Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA , Batch - 31
DBMS Practical - 4

Institute of Computer Technology

B.Tech Computer Science and Engineering

Sub: Database Management System (2CSE301)

Practical-04 : Create tables with various Data Constraints and verify by inserting values in it.

Scenario: Sameer is Developing website for Online Courses .Sameer as software engineer know what are the issues when an entry gets wrongly inserted. Thus to avoid such issues Sameer suggested to have constraints so that whenever by mistake if someone tries to enter data can first get checked and then inserted.

A) Table Name-Student

Column Name	Data Type	Size	Attributes
Rollno	Varchar	4	Primary key/ first letter must start with 'S'
Name	Varchar	20	Not Null
Email	Varchar	20	Unique
Specialization	Varchar	5	Values("BDA", "CS","CBA")
Age	int		Age>16 and Age<25
City	Varchar	20	
Pincode	Decimal	8	
State	Varchar	20	Default "Gujarat"

Queries and Outputs :

```
create table Student(Rollno varchar(4) NOT NULL PRIMARY KEY CHECK (Rollno like 'S%') ,
        Name varchar(20) NOT NULL,
          Email varchar(20) UNIQUE,
```

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```
            Specialization varchar(5) CHECK (Specialization in ('CBA', 'BDA', 'CS')),
            Age int CHECK (Age between 16 and 25),
            City varchar(20),
            Pincode decimal(8),
            State varchar(20) DEFAULT 'Gujarat'
            );

insert into Student values('S001', 'Madhav', 'Madhav@gmail.com', 'BDA', 18,
'Vrindavana' ,395008, 'UP');
insert into Student values('S002', 'Gopal', 'Gopal@gmail.com', 'CS', 18 ,'Vrindavana',
400001 ,'UP');
insert into Student values('S003', 'Chaitanya', 'Chaitanya@gmail.com', 'CS', 20
,'Mayapur', 380006, 'West Bengal');
insert into Student values('S004', 'Ranchod', 'Ranchod@gmail.com', 'CBA', 21
,'Dakor', 380006, 'Gujarat');
insert into Student values('S005', 'Govind', 'Govind@gmail.com', 'BDA', 19 ,'Gokul'
,391510 ,'UP');
insert into Student values('S006', 'Keshav', 'Keshav@gmail.com' ,'CBA' ,19 ,'Dwarka'
,360001 ,'Gujarat');
insert into Student values('S007' ,'Yogeshwara' ,'Yogeshwara@gmail.com' ,'BDA', 18
,'Haridwar' ,560063, 'Uttarakhand');
```

```
desc Student;
```

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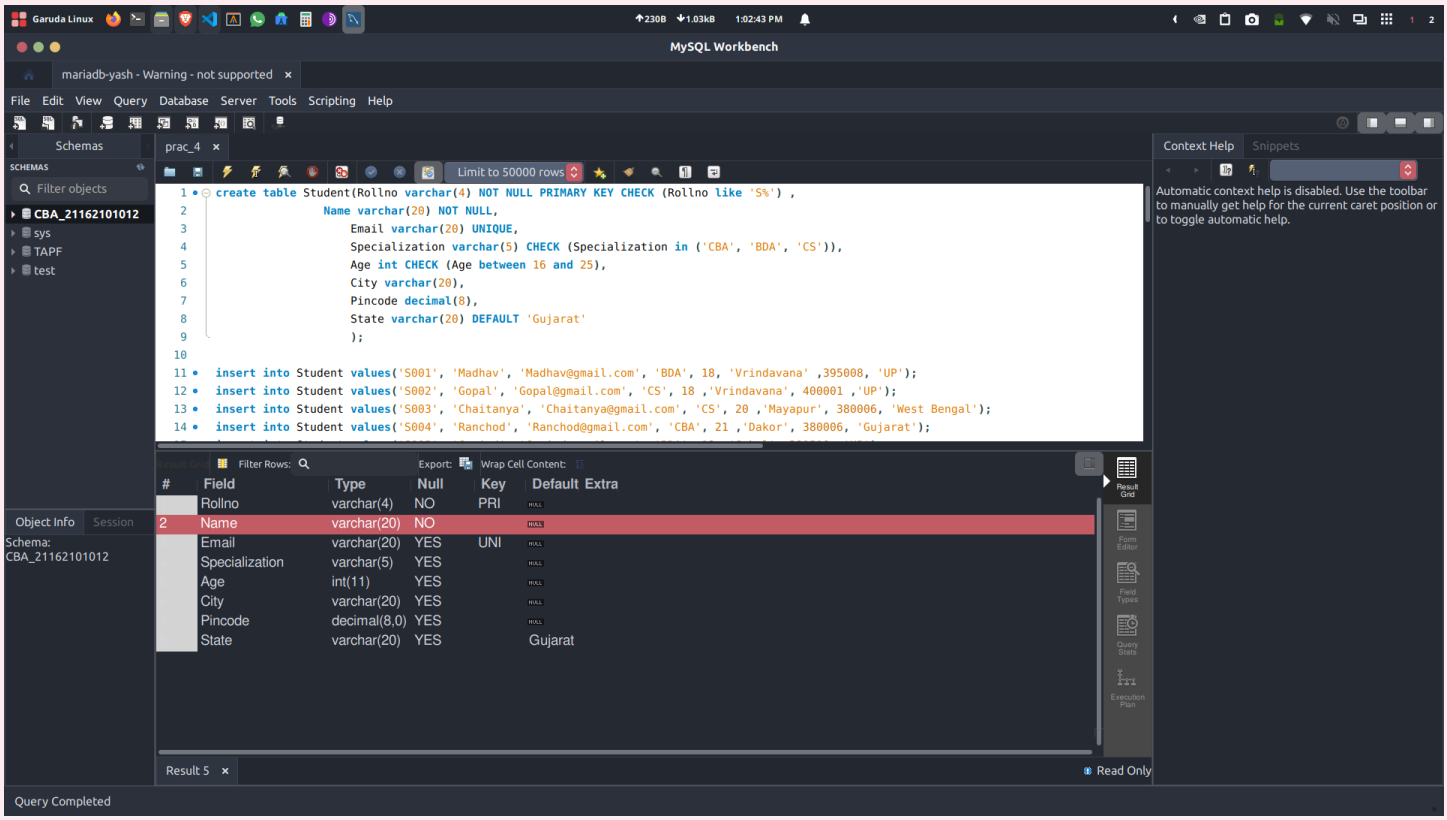


