DB ASSIGNMENT - 2

NAME - AYUSH MITTAL

SECTION - EA

ROLL NO – 10

SUBJECT - DATABASE TECHNOLOGY

Q-1-

1. Create the following tables and specify constraints at the time of creation.

Department

Column Name	Data Type	Size	Constraint
Deptno	number	3	primary key
Dname	varchar2	20	Unique
Location	varchar2	20	not null, department are located in Delhi, Pune, Agra

Employee

Column Name	Data Type	Size	Constraint
Empno	varchar2	5	primary key, should start with 'E'
Ename	varchar2	20	Unique
Designation	varchar2	20	not null
Salary	number	10	default 25000, must lie between 15000 and 50000
DOB	date		not null
Dno	number	3	foreign key (references department)

Candidate

Column Name	Data type	Size	Constraints
Candidate_ID	Number	6	Primary key of the table
Candidate_Name	Varchar2	20	Not Null
Candidate_Email	Varchar2	30	Unique, Must have '@' followed by '.' in between the email
Candidate_Dept	Varchar2	2	Default 'HR'
Manager_ID	Number	6	It can take only those values which are present in Candidate_ID column

```
6  create table Department (Deptno Number(3) primary key, Dname varchar2(20) unique, Location varchar2(20) Not Null check (Location in('Delhi','Pune','Agra')));
7  desc Department;
8  insert into Department values(1,'AM','Btp');
9  insert into Department values(2,'BM','Agra');
```

Table created.

TABLE DEPARTMENT

Column	Null?	Type
DEPTNO	NOT NULL	NUMBER(3,0)
DNAME	-	VARCHAR2(20)
LOCATION	NOT NULL	VARCHAR2(20)

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3 rows selected.

ORA-02290: check constraint (SQL_DLPSVSBINYXJDGOVHOFKYPRYL.SYS_C00146687602) violated ORA-06512: at "SYS.DBMS_SQL", line 1721

More Details: https://docs.oracle.com/error-help/db/ora-02290

1 row(s) inserted.

```
11 create table Employee (Empno varchar2(5) primary key check (Empno like 'E%') , Ename varchar2(20) unique, Designation varchar2(20) not null,
12 Salary Number(10) default 25000 check (Salary between 15000 and 50000),DoB date Not Null, Dno Number(3)  references Department(Deptno));
13 desc Employee
14
```

Table created.

TABLE EMPLOYEE

Column	Null?	Type
EMPNO	NOT NULL	VARCHAR2(5)
ENAME	-	VARCHAR2(20)
DESIGNATION	NOT NULL	VARCHAR2(20)
SALARY	-	NUMBER(10,0)
DOB	NOT NULL	DATE
DNO	-	NUMBER(3,0)

```
16 create table Candidate (Candidate_ID Number(6) primary key, Candidate_Name varchar2(20) Not Null, Candidate_Email varchar2(30) unique check (Candidate_Email like '%@%.%') ,
17 Candidate_Dept varchar2(2) default 'HR' , Manager_ID Number(6) references Candidate);
18 desc Candidate
19
```

Table created.

TABLE CANDIDATE

Column	Null?	Type
CANDIDATE_ID	NOT NULL	NUMBER(6,0)
CANDIDATE_NAME	NOT NULL	VARCHAR2(20)
CANDIDATE_EMAIL	-	VARCHAR2(30)
CANDIDATE_DEPT	-	VARCHAR2(2)
MANAGER_ID	-	NUMBER(6,0)

Q-2-

Create the schemas as specified above without specifying any constraints.

College (cName: varchar2(10), state: varchar2(10), enrollment: int)

Student (sID: int, sName: varchar2(10), GPA: number(2,1), sizeHS: int)

Apply (sID: int, cName: varchar2(10), major: varchar2(20))

```
1 create table College(cName varchar2(10), state varchar2(10) , enrollment int );
2 create table Student(sID int, sName varchar2(10) , GPA number(2,1), sizeHS int);
3 create table Apply (sID int, cName varchar2(10) , major varchar2(20))
```

Table created.

Table created.

Table created.

1-Add cName as Primary key in College.

```
4
5
6
7
8  Alter table College add primary key (cName);
9  desc College
10
11
12
```

TABLE COLLEGE

Column	Null?	Type
CNAME	NOT NULL	VARCHAR2(10)
STATE	-	VARCHAR2(10)
ENROLLMENT	-	NUMBER

2-Add sID as Primary key in Student.

```
8
9  Alter table Student add primary key (sID);
10 desc Student
11
12
```

Table altered.

