

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

The screenshot shows the Oracle Live SQL interface. At the top, there are navigation links for 'Feedback', 'Help', and a user account. Below that is a toolbar with 'Clear', 'Find', 'Actions', 'Save', and a 'Run' button. The main area displays a warning message: 'Try Live SQL V2! https://livesql.oracle.com/next/'. Below this, the SQL code for creating the 'Department' table is shown:

```

1 CREATE TABLE Department (
2   Deptno NUMBER(3) PRIMARY KEY,
3   Dname VARCHAR2(20) UNIQUE,
4   Location VARCHAR2(20) NOT NULL,
5   CONSTRAINT location_check CHECK (Location IN ('Agra', 'Delhi', 'Pune'))
6 );
7

```

(ii)

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)

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```

1 CREATE TABLE Employee (
2   Empno  NUMBER(5) PRIMARY KEY,
3   CONSTRAINT pk_emp PRIMARY KEY,
4   CONSTRAINT chk_empno CHECK (Empno LIKE 'E%'),
5
6   Ename   VARCHAR2(20),
7   CONSTRAINT uq_ename UNIQUE,
8
9   Designation VARCHAR2(20),
10  CONSTRAINT nn_designation NOT NULL,
11
12  Salary   NUMBER(10) DEFAULT 25000,
13  CONSTRAINT chk_salary CHECK (Salary BETWEEN 15000 AND 50000),
14
15  DOB      DATE,
16  CONSTRAINT nn_dob NOT NULL,
17
18  Dno      NUMBER(3),
19  CONSTRAINT fk_dno FOREIGN KEY (Dno) REFERENCES Department(Dno)
20 );

```

(iii)

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	Number	2	Default 'HR'
Manager_ID	Varchar2	30	It can take only those values which are present in Candidate_ID column

SQL Worksheet

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 v CREATE TABLE candidate (
2   candidate_id      VARCHAR2(30) PRIMARY KEY,
3   candidate_name    VARCHAR2(20) NOT NULL,
4   candidate_email   VARCHAR2(30) UNIQUE
5   CHECK (candidate_email LIKE '%@%.%'),
6   candidate_dept    VARCHAR2(10) DEFAULT 'HR',
7   manager_id        VARCHAR2(30),
8   CONSTRAINT fk_manager FOREIGN KEY (manager_id)
9     REFERENCES candidate(candidate_id)
10 )
```

Ques2-

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

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 v CREATE TABLE College (
2   cName      VARCHAR2(10),
3   state      VARCHAR2(10),
4   enrollment NUMBER
5 )
```

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

The screenshot shows the Oracle Live SQL interface. At the top, there's a navigation bar with 'Live SQL' and user information 'ishaan.varshney_cs24@gla.ac.in'. Below it is a toolbar with 'SQL Worksheet', 'Clear', 'Find', 'Actions', 'Save', and a 'Run' button. A yellow banner at the top says 'Try Live SQL V2!' with a link 'https://livesql.oracle.com/next/'. The main area contains the following SQL code:

```
1
2
3 v CREATE TABLE Student (
4     sID      NUMBER ,
5     sName    VARCHAR2(10),
6     GPA      NUMBER(2,1),      -- example: 3.5, 9.1 etc.
7     sizeHS   NUMBER
8 )
9
```

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

The screenshot shows the Oracle Live SQL interface. At the top, there's a navigation bar with 'Live SQL' and user information 'ishaan.varshney_cs24@gla.ac.in'. Below it is a toolbar with 'SQL Worksheet', 'Clear', 'Find', 'Actions', 'Save', and a 'Run' button. A yellow banner at the top says 'Try Live SQL V2!' with a link 'https://livesql.oracle.com/next/'. The main area contains the following SQL code:

```
1 v CREATE TABLE Apply (
2     sID INT,
3     cName VARCHAR2(10),
4     major VARCHAR2(20)
5 );
6
```

(i). Add caName as PrimaryKey in College.

The screenshot shows the Oracle Live SQL interface. At the top, there's a navigation bar with 'Live SQL' and user information 'ishaan.varshney_cs24@gla.ac.in'. Below it is a toolbar with 'Clear', 'Find', 'Actions', 'Save', and a prominent green 'Run' button. A yellow warning banner at the top says 'Try Live SQL V2!' with a link 'https://livesql.oracle.com/next/'. The main area contains a partially typed SQL command:

```
1 v ALTER TABLE COLLEGE
2 MODIFY cname primary key;
```

(ii). Add sID as Primarykey in Student.

The screenshot shows the Oracle Live SQL interface. At the top, there's a navigation bar with 'Live SQL' and user information 'ishaan.varshney_cs24@gla.ac.in'. Below it is a toolbar with 'Clear', 'Find', 'Actions', 'Save', and a green 'Run' button. A yellow warning banner at the top says 'Try Live SQL V2!' with a link 'https://livesql.oracle.com/next/'. The main area contains a partially typed SQL command:

```
1
2
3
4 v ALTER TABLE student
5 MODIFY sid primary key;
```

(iii). Add sID, cName, major as Primarykey in Apply.

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 v alter table apply
2   add constraints p_k primary key(sid,cname,major) ;
3
```

Table altered.