```
select * from Student;
```

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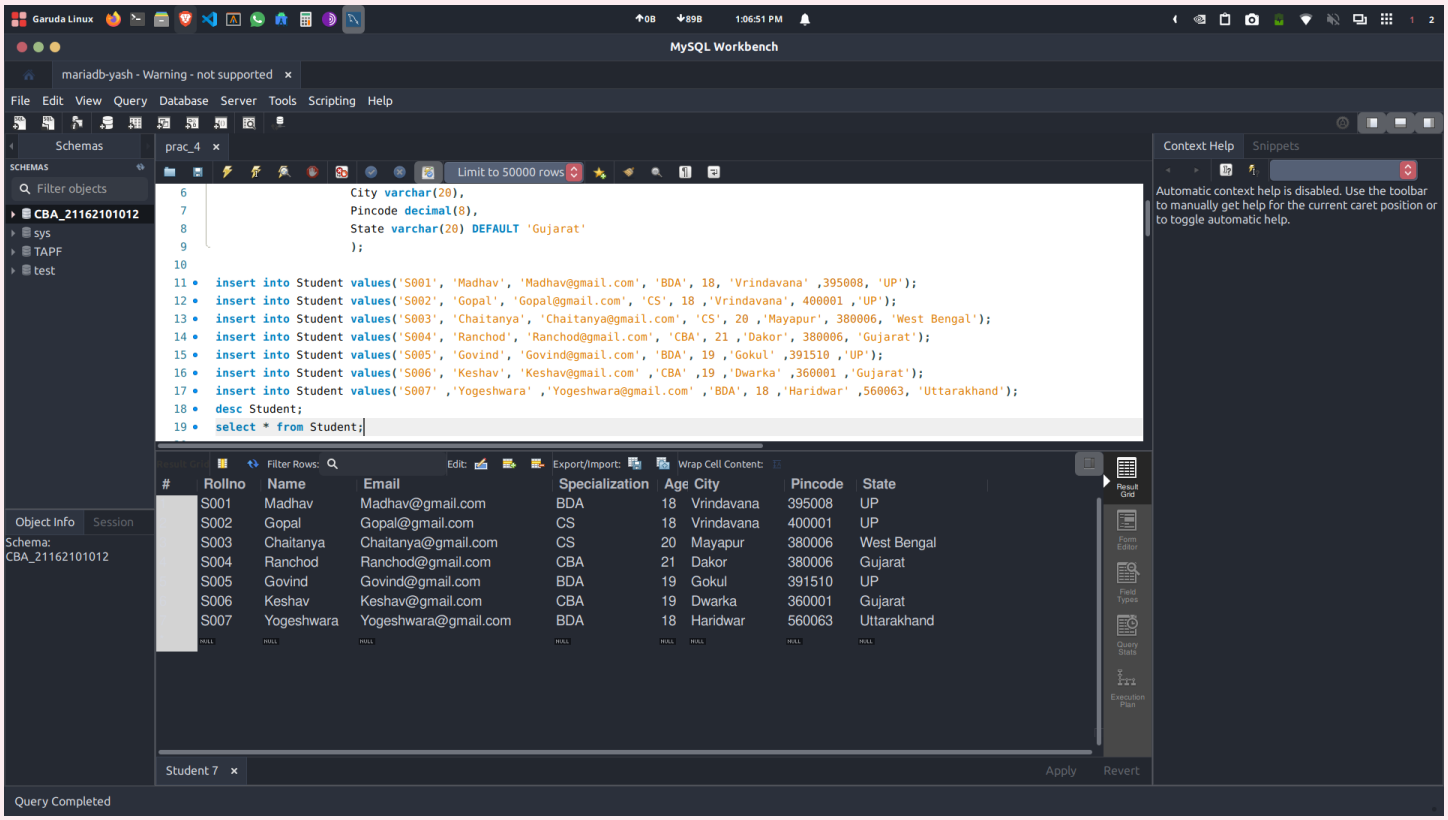

Rollno	Name	Email	Specialization	Age	City	Pincode	State
S001	Darshil	Darshil@gmail.com	BDA	18	Surat	395008	Gujarat
S002	Jay	Jay@gmail.com	BDA	19	Baroda	391510	Gujarat
S003	Smit	Smit@gmail.com	CS	18	Mumbai	400001	Maharashtra
S004	Dev	Dev@gmail.com	CS	20	Ahmedabad	380006	Gujarat
S005	Raj	Raj@gmail.com	CBA	21	Ahmedabad	380006	Gujarat
S006	Hardik	Hardik@gmail.com	CBA	19	Rajkot	360001	Gujarat
S007	Pratham	Pratham@gmail.c	BDA	18	Bangalore	560063	Karnataka

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B) Table Name - Instructor

Column Name	Data Type	Size	Attributes
Instrutor_ID	Varchar	4	Primary key/ first letter must start with 'I'
Instrutor_Name	Varchar	20	Not Null
Experience	float		Experience>0
Course_Taught	int		Course_Taught>0

Instrutor_ID	Instrutor_Name	Experience	Course_Taught
I001	Jerry Morrow	5	5
I002	Jose Portilla	7	12
I003	Stephane Maarek	6.5	6
I004	Mike Meyers	8.5	15

