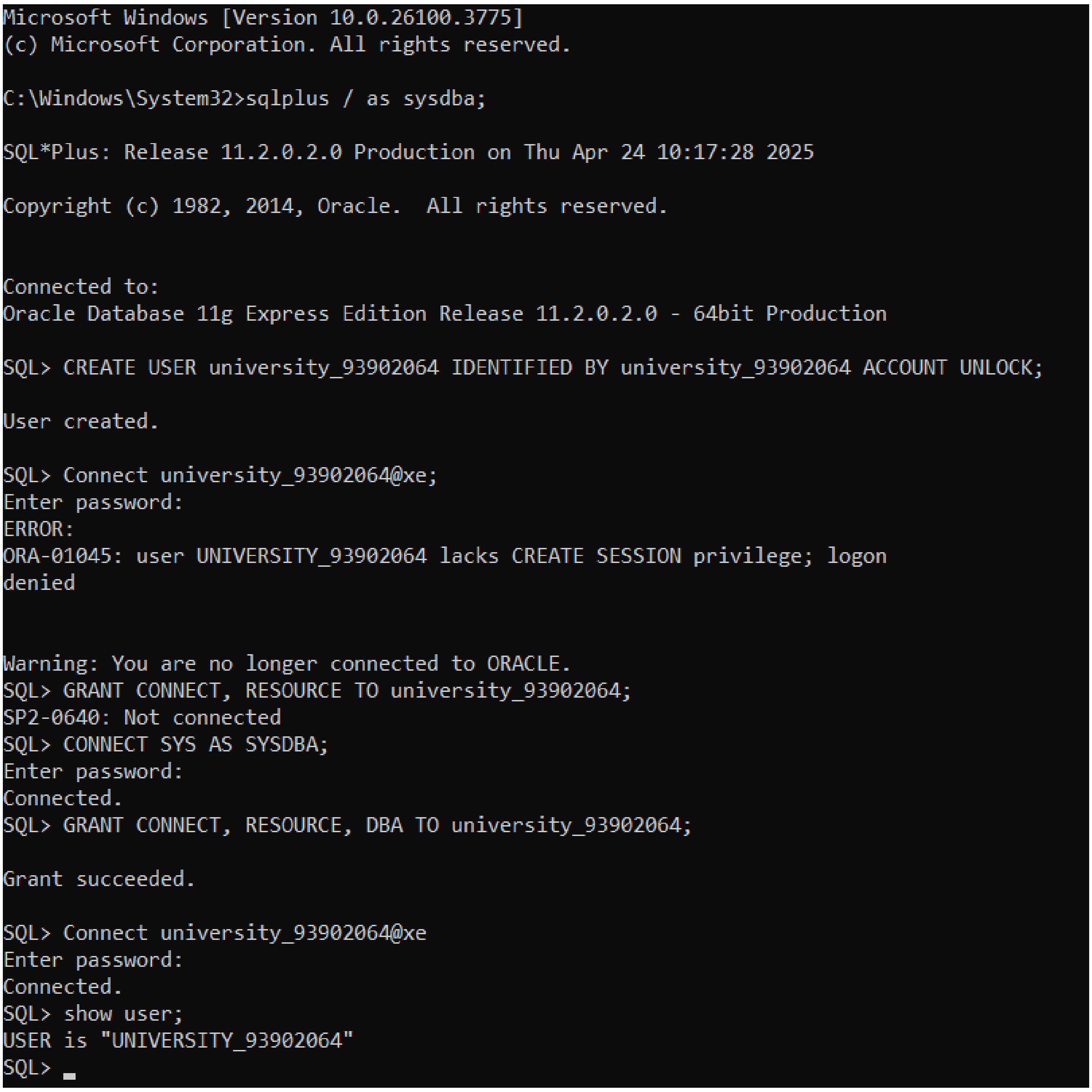
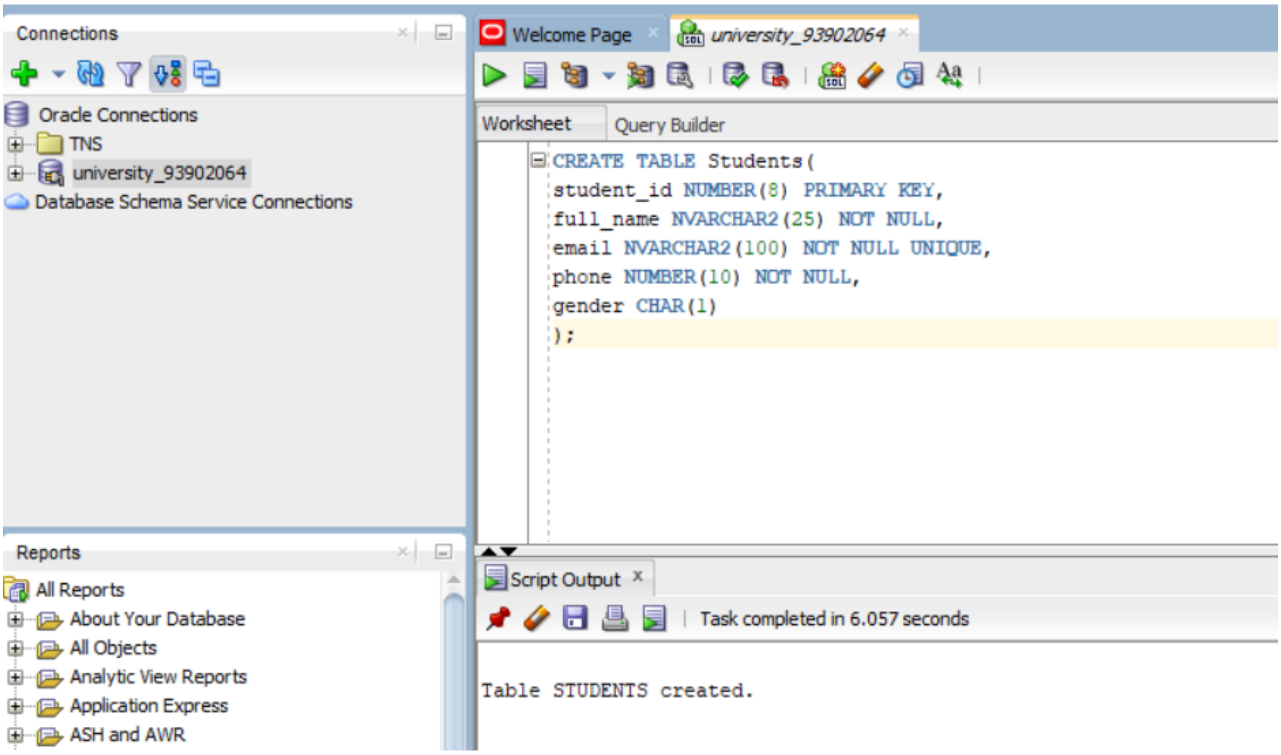
Create a new user and grant privileges in Oracle Database



```
Microsoft Windows [Version 10.0.26100.3775]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>sqlplus / as sysdba;

SQL*Plus: Release 11.2.0.2.0 Production on Thu Apr 24 10:17:28 2025

Copyright (c) 1982, 2014, Oracle.  All rights reserved.


Connected to:
Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Production

SQL> CREATE USER university_93902064 IDENTIFIED BY university_93902064 ACCOUNT UNLOCK;

User created.

SQL> Connect university_93902064@xe;
Enter password:
ERROR:
ORA-01045: user UNIVERSITY_93902064 lacks CREATE SESSION privilege; logon
denied


Warning: You are no longer connected to ORACLE.
SQL> GRANT CONNECT, RESOURCE TO university_93902064;
SP2-0640: Not connected
SQL> CONNECT SYS AS SYSDBA;
Enter password:
Connected.
SQL> GRANT CONNECT, RESOURCE, DBA TO university_93902064;

Grant succeeded.

SQL> Connect university_93902064@xe
Enter password:
Connected.
SQL> show user;
USER is "UNIVERSITY_93902064"
SQL> _
```