TABLE STUDENT

Column	Null?	Type
SID	NOT NULL	NUMBER
SNAME	-	VARCHAR2(10)
GPA	-	NUMBER(2,1)
SIZEHS	-	NUMBER

3- Add sID, cName, major as Primary key in Apply.

```
12  Alter table Apply add primary key (sID,cName,major);
13  desc Apply
14
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(20)

4-Make sID in Apply foreign key referring table student and cName referring table college.

```
36  Alter table Apply add constraint fk_sID foreign key (sID) references Student(sID);
37  desc Apply;
38  Alter table Apply add constraint fk_cName foreign key (cName) references College(cName);
39  desc Apply
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(25)
DECISION	NOT NULL	CHAR(1)

5-Increase data type size of major from 20 to 25.

```
10
11  Alter table Apply modify major varchar2(25);
12  desc Apply
13
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(25)

6-Add a new column decision in the Apply table keeping a constraint of not null for this column with data type varchar2(3).

```
13
14  Alter table Apply add decision varchar2(3) NOT NULL;
15  desc Apply
16
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(25)
DECISION	NOT NULL	VARCHAR2(3)

7-Change data type of decision in Apply to char(1).

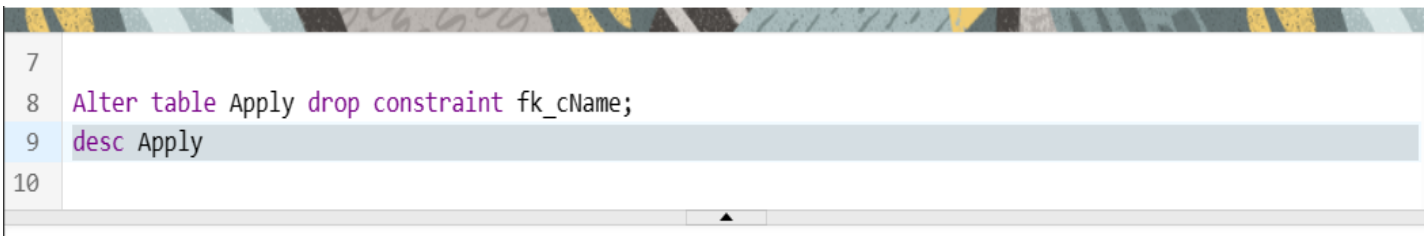
```
16
17  Alter table Apply modify decision char(1);
18  desc Apply
19
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(25)
DECISION	NOT NULL	CHAR(1)

8-Drop foreign key on column name cName from Apply table



```
7
8   Alter table Apply drop constraint fk_cName;
9   desc Apply
10
```

TABLE APPLY

Column	Null?	Type
SID	-	NUMBER
CNAME	-	VARCHAR2(10)
MAJOR	-	VARCHAR2(20)

9-Drop foreign key on column name cName from Apply table.

```
19
20 Alter table Student drop column sizeHS;
21 desc Student
22
```

Table altered.

TABLE STUDENT

Column	Null?	Type
SID	NOT NULL	NUMBER
SNAME	-	VARCHAR2(10)
GPA	-	NUMBER(2,1)

10-Drop primary key from College.

```
23
24 Alter table College drop primary key;
25 desc College
26
```

Table altered.

TABLE COLLEGE

Column	Null?	Type
CNAME	-	VARCHAR2(10)
STATE	-	VARCHAR2(10)
ENROLLMENT	-	NUMBER

11-Make cName, major unique pairwise such as Stanford CS, Stanford EE.

```
15
16  Alter table Apply add constraint unique_data unique(cName, major);
17  desc Apply
18
19
20
```

UNIQUE_DATA	Unique Key	-	-	-	CNAME, MAJOR	-	ENABLED	32 seconds ago

12-Add cName as Foreign Key in Apply table referring table College using on delete cascade.

```
27  Alter table Apply add constraint fk_cName foreign key (cName) references College (cName) on delete
28  CASCADE;
29  desc Apply
30
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(25)
DECISION	NOT NULL	CHAR(1)

13-Modify foreign key on sID in Apply table to foreign key on delete set null.

```
11  Alter table Apply drop constraint fk_cName;
12  Alter table Apply add constraint fk_sID foreign key (sID) references Student(sID) on delete set null;
13  desc Apply
14
15
```

Table altered.

TABLE APPLY

Column	Null?	Type
SID	-	NUMBER
CNAME	-	VARCHAR2(10)
MAJOR	-	VARCHAR2(20)

14-Rename column enrollment to enroll in College Table.

```
31  Alter table College rename column enrollment to enroll;
32  desc College
33
34
```

Table altered.

TABLE COLLEGE

Column	Null?	Type
CNAME	NOT NULL	VARCHAR2(10)
STATE	-	VARCHAR2(10)
ENROLL	-	NUMBER