

## Practical Assignment 2

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

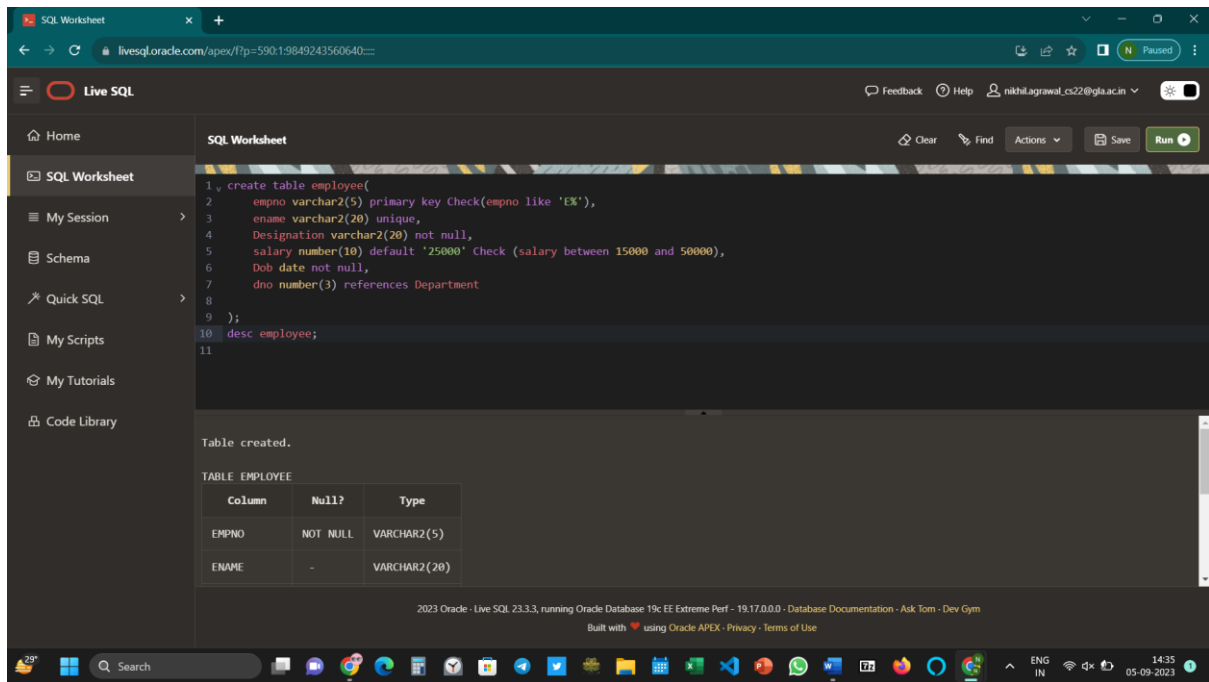
The screenshot shows a web-based SQL Worksheet interface. The browser address bar displays 'livesql.oracle.com/apex/f?p=590:19849243560640::RP::'. The interface includes a 'Live SQL' header, a 'Feedback' link, and a user profile 'nikhilagrawal\_cs22@glia.ac.in'. The main area is titled 'SQL Worksheet' and contains a code editor with the following SQL script:

```
1 create table Department(  
2 deptno number(3) primary key,  
3 dname varchar2(20) unique,  
4 location varchar2(20) not null Check(location in ('Delhi','Pune','Agra'))  
5 )  
6  
7 desc student;
```

Below the code editor is a section for 'SQL Statement Output'. At the bottom of the interface, a footer indicates '2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym'.

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

The screenshot shows the SQL Worksheet interface with the following SQL code:

```

1 create table candidate(
2     candidate_id number(6) primary key,
3     candidate_name varchar2(20) not null,
4     candidate_email varchar2(30) unique check (candidate_email like '%_%.%' ),
5     candidate_dept varchar2(20) default 'HR',
6     manager_id number(6) references candidate
7 );
8 desc candidate;
9

```

The output shows the table was created successfully. Below is the table structure:

Column	Null?	Type
CANDIDATE_ID	NOT NULL	NUMBER(6,0)
CANDIDATE_NAME	NOT NULL	VARCHAR2(20)

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))

The screenshot shows the SQL Worksheet interface with the following SQL code:

```

1 create table student(
2     sID int,
3     sName varchar(10),
4     GPA number(2,1),
5     sizeHS int,
6     DoB date
7 );
8 desc student;
9

```

The output shows the table was created successfully. Below is the table structure:

Column	Null?	Type
SID	-	NUMBER
SNAME	-	VARCHAR2(10)

SQL Worksheet

livesql.oracle.com/apex/f?p=590:19849243560640::

Live SQL

Feedback Help nikhil.agrawal\_cs22@glu.ac.in

SQL Worksheet

Clear Find Actions Save Run

```

1 create table college(
2   cName varchar2(10),
3   stat varchar2(10),
4   enrolment int
5 );
6 desc college;
7
8

```

Table created.