```
create table Instructor(Instructor_ID varchar(4) NOT NULL PRIMARY KEY
CHECK(Instructor_ID like 'I%'),
        Instructor_Name varchar(20) NOT NULL,
        Experience float CHECK (Experience > 0),
        Course_Taught int CHECK (Course_Taught > 0)
        );

insert into Instructor values('I001', 'Krishna Yadav', 5, 5);
insert into Instructor values('I002', 'Ram Raghav' ,7 ,12);
```

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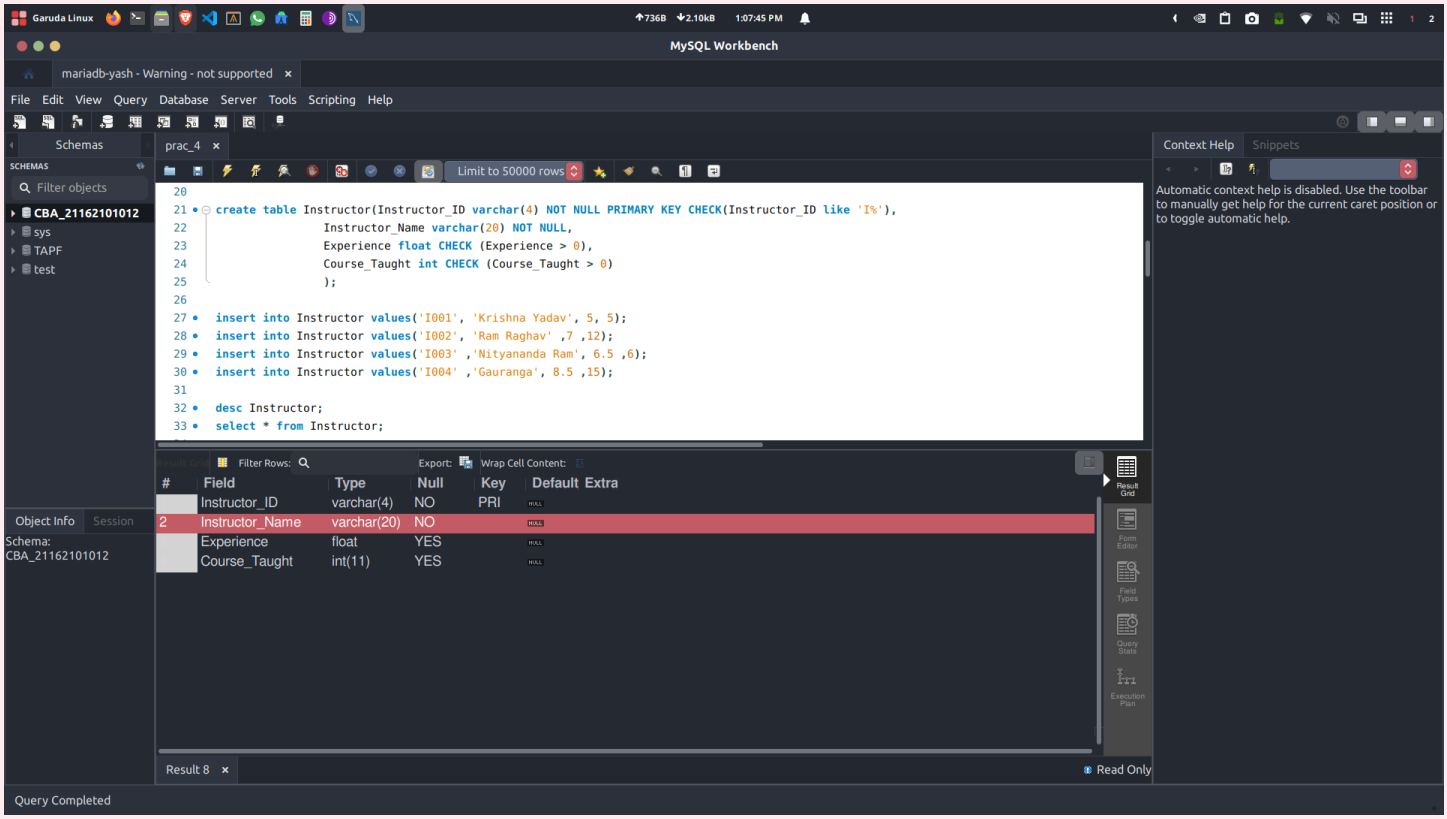
```
insert into Instructor values('I003' ,'Nityananda Ram', 6.5 ,6);
insert into Instructor values('I004' ,'Gauranga', 8.5 ,15);
```