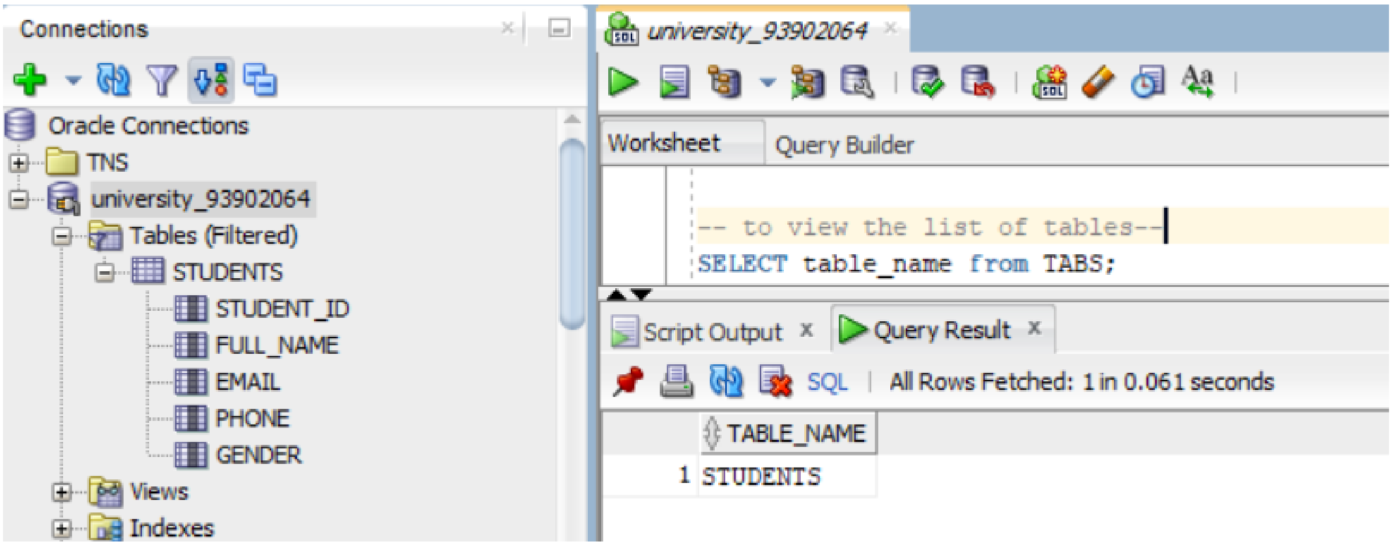
Create a Table named Students



```
CREATE TABLE Students(
student_id NUMBER(8) PRIMARY KEY,
full_name NVARCHAR2(25) NOT NULL,
email NVARCHAR2(100) NOT NULL UNIQUE,
phone NUMBER(10) NOT NULL,
gender CHAR(1)
);
```

```
Table STUDENTS created.
```

View the list of Tables

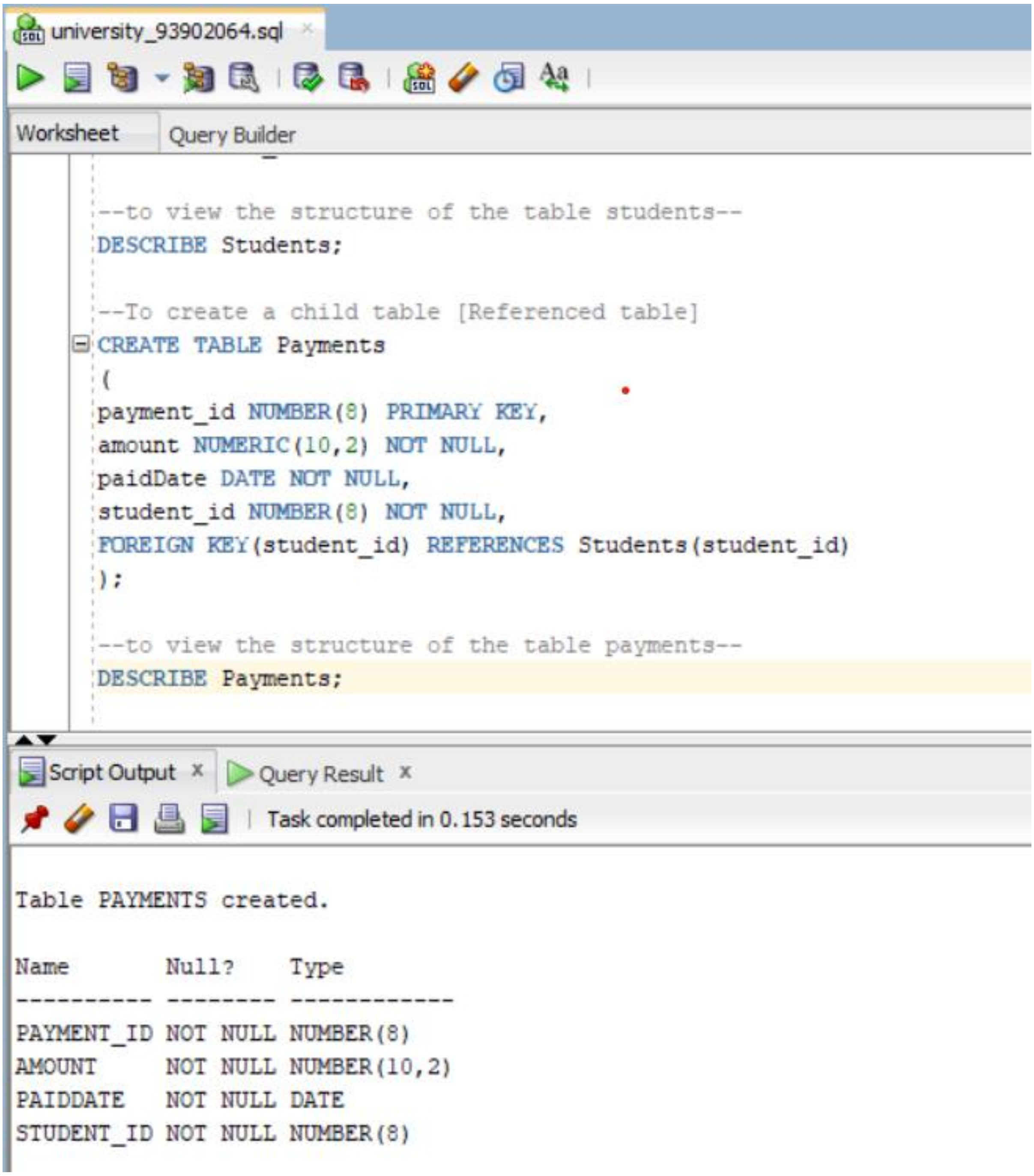


```
-- to view the list of tables--
SELECT table_name from TABS;
```

All Rows Fetched: 1 in 0.061 seconds

	TABLE_NAME
1	STUDENTS

View the structure of the table and create a child table

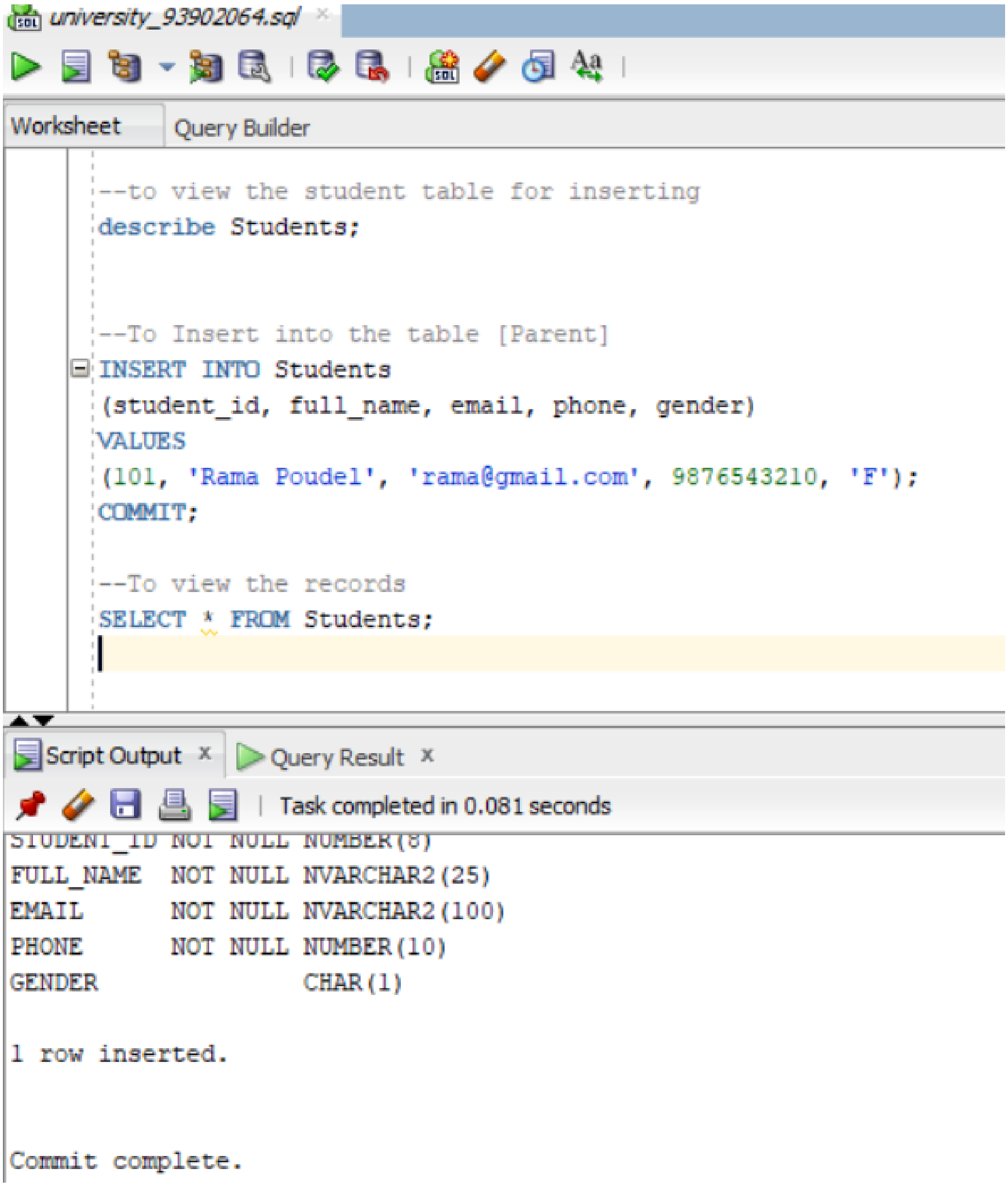


```
--to view the structure of the table students--
DESCRIBE Students;

--To create a child table [Referenced table]
CREATE TABLE Payments
(
payment_id NUMBER(8) PRIMARY KEY,
amount NUMERIC(10,2) NOT NULL,
paidDate DATE NOT NULL,
student_id NUMBER(8) NOT NULL,
FOREIGN KEY(student_id) REFERENCES Students(student_id)
);

--to view the structure of the table payments--
DESCRIBE Payments;
```