TABLE COLLEGE

Column	Null?	Type
CNAME	-	VARCHAR2(10)
STAT	-	VARCHAR2(10)

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SQL Worksheet

livesql.oracle.com/apex/f?p=590:19849243560640::

Live SQL

Feedback Help nikhil.agrawal\_cs22@glu.ac.in

SQL Worksheet

Clear Find Actions Save Run

```

1 create table apply(
2   sid int,
3   cName varchar(10),
4   major varchar(20),
5   decision char(1)
6 );
7 desc apply;
8
9

```

Table created.

TABLE APPLY

Column	Null?	Type
SID	-	NUMBER
CNAME	-	VARCHAR2(10)
MAJOR	-	VARCHAR2(20)
DECISION	-	CHAR(1)

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(i) Add cName as Primary key in College.

The screenshot shows the SQL Worksheet interface with the following SQL queries entered:

```

1 Alter table college Add Primary key(cname);
2 desc college;

```

The output displays the structure of the 'COLLEGE' table:

Column	Null?	Type
CNAME	NOT NULL	VARCHAR2(10)
STAT	-	VARCHAR2(10)
ENROLMENT	-	NUMBER

At the bottom, it states: 2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use.

(ii) Add sID as Primarykey in Student.

The screenshot shows the SQL Worksheet interface with the following SQL queries entered:

```

1 alter table student add primary key(sID);
2 desc student;

```

The output displays the structure of the 'STUDENT' table:

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

At the bottom, it states: 2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym. Built with using Oracle APEX - Privacy - Terms of Use.

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

SQL Worksheet

```
1 alter table apply add primary key(sid,cname,major);
2 desc apply;
```

Table altered.

Column	Null?	Type
SID	NOT NULL	NUMBER
CNAME	NOT NULL	VARCHAR2(10)
MAJOR	NOT NULL	VARCHAR2(20)
DECISION	-	CHAR(1)

Download CSV

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

SQL Worksheet

```
1 alter table apply add constraint fk foreign key (sid) references student;
2 alter table apply add constraint fk2 foreign key (cname) references college;
```

ORA-02275: such a referential constraint already exists in the table

More Details: <https://docs.oracle.com/error-help/db/ora-02275>

Table altered.

(v) Increase data type size of **major** from 20 to 25.

The screenshot shows the SQL Worksheet interface with the following SQL code:

```
1 alter table apply modify (major varchar2(25));
2 desc apply;
```

The output displays the message "Table altered." and the structure of the APPLY table:

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

Below the table is a "Download CSV" button. The footer indicates the environment is 2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0.

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

The screenshot shows the SQL Worksheet interface with the following SQL code:

```
1 alter table apply add decision varchar2(3) not null;
2 desc apply;
```

The output displays the message "Table altered." and the structure of the APPLY table:

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

Below the table is a "Download CSV" button. The footer indicates the environment is 2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0.

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

The screenshot shows the SQL Worksheet interface with the following SQL code entered:

```
1 alter table apply modify (decision char(1));
2 desc apply;
```

The output displays the message "Table altered." followed by the table structure for TABLE APPLY:

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

Below the table structure is a "Download CSV" button. At the bottom, the status bar indicates: "2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

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

The screenshot shows the SQL Worksheet interface with the following SQL code entered:

```
1 alter table apply drop constraint fk2;
2
3
4
```

The output displays the message "Table altered." Below this, the status bar indicates: "2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

(ix) Remove column **sizeHS** from **Student** table.