```
desc Instructor;
```




```
select * from Instructor;
```

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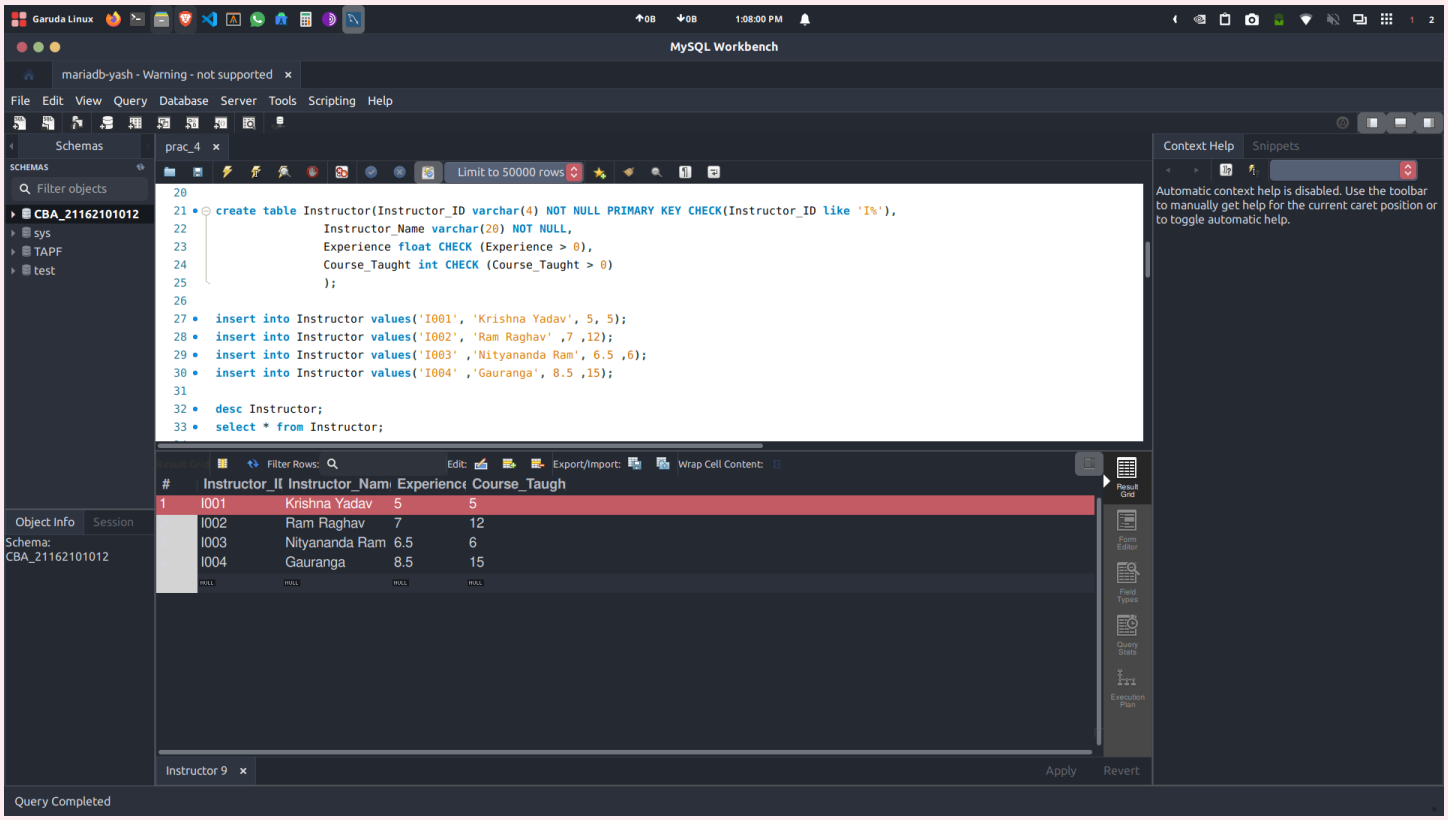

C) Table Name - Course

Column Name	Data Type	Size	Attributes
Course_ID	Varchar	4	Primary key/ first letter must start with 'C'
Course_Name	Varchar	20	Not Null
TotalHour	int		Hour>10 and Hour<40
Instrutor_ID	Varchar	4	Foreign key references Instrutor_ID of Instructor table.
Fees	int		Fees>0 and Fees<10000
Type	Varchar	20	Value("Programming","Web Developement","Data Science")
Rating	float		Rating>0 and Rating<=5

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Course_ID	Course_Name	TotalHour	Instrutor_ID	Fees	Type	Rating
C001	Java	25	I002	1500	Programming	3.5
C002	C++ Basics	20	I001	3000	Programming	4.55
C003	Angular	30	I003	5000	Web Development	4.1
C004	ReactJS	35	I004	6000	Web Development	3.6
C005	CSS and JavaScript	21	I003	2500	Web Development	4.3
C006	Machine Learning	15	I001	1200	Data Science	3.9
C007	Deep Learning	18	I002	1200	Data Science	4.7

```
create table Course (Course_ID varchar(4) NOT NULL PRIMARY KEY CHECK
(Course_ID like 'C%'),
            Course_Name varchar(20) NOT NULL,
            Total_Hours int CHECK(Total_Hours>10 and Total_Hours<40),
            Instructor_ID varchar(4) ,
            Fees int CHECK (Fees>0 and Fees <10000),
            Type varchar(20) CHECK (Type = 'Programming' or Type = 'Web
Development' or Type = 'Data Science'),
            Rating float CHECK (Rating>0 and Rating <=5),
            FOREIGN KEY (Instructor_ID) REFERENCES Instructor(Instructor_ID)
            );

insert into Course values('C001' ,'Java', 25 ,'I002' ,1500 ,'Programming' ,3.5);
```

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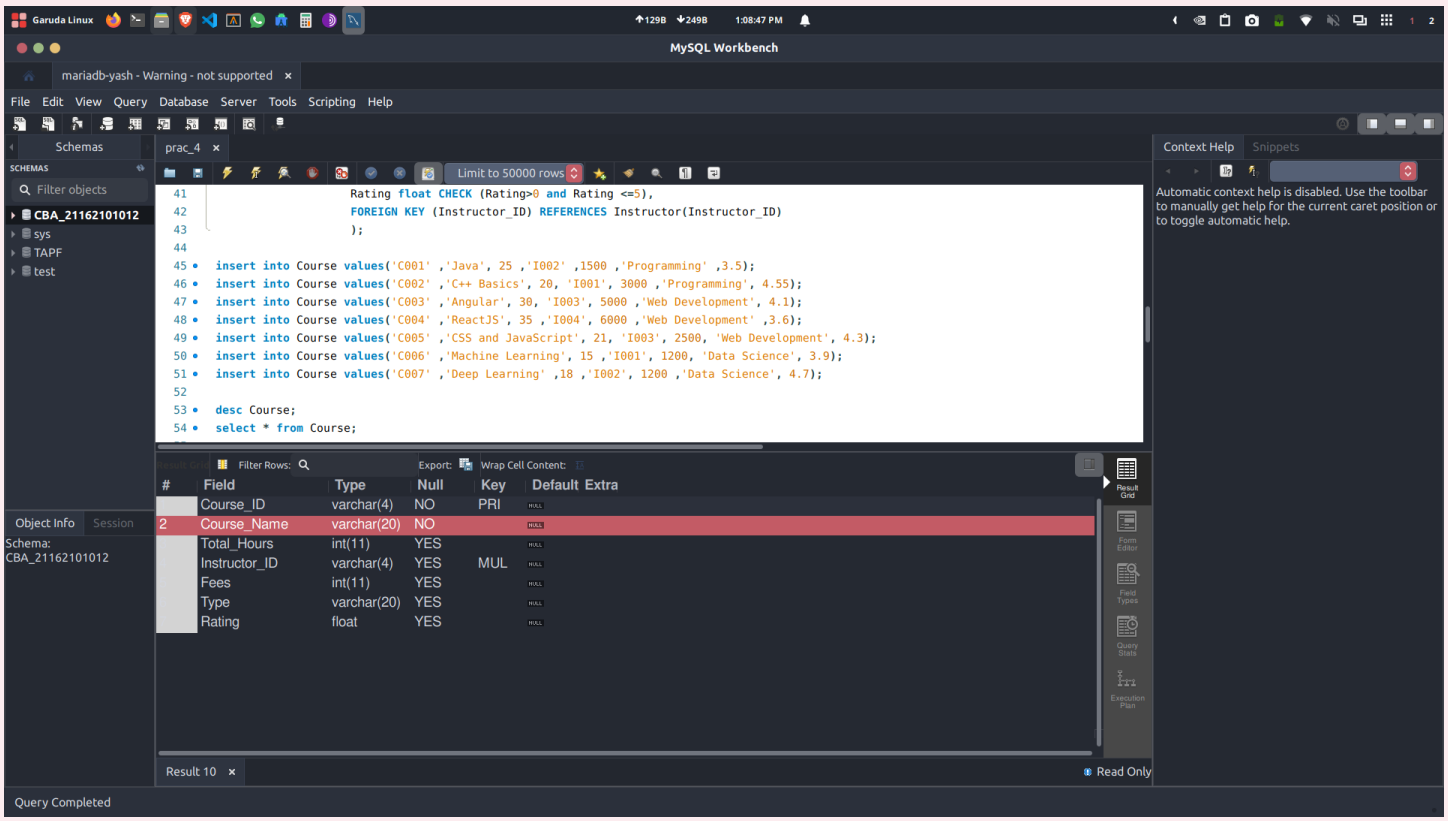
```
insert into Course values('C002' ,'C++ Basics', 20, 'I001', 3000 ,'Programming', 4.55);
insert into Course values('C003' ,'Angular', 30, 'I003', 5000 ,'Web Development', 4.1);
insert into Course values('C004' ,'ReactJS', 35 ,'I004', 6000 ,'Web Development' ,3.6);
insert into Course values('C005' ,'CSS and JavaScript', 21, 'I003', 2500, 'Web Development', 4.3);
insert into Course values('C006' ,'Machine Learning', 15 ,'I001', 1200, 'Data Science', 3.9);
insert into Course values('C007' ,'Deep Learning' ,18 ,'I002', 1200 ,'Data Science', 4.7);
```