Task completed in 0.153 seconds

```
Table PAYMENTS created.

Name       Null?    Type
---------- -------- ------------
PAYMENT_ID NOT NULL NUMBER(8)
AMOUNT     NOT NULL NUMBER(10,2)
PAIDDATE   NOT NULL DATE
STUDENT_ID NOT NULL NUMBER(8)
```

View the table information and inserting into the table

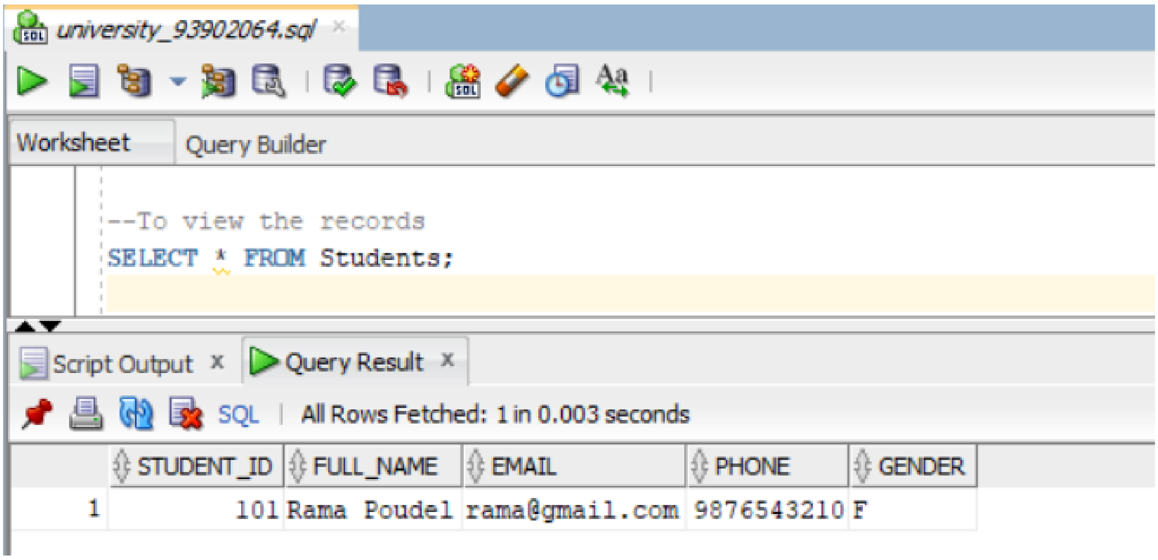


```
--to view the student table for inserting
describe Students;


--To Insert into the table [Parent]
INSERT INTO Students
(student_id, full_name, email, phone, gender)
VALUES
(101, 'Rama Poudel', 'rama@gmail.com', 9876543210, 'F');
COMMIT;

--To view the records
SELECT * FROM Students;
```

Task completed in 0.081 seconds

```
STUDENT_ID NOT NULL NUMBER(8)
FULL_NAME  NOT NULL NVARCHAR2(25)
EMAIL      NOT NULL NVARCHAR2(100)
PHONE      NOT NULL NUMBER(10)
GENDER              CHAR(1)

1 row inserted.


Commit complete.
```

View the records in the table

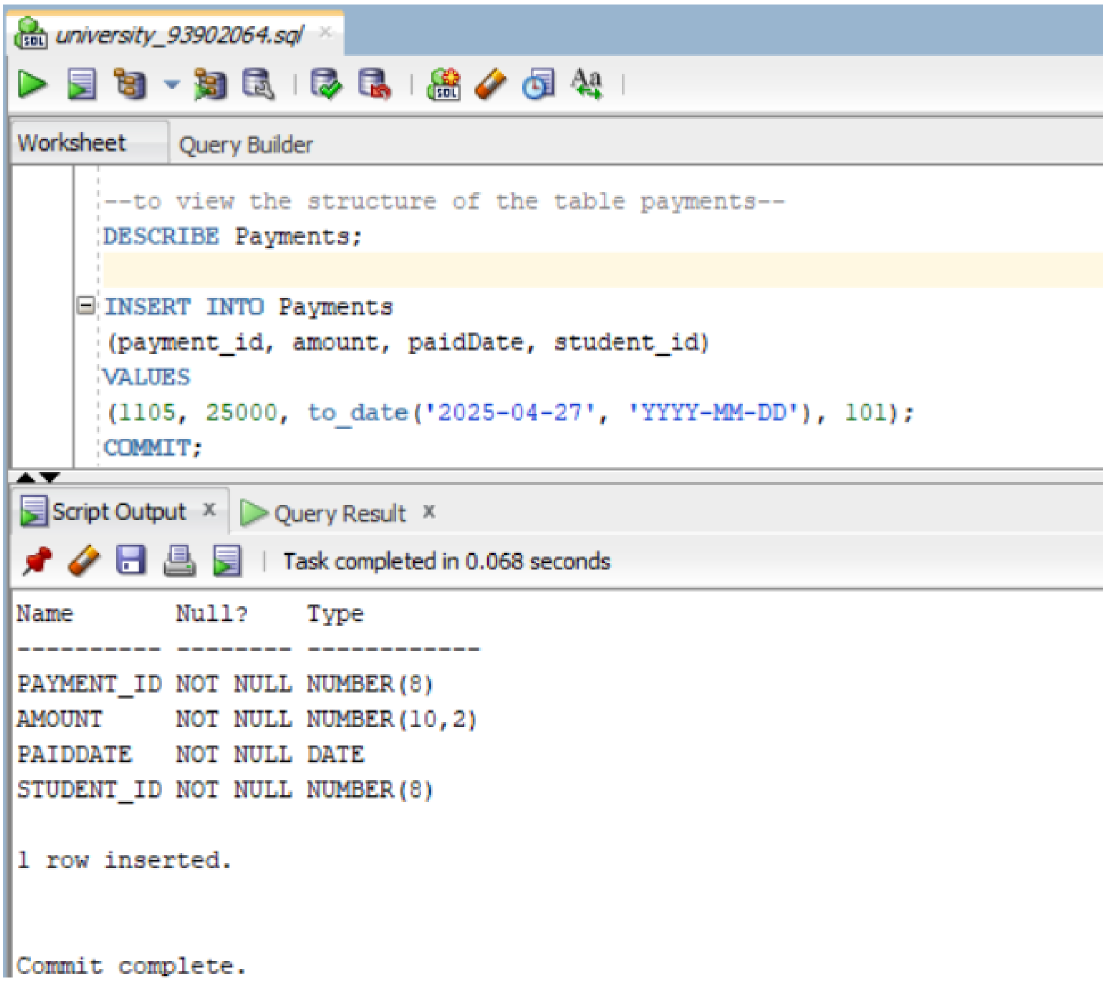


```
--To view the records
SELECT * FROM Students;
```

All Rows Fetched: 1 in 0.003 seconds

	STUDENT_ID	FULL_NAME	EMAIL	PHONE	GENDER
1	101	Rama Poudel	rama@gmail.com	9876543210	F