The screenshot shows the SQL Worksheet interface with the following SQL commands entered:

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

The output displays the message "Table altered." followed by the table structure for the `STUDENT` table:

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

Below the table structure is a "Download CSV" button. The footer indicates the environment is "2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

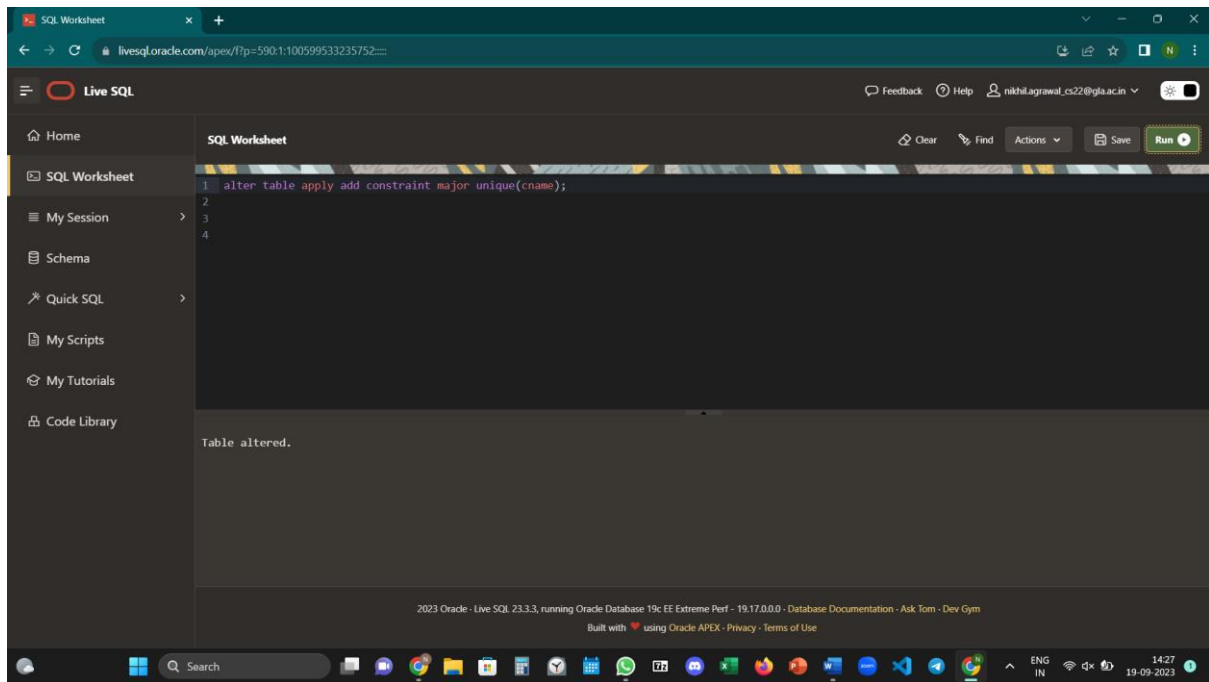
## (x) Drop primary key from College

The screenshot shows the SQL Worksheet interface with the following SQL command entered:

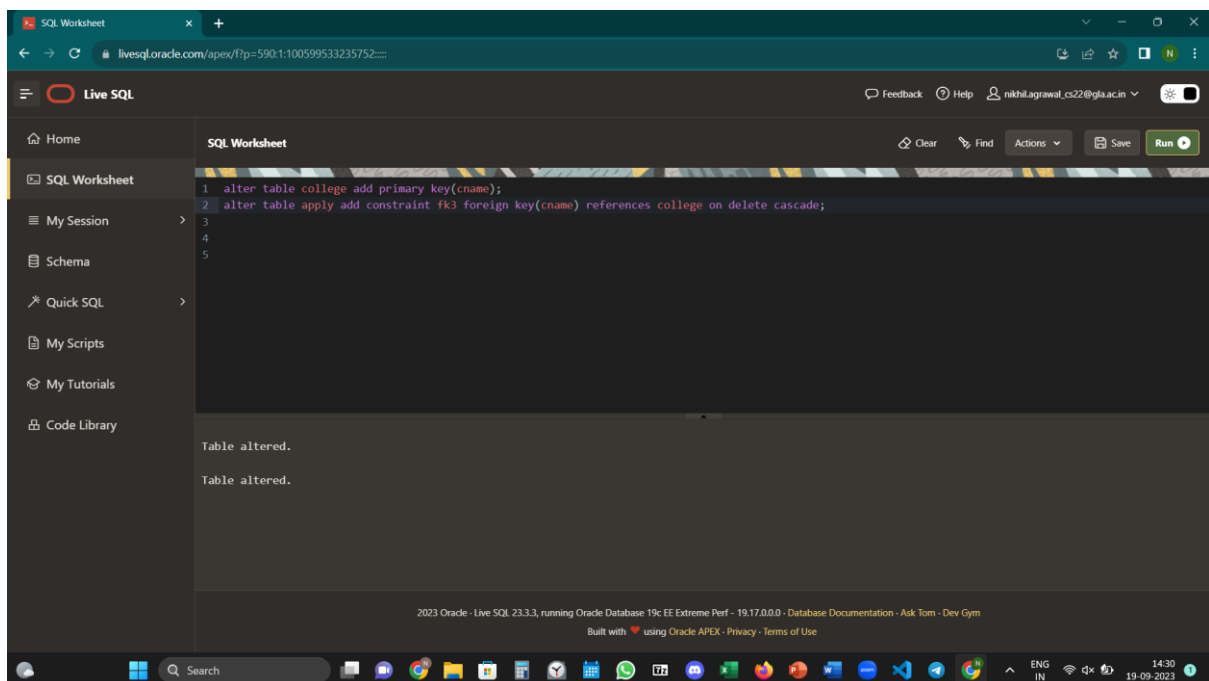
```
1 alter table college drop primary key;
```

