges values ('C3','UT');

insert into degrees values ('E1','C1','B');
insert into degrees values ('E1','C3','P');
insert into degrees values ('E2','C2','B');
insert into degrees values ('E3','C1','B');
insert into degrees values ('E3','C1','P');
insert into degrees values ('E4','C3','B');
insert into degrees values ('E6','C2','P');

commit;
```

1. **Find the names of all employees**

```
SQL> select name from employees;
 NAME
 Abrahams
 Jones
 Jenkins
 Smith
 Smith
 Zegura
6 rows selected
```

2. **Find the set of unique name of all employees**

```
SQL> select distinct name from employees;
 NAME
 Abrahams
 Jenkins
 Jones
 Smith
 Zegura
5 rows selected
```

3. **Find all attributes of all employees**

```
SQL> select * from employees;
 EID     NAME                 GENDER        SALARY
 E1      Abrahams             M                 50
 E2      Jones                F                 60
 E3      Jenkins              F                 50
 E4      Smith                M                 25
 E5      Smith                F                 30
 E6      Zegura               F                 40
6 rows selected
```

4. **Find all attributes of all male employees**

```
SQL> select * from employees where gender = 'M';
 EID     NAME                 GENDER        SALARY
 E1      Abrahams             M                 50
 E4      Smith                M                 25
2 rows selected
```

5. **Find the EID and degrees of Jenkins**

```
SQL> select employees.eid, degrees.degree
cont> from employees, degrees
cont> where employees.eid = degrees.eid and
cont> employees.name = 'Jenkins';
 EMPLOYEES.EID   DEGREES.DEGREE
 E3              B
 E3              P
2 rows selected
```

6. **Find the EID and degrees of Jenkins** (Alias)

```
SQL> select E.eid, D.degree
cont> from employees E, degrees D
cont> where E.eid = D.eid and
cont> E.name = 'Jenkins';
 E.EID   D.DEGREE
 E3      B
 E3      P
2 rows selected
```

7. **Find the manager for each department**

```
SQL> select D.name, E.name
cont> from departments D, employees E
cont> where E.eid = D.manager;
 D.NAME                  E.NAME
 Systems                 Zegura
 Engineering             Abrahams
 Accounting              Zegura
3 rows selected
```

8. **Find the name of the employees that either have a PhD or manage a department**

```
SQL> (select E.name from employees E, departments D
cont> where E.eid = D.manager) union
cont> (select E.name from employees E, degrees D
cont> where E.eid = D.eid and degree = 'P');
 NAME
 Abrahams
 Jenkins
 Zegura
3 rows selected
```

9. **Find the name of the employees that went to the same college as Abrahams**

```
SQL> select E.name from employees E, degrees D
cont>  where E.eid = D.eid and D.cid in
cont> (select cid from degrees D, employees E
cont> where E.eid = D.eid and E.name = 'Abrahams');
 E.NAME
 Abrahams
 Abrahams
 Jenkins
 Jenkins
 Smith
5 rows selected
```

DISTINCT

```
select distinct E.name from employees E, degrees D
where E.eid = D.eid and D.cid in
(select cid from degrees D, employees E
where E.eid = D.eid and E.name = 'Abrahams');
 E.NAME
 Abrahams
 Jenkins
 Smith
3 rows selected
```

10. **Find all of the female employees who make more money than all of the male employees**

```
SQL> select name from employees
cont> where gender = 'F' and
cont> salary > all
cont> (select salary from employees
cont> where gender = 'M');
 NAME
 Jones
1 row selected
```

11. **Find the minimum, maximum, average, count, sum, and distinct count of the salaries**

```
select min(salary), max(salary), avg(salary), count(*),
sum(salary), count(distinct salary) from employees;


25     60    42.5       6     255         5

1 row selected
```

12. **Find the names of the employees with more than 1 college degree**