(iv). Make sID in Applyforeignkey referring table student and cName referring table college.

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 v ALTER TABLE Apply
2   ADD CONSTRAINT f_k FOREIGN KEY (sID)
3   REFERENCES Student(sID);
4 v ALTER TABLE Apply
5   ADD CONSTRAINT f_k FOREIGN KEY (cname)
6   REFERENCES college(cname);
```

Table altered.

(V) Increase data type size of majorfrom 20 to 25.

The screenshot shows the Oracle Live SQL interface. At the top, there's a navigation bar with 'Live SQL' (highlighted with a red circle), 'Feedback', 'Help', and a user account for 'ishaan.varshney_cs24@gla.ac.in'. A dark mode switch is also present. Below the navigation bar is a toolbar with 'SQL Worksheet' (selected), 'Clear', 'Find', 'Actions', 'Save', and a 'Run' button with a play icon.

A yellow banner at the top of the worksheet area says 'Try Live SQL V2!' with a link: <https://livesql.oracle.com/next/>. There's a red 'X' button in the top right corner of this banner.

The main workspace contains the following SQL code:

```
1 v alter table apply
2 modify major varchar(25);
3
4
```

Table altered.

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

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 v ALTER TABLE Apply
2 ADD decision VARCHAR2(3) NOT NULL;
3
4
5
```

Table altered.

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

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 v ALTER TABLE Apply
2 modify decision char(1) ;
3
4
5
```

Table altered.

(viii) Drop foreign key on column name cName from Apply table.

The screenshot shows the Live SQL interface with the following details:

- Header: Live SQL, Feedback, Help, ishaan.varshney_cs24@gla.ac.in, Dark Mode toggle.
- Toolbar: Clear, Find, Actions, Save, Run.
- Message Bar: Try Live SQL V2! <https://livesql.oracle.com/next/>.
- Code Area:

```
1 v ALTER TABLE Apply
2   DROP CONSTRAINT FK_;
```
- Output Area: Table altered.

(ix) Remove column sizeHS from Student table.

The screenshot shows the Live SQL interface with the following details:

- Header: Live SQL, Feedback, Help, ishaan.varshney_cs24@gla.ac.in, Dark Mode toggle.
- Toolbar: Clear, Find, Actions, Save, Run.
- Message Bar: Try Live SQL V2! <https://livesql.oracle.com/next/>.
- Code Area:

```
1 v alter table student
2   drop column sizehs;
```

(x) Drop primary key from College .

The screenshot shows the Live SQL V2 interface. At the top, there's a yellow banner with a warning icon and the text "Try Live SQL V2!" followed by a link "https://livesql.oracle.com/next/". Below the banner is a code editor window. The code in the editor is:

```
1 v alter table College
2 drop primary key;
3
```

(xi) Make cName, majorunique pairwise such as Stanford CS, Stanford EE.

The screenshot shows the Live SQL V2 interface. At the top, there's a yellow banner with a warning icon and the text "Try Live SQL V2!" followed by a link "https://livesql.oracle.com/next/". Below the banner is a code editor window. The code in the editor is:

```
1 v ALTER TABLE apply
2 ADD CONSTRAINT uniq_ UNIQUE (cName, major);
3
4
```

Below the code editor, the output window shows the message "Table altered."

(xii) Add cName as Foreign Key in Apply table referring table College usingon delete cascade.

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2! <https://livesql.oracle.com/next/>

```
1 v ALTER TABLE Apply
2   ADD CONSTRAINT f_k
3     FOREIGN KEY (cName)
4       REFERENCES College(cName)
5         ON DELETE CASCADE;
```

Table altered.

(xiii) Modify foreign key on sID in Apply table to foreign key on delete set null.

Live SQL

Feedback Help ishaan.varshney_cs24@gla.ac.in

SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2! <https://livesql.oracle.com/next/>

```
1 -- 1. Drop the old constraint (replace FK_APPLY_SID with your actual constraint name)
2 v ALTER TABLE Apply
3   DROP CONSTRAINT f_k;
4
5 -- 2. Add new constraint with ON DELETE SET NULL
6 v ALTER TABLE Apply
7   ADD CONSTRAINT F_K
8     FOREIGN KEY (sID) REFERENCES Student(sID)
9       ON DELETE SET NULL;
```

(xiv) Rename column enrollment to enroll in College Table.

Live SQL

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SQL Worksheet Clear Find Actions Save Run

Try Live SQL V2!
<https://livesql.oracle.com/next/>

```
1 |
2
3
4 v alter table college
5   rename enrollment to enroll;
6
7 -- desc student;
8
```

Table altered.