View the structure of the table and insert into the table

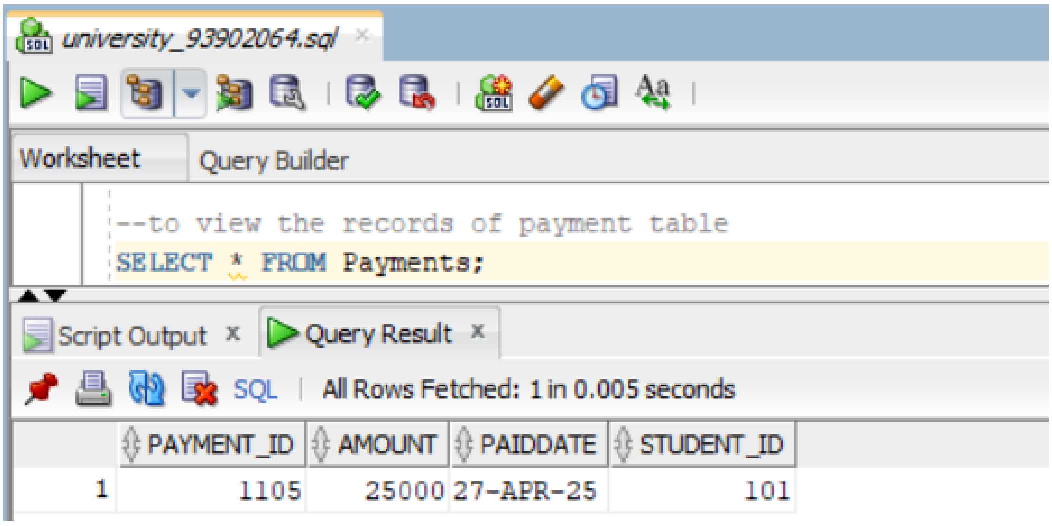


```
--to view the structure of the table payments--
DESCRIBE Payments;

INSERT INTO Payments
(payment_id, amount, paidDate, student_id)
VALUES
(1105, 25000, to_date('2025-04-27', 'YYYY-MM-DD'), 101);
COMMIT;
```

Task completed in 0.068 seconds

```
Name       Null?    Type
---------- -------- ------------
PAYMENT_ID NOT NULL NUMBER(8)
AMOUNT     NOT NULL NUMBER(10,2)
PAIDDATE   NOT NULL DATE
STUDENT_ID NOT NULL NUMBER(8)

1 row inserted.


Commit complete.
```

View the records in the table

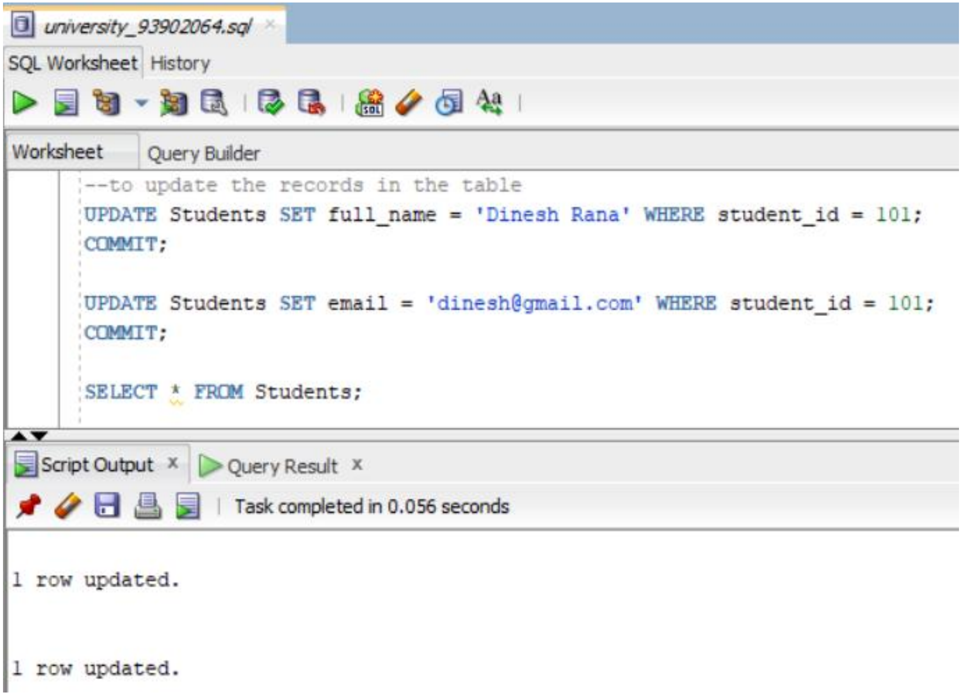


```
--to view the records of payment table
SELECT * FROM Payments;
```

All Rows Fetched: 1 in 0.005 seconds

	PAYMENT_ID	AMOUNT	PAIDDATE	STUDENT_ID
1	1105	25000	27-APR-25	101

Update the records

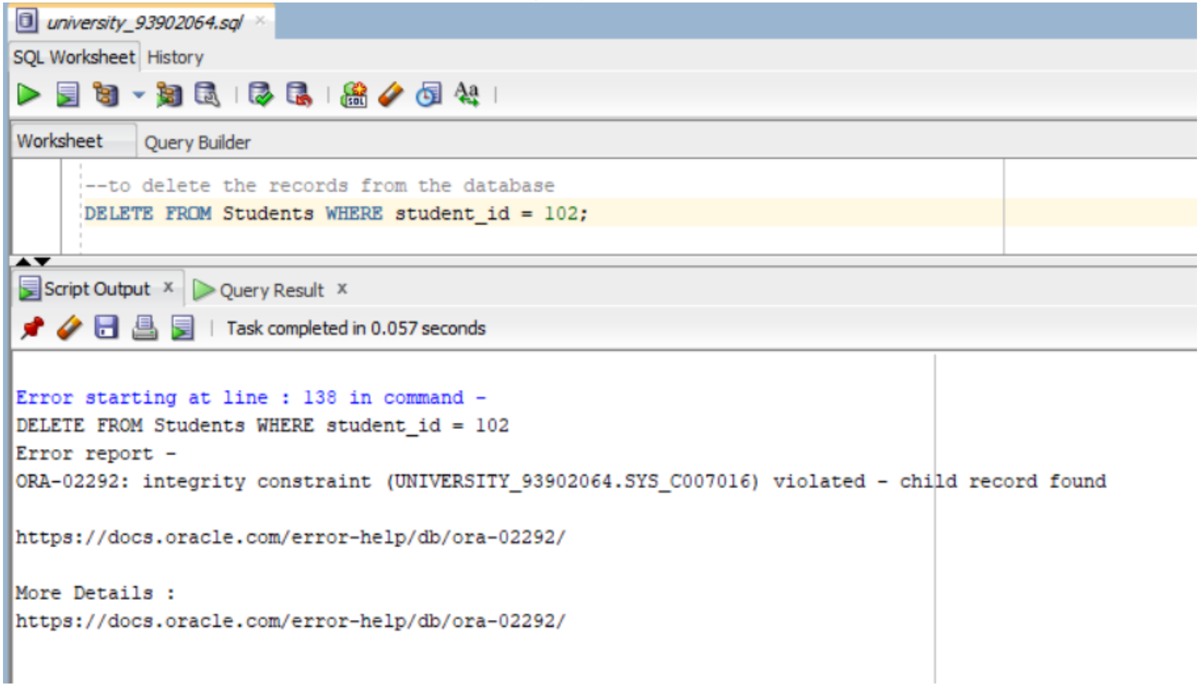


```
--to update the records in the table
UPDATE Students SET full_name = 'Dinesh Rana' WHERE student_id = 101;
COMMIT;

UPDATE Students SET email = 'dinesh@gmail.com' WHERE student_id = 101;
COMMIT;

SELECT * FROM Students;
```

Task completed in 0.056 seconds

```
1 row updated.


1 row updated.
```

Delete the records with referential integrity constraint

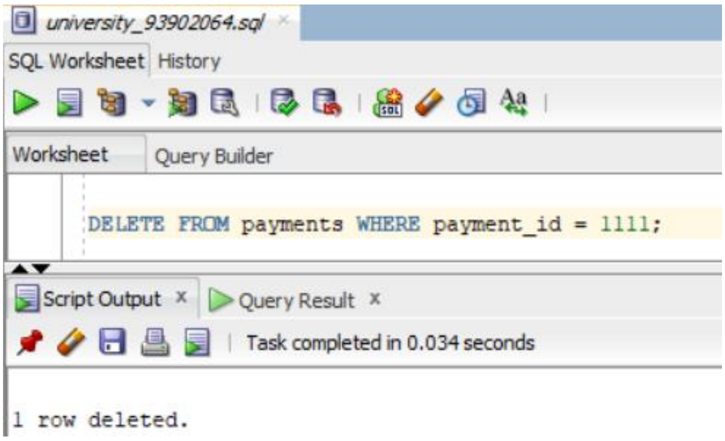


```
--to delete the records from the database
DELETE FROM Students WHERE student_id = 102;
```

Task completed in 0.057 seconds

```
Error starting at line : 138 in command -
DELETE FROM Students WHERE student_id = 102
Error report -
ORA-02292: integrity constraint (UNIVERSITY_93902064.SYS_C007016) violated - child record found

https://docs.oracle.com/error-help/db/ora-02292/

More Details :
https://docs.oracle.com/error-help/db/ora-02292/
```