The output displays the message "Table altered." The footer indicates the environment is "2023 Oracle - Live SQL 23.3.3, running Oracle Database 19c EE Extreme Perf - 19.17.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

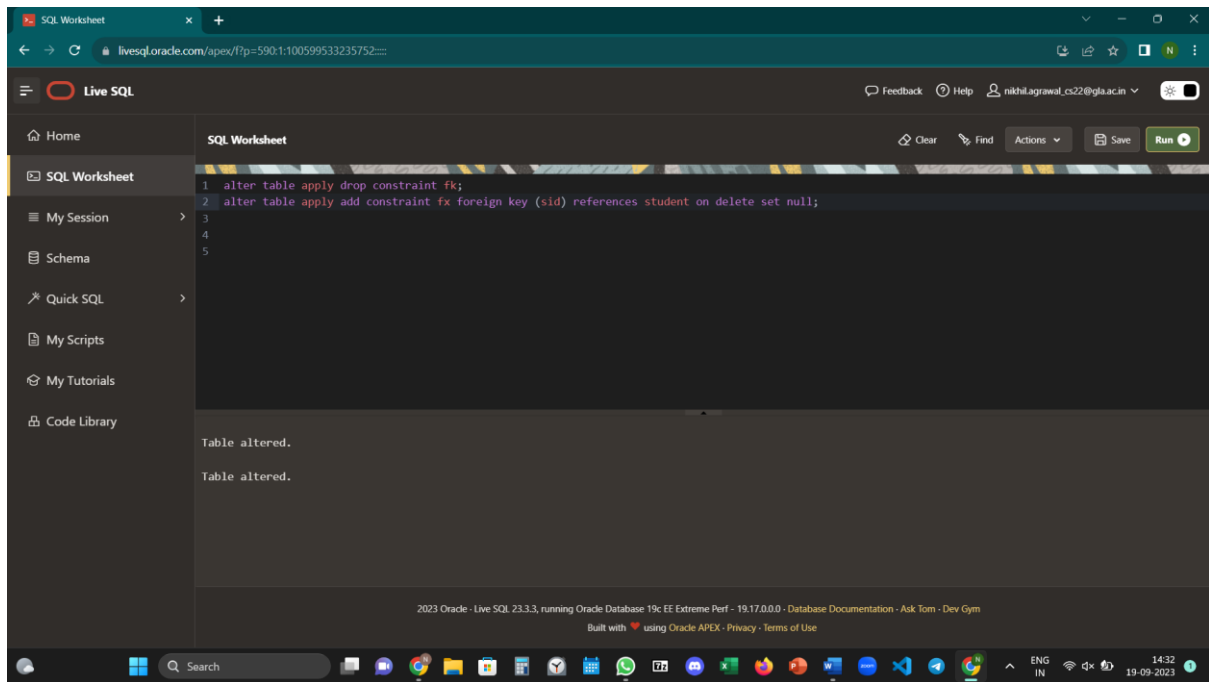
11. Make **cName**, **major** unique pairwise such as Stanford CS, Stanford EE.



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



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



#### 14. Rename column **enrollment** to **enroll** in College Table.