```
desc Course;
```



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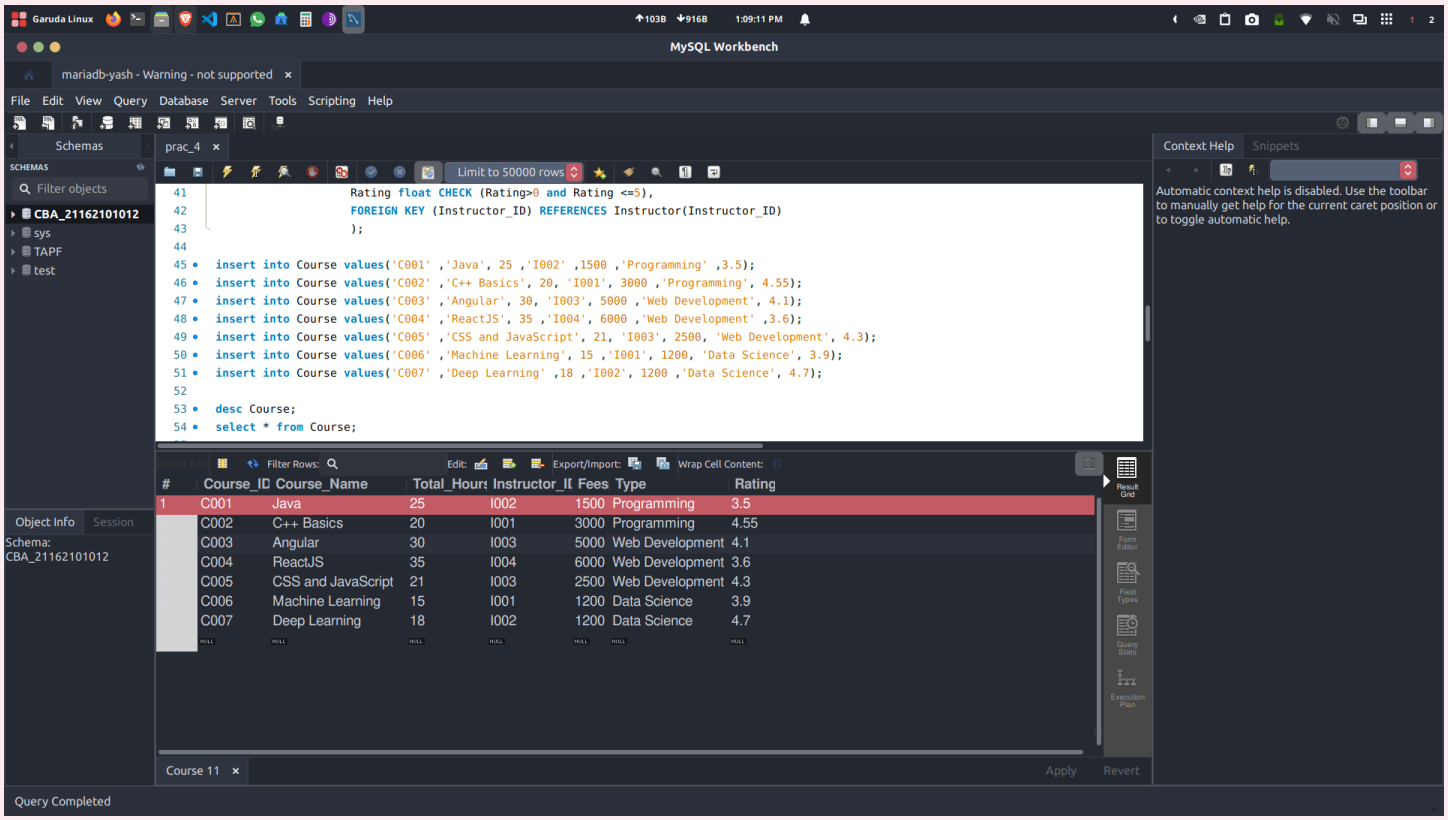
```
select * from Course;
```



D) Table Name- CourseRegistration

Column Name	Data Type	Size	Attributes
Registration_ID	int		Primary key
Rollno	Varchar	4	Foreign key references Rollno of Student table.
Course_ID	Varchar	4	Foreign key references Course_ID of Course table.
Fee_status	Varchar	10	Value(“Paid”,”Not Paid”)

Registration_ID	Rollno	Course_ID	Fee_status
1	S001	C003	Paid

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2	S002	C002	Paid
3	S003	C004	Not Paid
4	S004	C004	Paid
5	S005	C001	Not Paid
6	S006	C005	Paid