Delete the record without referential integrity

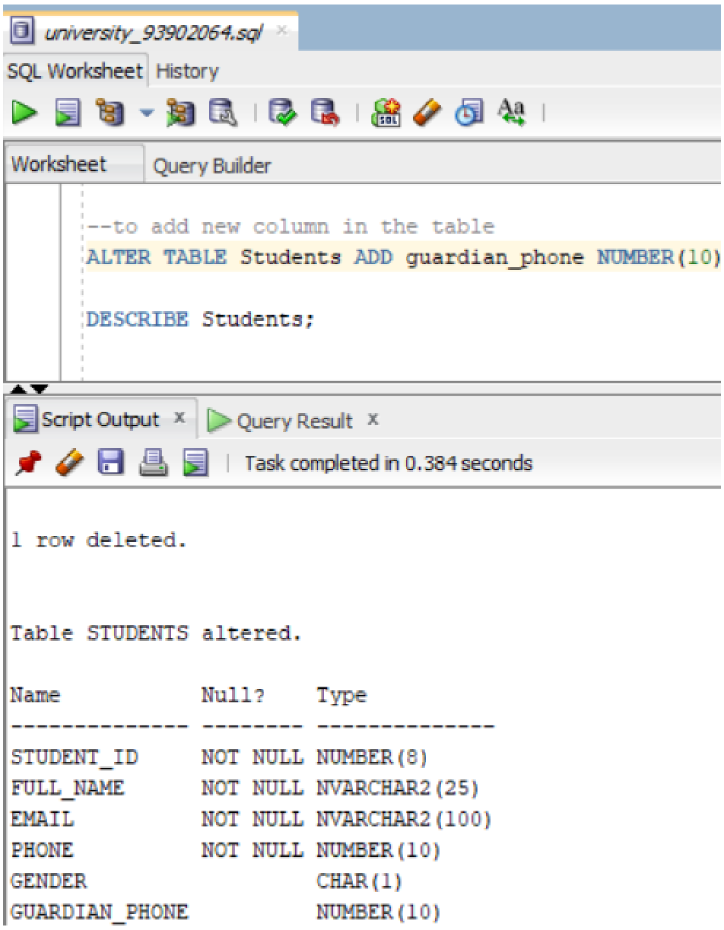


```
DELETE FROM payments WHERE payment_id = 1111;
```

Task completed in 0.034 seconds

```
1 row deleted.
```

Alter table to add new column

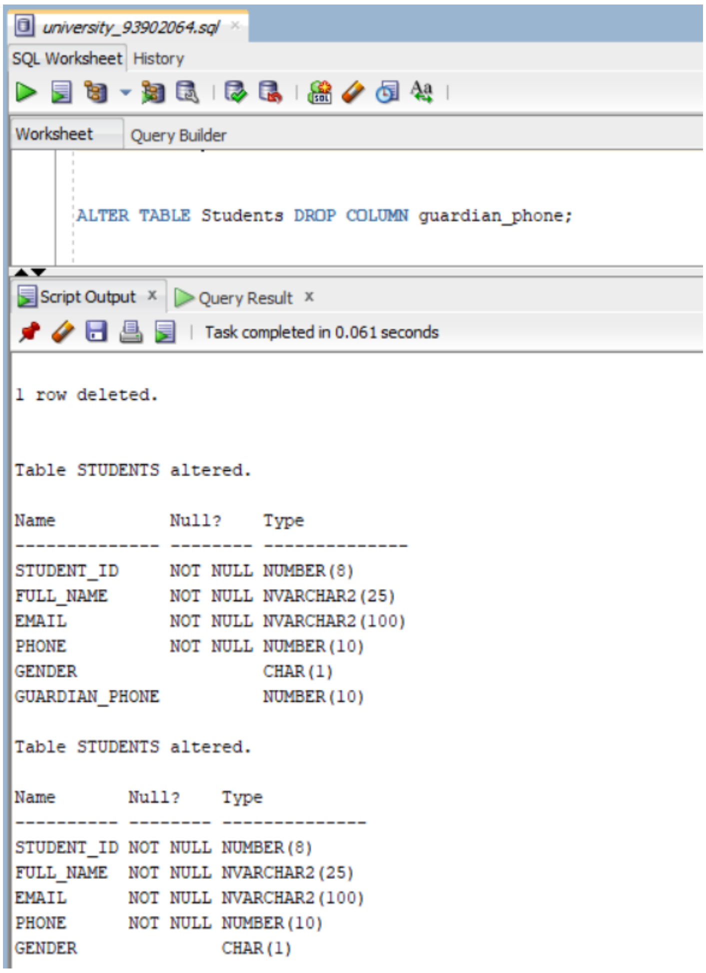


```
--to add new column in the table
ALTER TABLE Students ADD guardian_phone NUMBER(10)

DESCRIBE Students;
```

Task completed in 0.384 seconds

```
1 row deleted.


Table STUDENTS altered.

Name           Null?    Type
-------------- -------- --------------
STUDENT_ID     NOT NULL NUMBER(8)
FULL_NAME      NOT NULL NVARCHAR2(25)
EMAIL          NOT NULL NVARCHAR2(100)
PHONE          NOT NULL NUMBER(10)
GENDER                  CHAR(1)
GUARDIAN_PHONE          NUMBER(10)
```

Alter table to drop the column

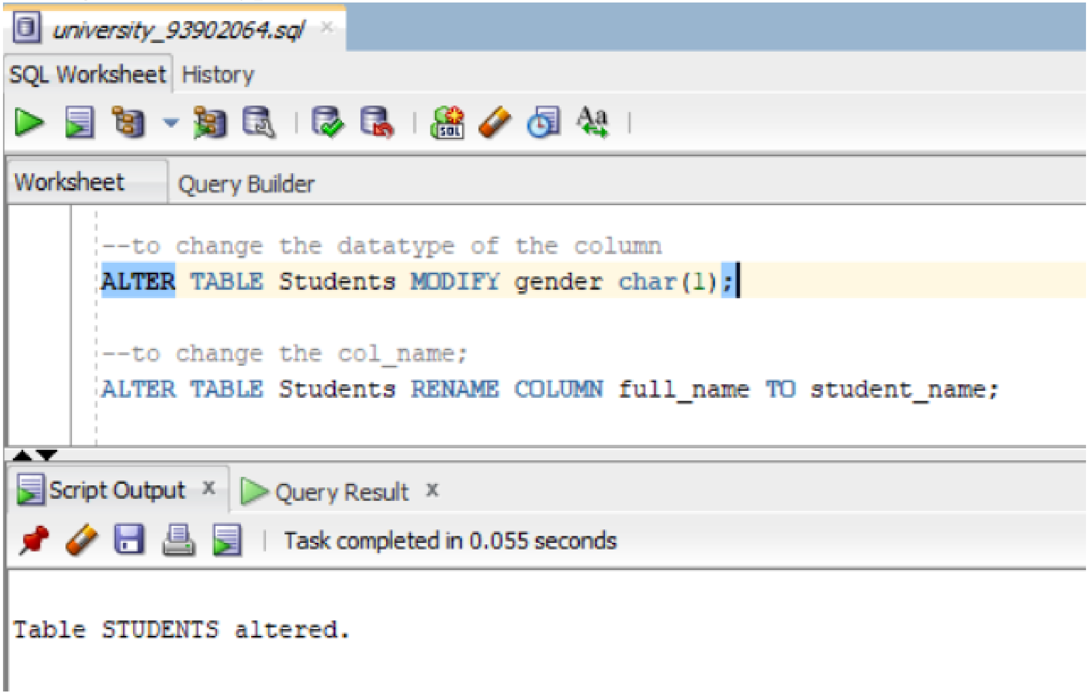


```
ALTER TABLE Students DROP COLUMN guardian_phone;
```

Task completed in 0.061 seconds

```
1 row deleted.


Table STUDENTS altered.

Name           Null?    Type
-------------- -------- --------------
STUDENT_ID     NOT NULL NUMBER(8)
FULL_NAME      NOT NULL NVARCHAR2(25)
EMAIL          NOT NULL NVARCHAR2(100)
PHONE          NOT NULL NUMBER(10)
GENDER                  CHAR(1)
GUARDIAN_PHONE          NUMBER(10)

Table STUDENTS altered.

Name       Null?    Type
---------- -------- --------------
STUDENT_ID NOT NULL NUMBER(8)
FULL_NAME  NOT NULL NVARCHAR2(25)
EMAIL      NOT NULL NVARCHAR2(100)
PHONE      NOT NULL NUMBER(10)
GENDER              CHAR(1)
```