```
select name from employees E
where (select count(*) from
degrees D where E.eid = d.eid) > 1;
 NAME
 Abrahams
 Jenkins
2 rows selected
```

13. **Find the number of degrees given by each college**

```
SQL> select c.name, count(*) from colleges C, degrees D
cont> where C.cid=D.cid group by c.name;
 C.NAME
 Baylor                              3
 GT                                  2
 UT                                  2
3 rows selected
```

14. **Find the number of degrees give by each college that gave 3 or more degrees**

```
select c.name, count(*) from colleges C, degrees D
where c.cid = d.cid
group by c.name
having count(*) >= 3;

 C.NAME
 Baylor                              3
1 row selected
```

15. **List the employees names and salary sorted in descending order by salary**

```
select name, salary from employees
order by salary desc;
 NAME                           SALARY
 Jones                              60
 Jenkins                            50
 Abrahams                           50
 Zegura                             40
 Smith                              30
 Smith                              25
6 rows selected
```

16. **List the employees whose name begins with a ‘J’**

```
SQL> select name from employees where name like '%J%';
 NAME
 Jones
 Jenkins
2 rows selected
```

17. **Delete employee Jenkins**

```
SQL> delete from employees where name = 'Jenkins';
%RDB-E-INTEG_FAIL, violation of constraint DEGREES_FOREIGN1
caused operation to
fail
-RDB-F-ON_DB, on database USER$0:[DONAHOOJ.CS3335]PLAY.RDB;


SQL> delete from degrees where eid in
cont> (select eid from employees where name='Jenkins');
2 rows deleted

SQL> select * from degrees;
 EID     CID     DEGREE
 E1      C1      B
 E1      C3      P
 E2      C2      B
 E4      C3      B
 E6      C2      P
5 rows selected

SQL> delete from employees where name = 'Jenkins';
1 row deleted

SQL> select * from employees;
 EID     NAME                    GENDER        SALARY
 E1      Abrahams                M                 50
 E2      Jones                   F                 60
 E4      Smith                   M                 25
 E5      Smith                   F                 30
 E6      Zegura                  F                 40
5 rows selected
```

18. **Give Abrahams a gender change**

```
SQL> update employees set gender = 'F' where name = 'Abrahams';
1 row updated
```

19. **Give all female employees a 10% raise**

```
SQL> update employees set salary = salary * 1.10 where gender =
'F';
4 rows updated

SQL> select * from employees;
 EID     NAME                    GENDER        SALARY
 E1      Abrahams                F                 51
 E2      Jones                   F                 61
 E4      Smith                   M                 25
 E5      Smith                   F                 31
 E6      Zegura                  F                 41
5 rows selected
```

20. **Commit changes**

```
SQL> commit;
```

21. **Rollback changes**

```
SQL> update employees set gender = 'M' where name = 'Abrahams';
1 row updated

SQL> select * from employees;
 EID     NAME                  GENDER        SALARY
 E1      Abrahams              M                 51
 E2      Jones                 F                 61
 E4      Smith                 M                 25
 E5      Smith                 F                 31
 E6      Zegura                F                 41
5 rows selected

SQL> rollback;

SQL> select * from employees;
 EID     NAME                  GENDER        SALARY
 E1      Abrahams              F                 51
 E2      Jones                 F                 61
 E4      Smith                 M                 25
 E5      Smith                 F                 31
 E6      Zegura                F                 41
5 rows selected
```

22. **Add age column to Employees table**

```
SQL> create domain AGE_DOM integer;
SQL> alter table employees add age AGE_DOM;
SQL> select * from employees;
 EID     NAME                  GENDER        SALARY           AGE
 E1      Abrahams              F                 51          NULL
 E2      Jones                 F                 61          NULL
 E4      Smith                 M                 25          NULL
 E5      Smith                 F                 31          NULL
 E6      Zegura                F                 41          NULL
5 rows selected
```

23. **Delete Employees table**

```
drop table employees;
```

24. **Delete database**

```
drop database filename ‘play.rdb’;
```