```
create table CourseRegistration(Registration_ID int NOT NULL PRIMARY KEY,
                    Rollno varchar(4) ,
                    Course_ID varchar(4),
                    Fee_Status varchar(10) CHECK (Fee_Status = 'Paid' or Fee_Status=
'Not Paid'),
                    FOREIGN KEY (Rollno) REFERENCES Student(Rollno),
                    FOREIGN KEY (Course_ID) REFERENCES Course(Course_ID)
                    );

insert into CourseRegistration values(1, 'S001' ,'C003' ,'Paid');
insert into CourseRegistration values(2 ,'S002', 'C002', 'Paid');
insert into CourseRegistration values(3 ,'S003' ,'C004' ,'Not Paid');
insert into CourseRegistration values(4 ,'S004' ,'C004', 'Paid');
insert into CourseRegistration values(5 ,'S005', 'C001', 'Not Paid');
insert into CourseRegistration values(6 ,'S006', 'C005', 'Paid');
```

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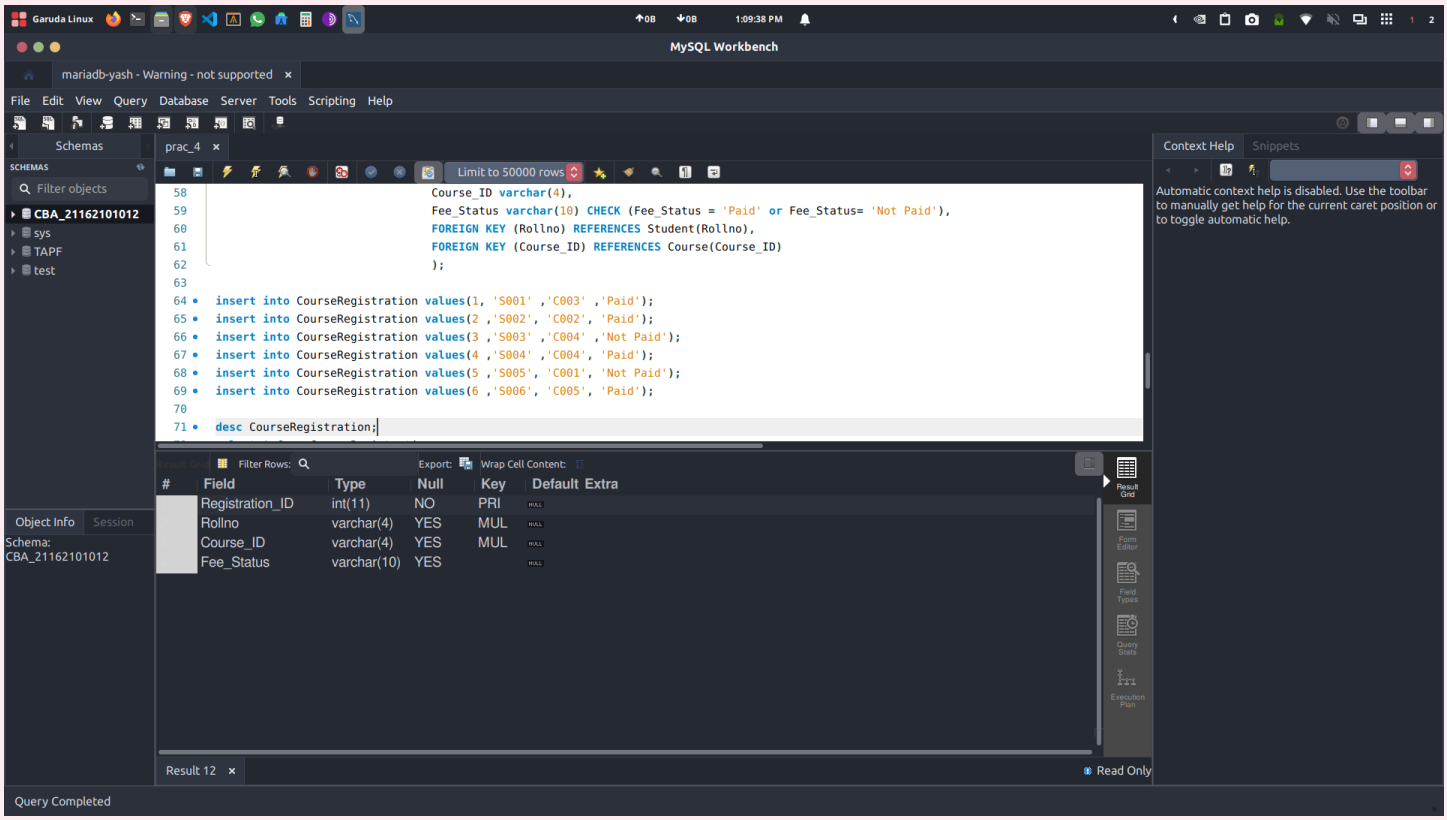
```
desc CourseRegistration;
```