Change the datatype and column name

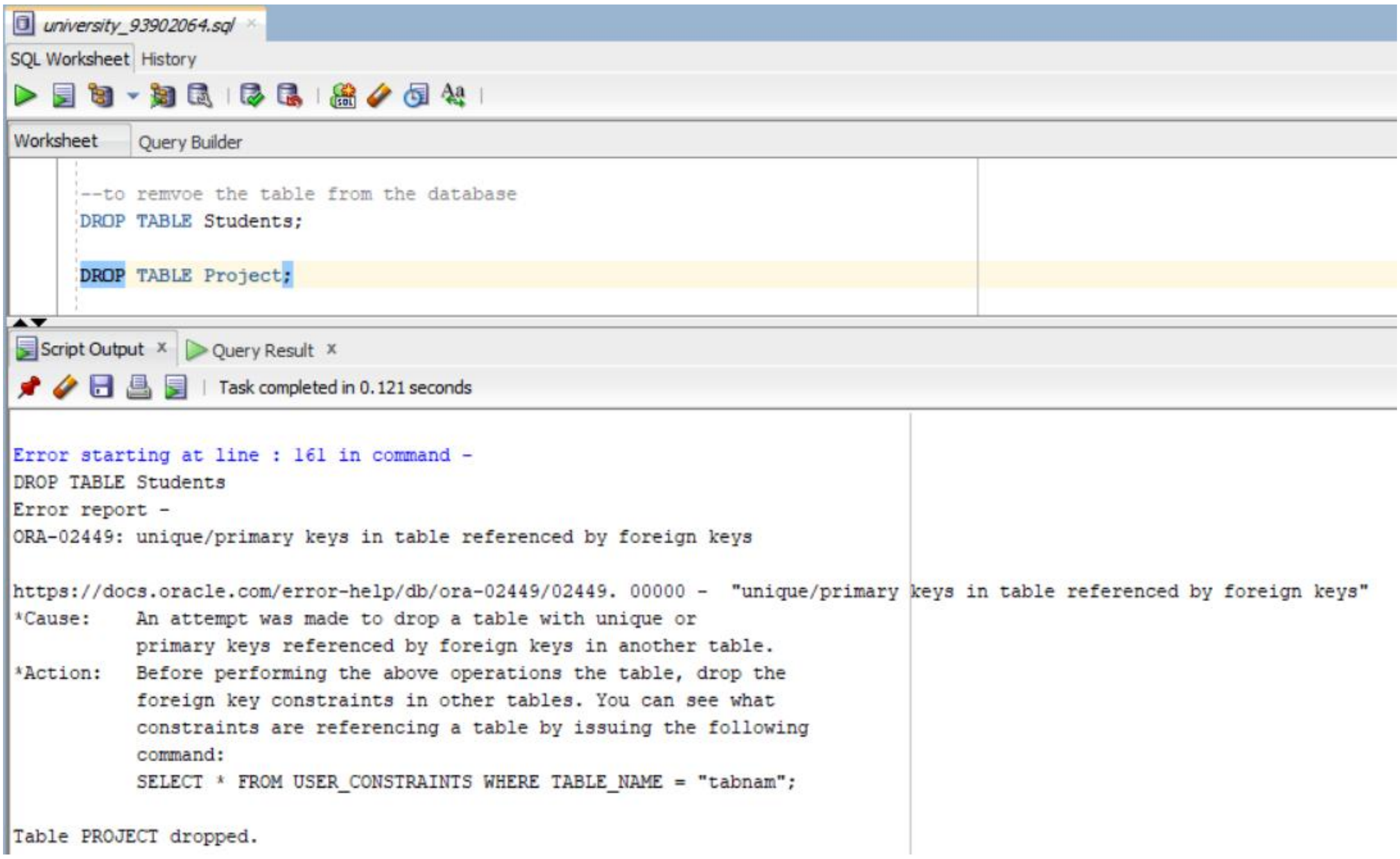


```
--to change the datatype of the column
ALTER TABLE Students MODIFY gender char(1);

--to change the col_name;
ALTER TABLE Students RENAME COLUMN full_name TO student_name;
```

Task completed in 0.055 seconds

```
Table STUDENTS altered.
```

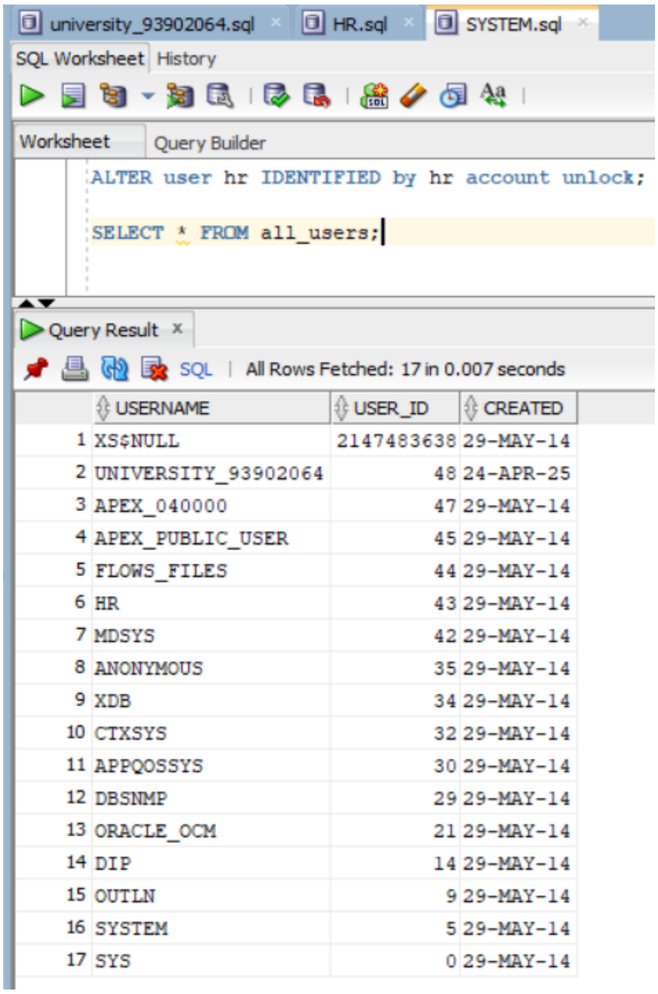
Remove a table from the database



```
--to remvoe the table from the database
DROP TABLE Students;

DROP TABLE Project;
```

```
Error starting at line : 161 in command -
DROP TABLE Students
Error report -
ORA-02449: unique/primary keys in table referenced by foreign keys

https://docs.oracle.com/error-help/db/ora-02449/02449. 00000 -  "unique/primary keys in table referenced by foreign keys"
*Cause:    An attempt was made to drop a table with unique or
           primary keys referenced by foreign keys in another table.
*Action:   Before performing the above operations the table, drop the
           foreign key constraints in other tables. You can see what
           constraints are referencing a table by issuing the following
           command:
           SELECT * FROM USER_CONSTRAINTS WHERE TABLE_NAME = "tabnam";

Table PROJECT dropped.
```

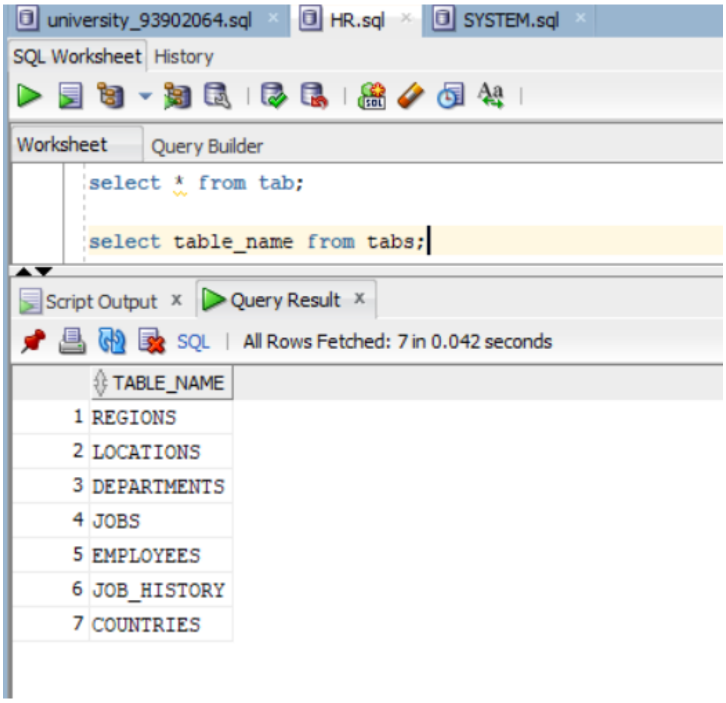
Install and create the HR Schema



```
ALTER user hr IDENTIFIED by hr account unlock;

SELECT * FROM all_users;
```

All Rows Fetched: 17 in 0.007 seconds

	USERNAME	USER_ID	CREATED
1	XS$NULL	2147483638	29-MAY-14
2	UNIVERSITY_93902064	48	24-APR-25
3	APEX_040000	47	29-MAY-14
4	APEX_PUBLIC_USER	45	29-MAY-14
5	FLOWS_FILES	44	29-MAY-14
6	HR	43	29-MAY-14
7	MDSYS	42	29-MAY-14
8	ANONYMOUS	35	29-MAY-14
9	XDB	34	29-MAY-14
10	CTXSYS	32	29-MAY-14
11	APPQOSSYS	30	29-MAY-14
12	DBSNMP	29	29-MAY-14
13	ORACLE_OCM	21	29-MAY-14
14	DIP	14	29-MAY-14
15	OUTLN	9	29-MAY-14
16	SYSTEM	5	29-MAY-14
17	SYS	0	29-MAY-14

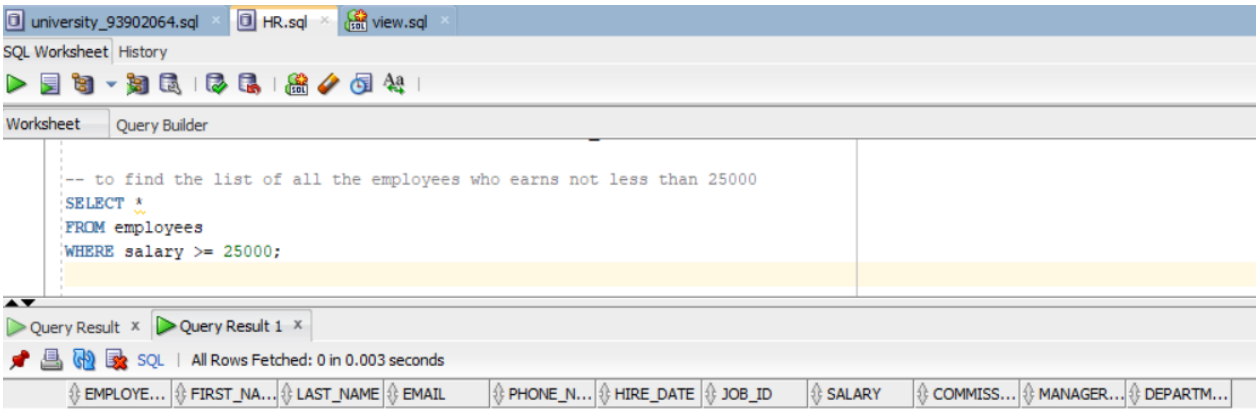


```
select * from tab;

select table_name from tabs;
```

All Rows Fetched: 7 in 0.042 seconds

	TABLE_NAME
1	REGIONS
2	LOCATIONS
3	DEPARTMENTS
4	JOBS
5	EMPLOYEES
6	JOB_HISTORY
7	COUNTRIES

Find the list of all the employees who earns not less than 25000

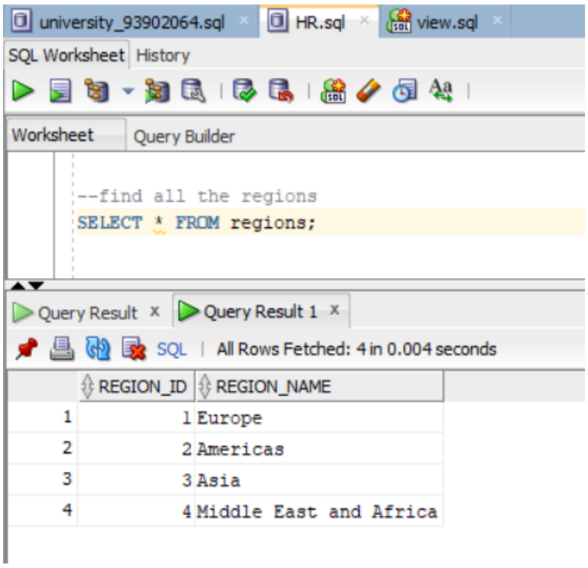


```
-- to find the list of all the employees who earns not less than 25000
SELECT *
FROM employees
WHERE salary >= 25000;
```

All Rows Fetched: 0 in 0.003 seconds

EMPLOYE...	FIRST_NA...	LAST_NAME	EMAIL	PHONE_N...	HIRE_DATE	JOB_ID	SALARY	COMMISS...	MANAGER...	DEPARTM...

Find all the regions

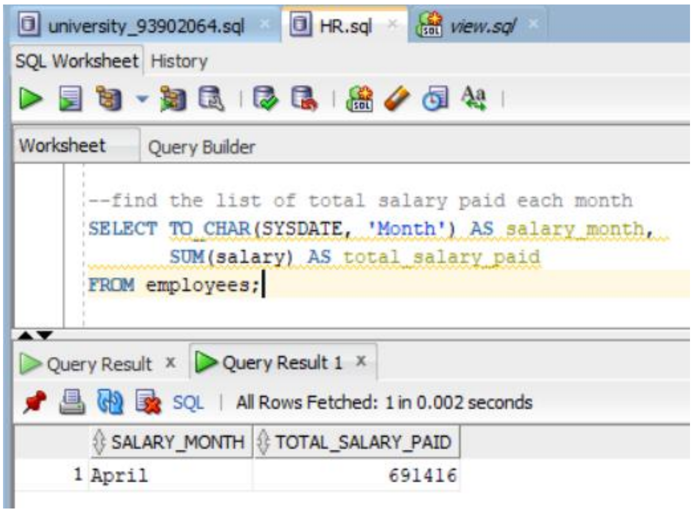


```
--find all the regions
SELECT * FROM regions;
```

All Rows Fetched: 4 in 0.004 seconds

	REGION_ID	REGION_NAME
1	1	Europe
2	2	Americas
3	3	Asia
4	4	Middle East and Africa

Find the list of total salary paid each month

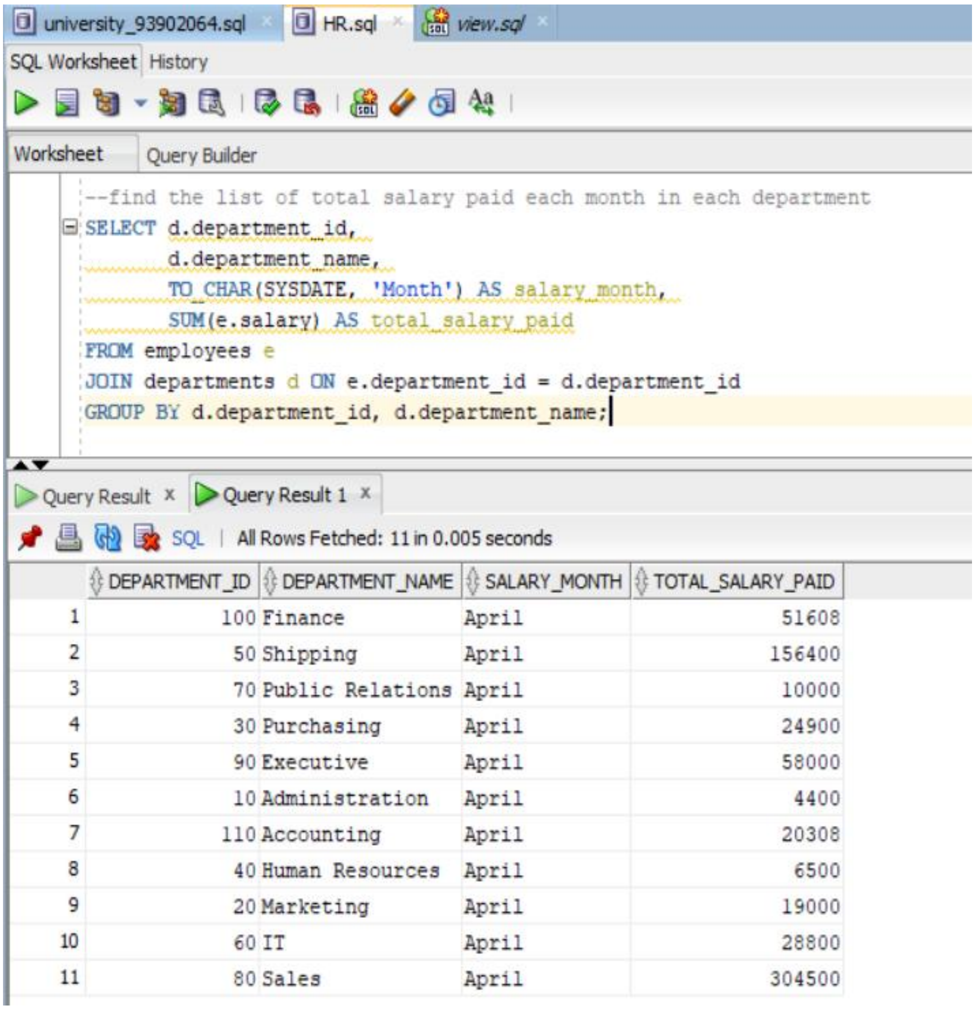


```
--find the list of total salary paid each month
SELECT TO_CHAR(SYSDATE, 'Month') AS salary_month,
       SUM(salary) AS total_salary_paid
FROM employees;
```