```
select * from CourseRegistration;
```

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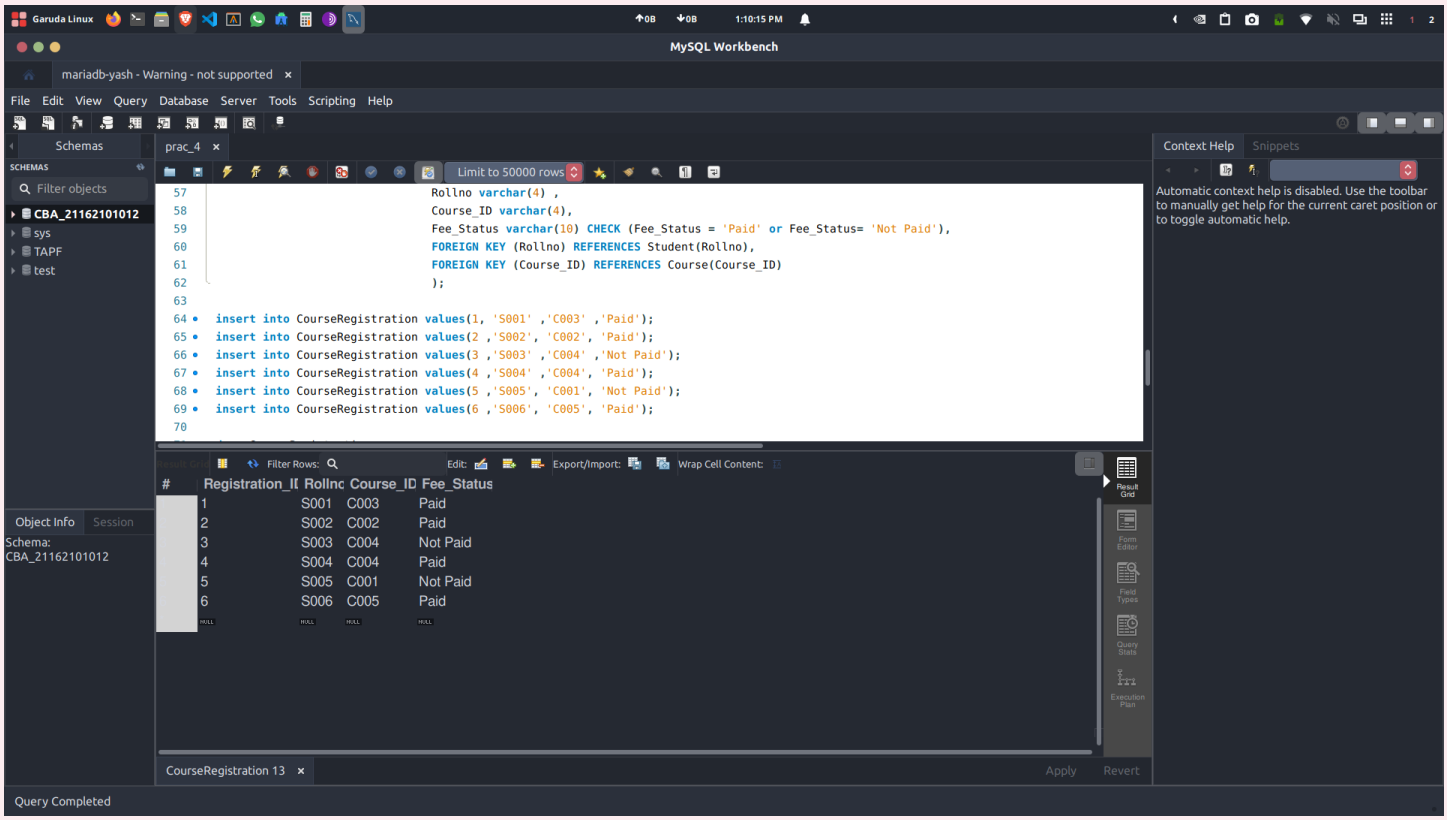

E) Table Name - Result

Column Name	Data Type	Size	Attributes
Rollno	Varchar	4	Foreign key references Rollno of Student table.
Course_ID	Varchar	4	Foreign key references Course_ID of Course table.
Grade_Obtained	Varchar	4	Value(“A+”,”A”,”B+”,”B,”C+”,”C”)

Rollno	Course_ID	Grade_Obtained
S001	C003	A+
S002	C002	A
S004	C004	A

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S006	C005	A+

```
create table Result(Rollno varchar(4),
            Course_ID varchar(4),
            Grade_Obtained varchar(4) CHECK(Grade_Obtained = 'A+' or
Grade_Obtained = 'A' or
            Grade_Obtained = 'B+' or Grade_Obtained = 'B' or Grade_Obtained = 'C+' or
Grade_Obtained = 'C'),
            FOREIGN KEY (Rollno) REFERENCES Student(Rollno),
            FOREIGN KEY (Course_ID) REFERENCES Course(Course_ID)
            );

insert into Result values('S001' ,'C003', 'A+');
insert into Result values('S002', 'C002', 'A');
insert into Result values('S004' ,'C004' ,'A');
insert into Result values('S006' ,'C005', 'A+');
```

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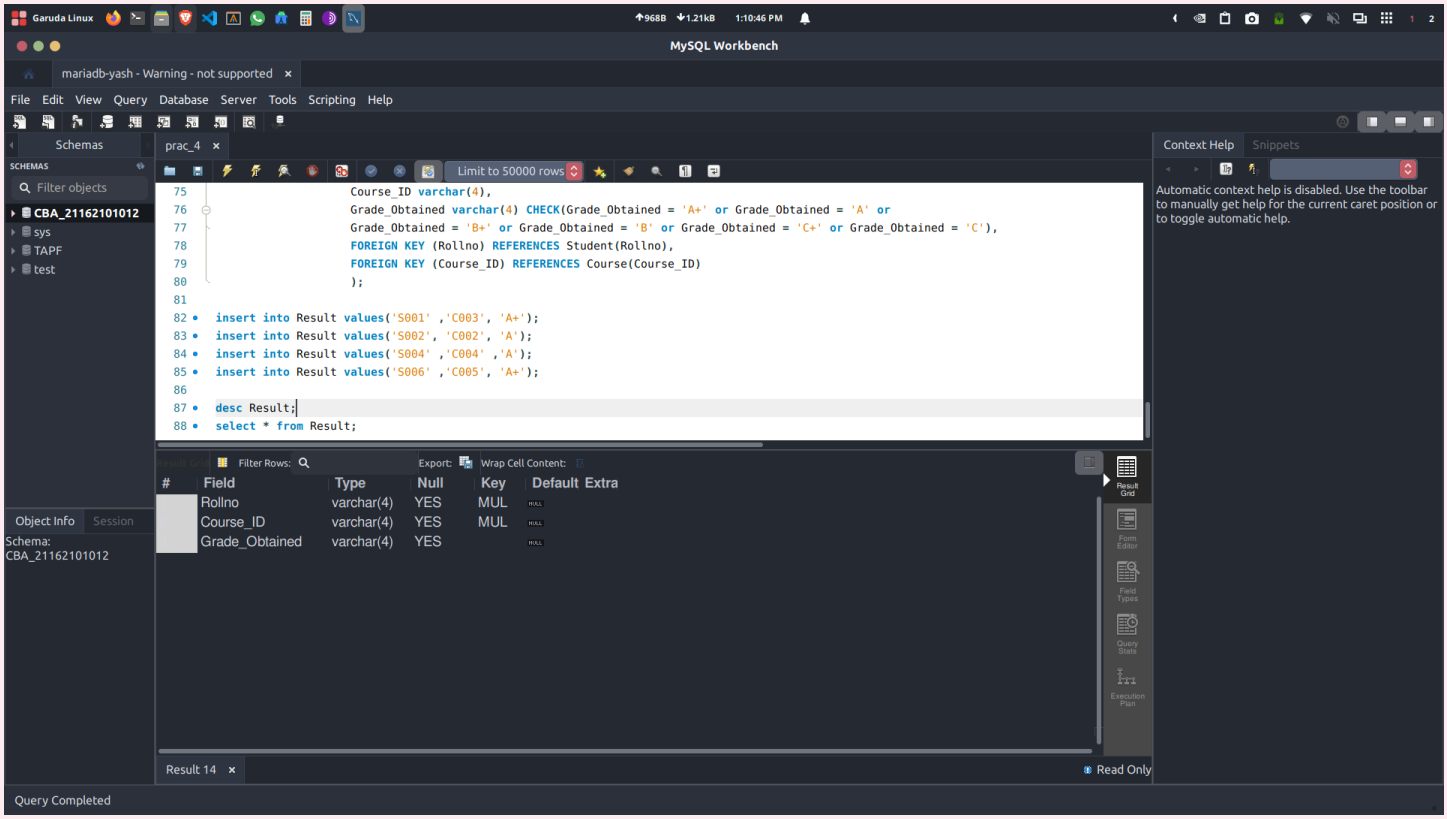
desc Result;



select * from Result;

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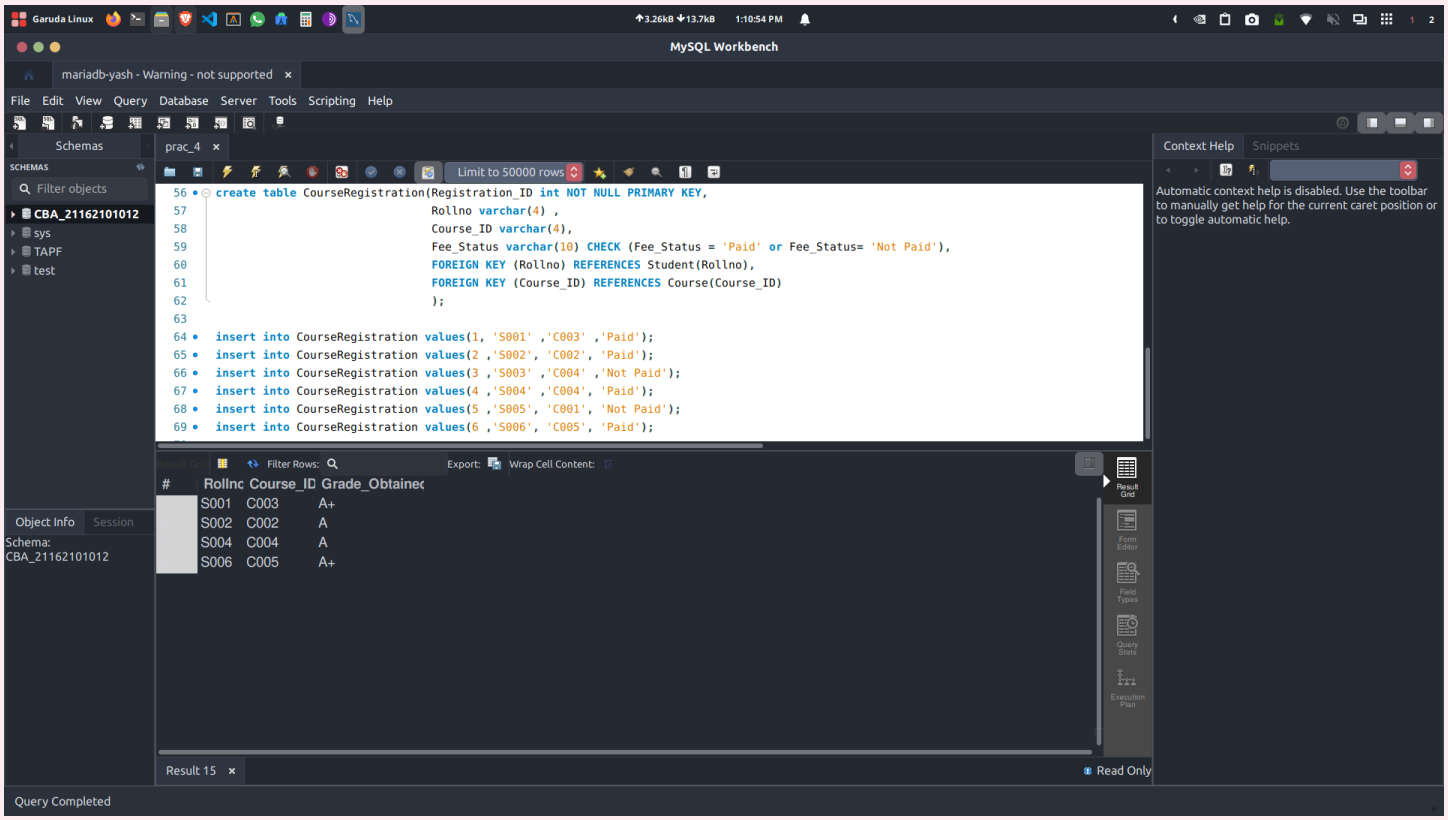

Exercise:

Create Above tables with given constraints and insert data in it