All Rows Fetched: 1 in 0.002 seconds

	SALARY_MONTH	TOTAL_SALARY_PAID
1	April	691416

Find the list of total salary paid each month in each department

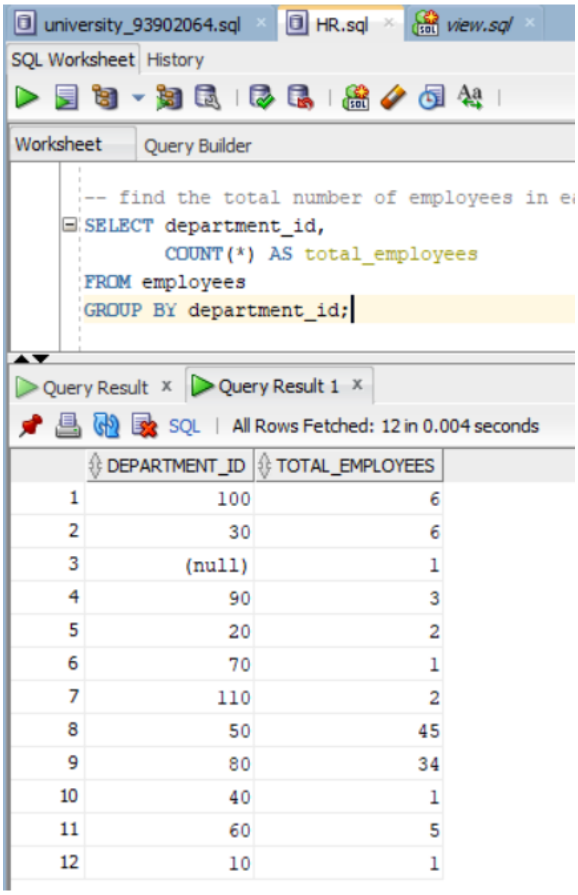


```
--find the list of total salary paid each month in each department
SELECT d.department_id,
       d.department_name,
       TO_CHAR(SYSDATE, 'Month') AS salary_month,
       SUM(e.salary) AS total_salary_paid
FROM employees e
JOIN departments d ON e.department_id = d.department_id
GROUP BY d.department_id, d.department_name;
```

All Rows Fetched: 11 in 0.005 seconds

	DEPARTMENT_ID	DEPARTMENT_NAME	SALARY_MONTH	TOTAL_SALARY_PAID
1	100	Finance	April	51608
2	50	Shipping	April	156400
3	70	Public Relations	April	10000
4	30	Purchasing	April	24900
5	90	Executive	April	58000
6	10	Administration	April	4400
7	110	Accounting	April	20308
8	40	Human Resources	April	6500
9	20	Marketing	April	19000
10	60	IT	April	28800
11	80	Sales	April	304500

Find the total number of employees in each department

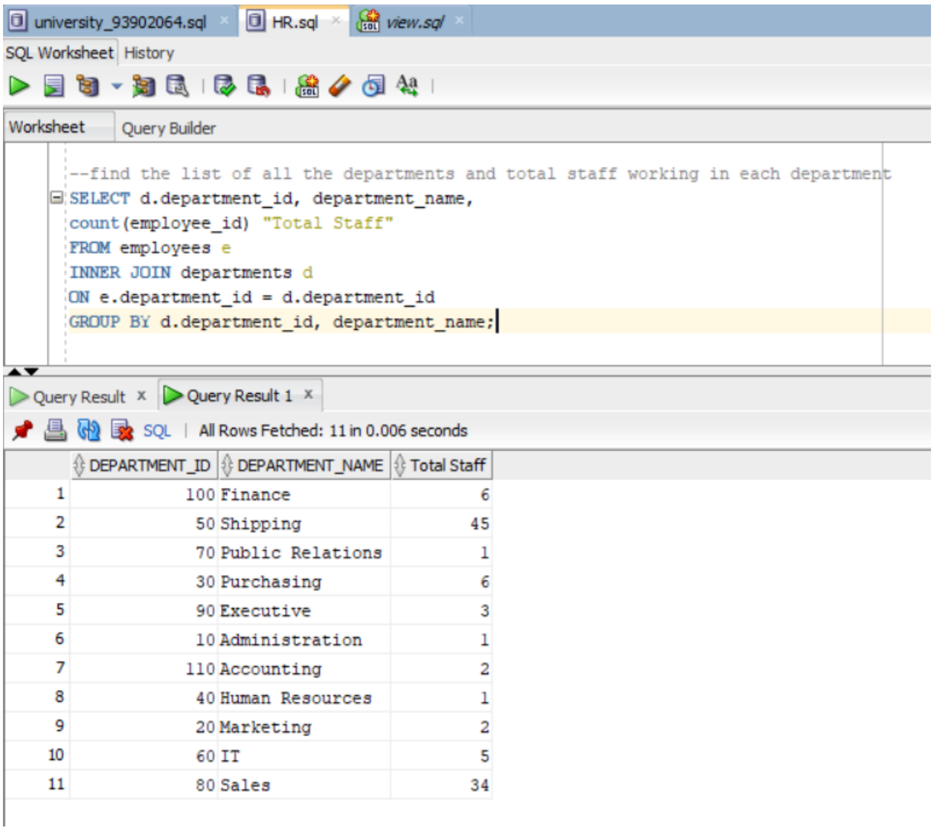


```
-- find the total number of employees in e
SELECT department_id,
          COUNT(*) AS total_employees
FROM employees
GROUP BY department_id;
```

All Rows Fetched: 12 in 0.004 seconds

	DEPARTMENT_ID	TOTAL_EMPLOYEES
1	100	6
2	30	6
3	(null)	1
4	90	3
5	20	2
6	70	1
7	110	2
8	50	45
9	80	34
10	40	1
11	60	5
12	10	1

Find the list of all the departments and total staff working in each department

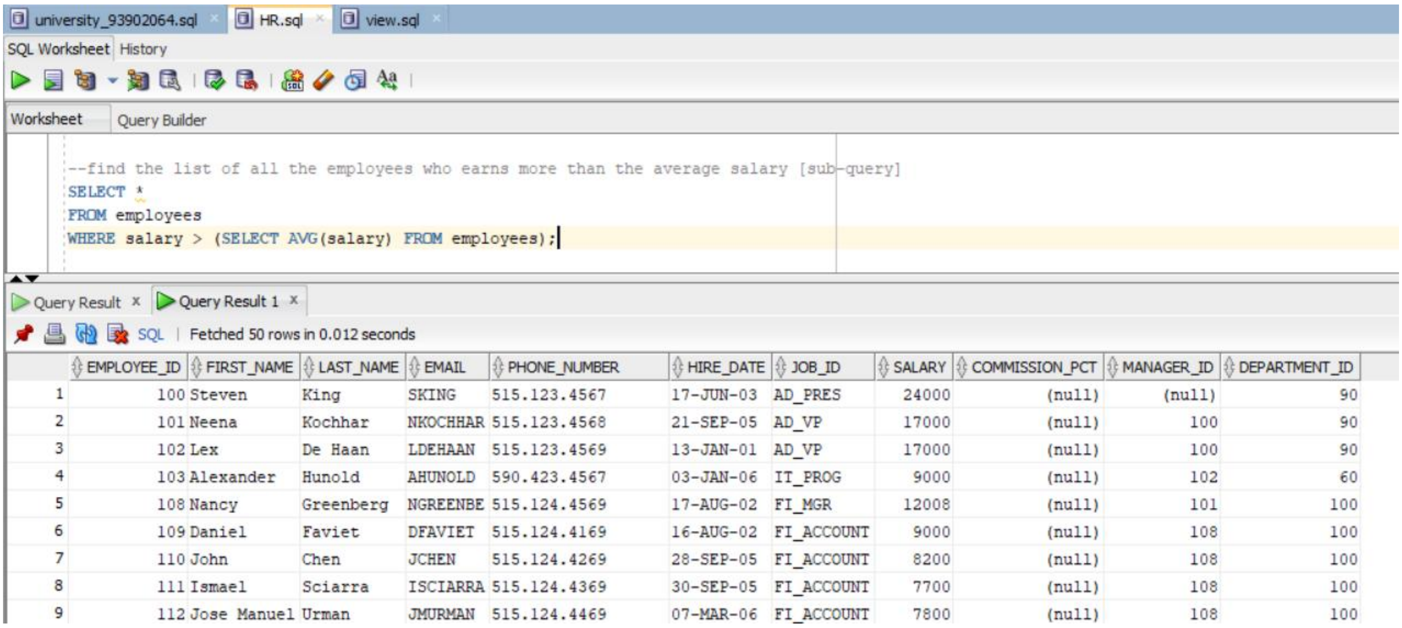


```
--find the list of all the departments and total staff working in each department
SELECT d.department_id, department_name,
count(employee_id) "Total Staff"
FROM employees e
INNER JOIN departments d
ON e.department_id = d.department_id
GROUP BY d.department_id, department_name;
```

All Rows Fetched: 11 in 0.006 seconds

	DEPARTMENT_ID	DEPARTMENT_NAME	Total Staff
1	100	Finance	6
2	50	Shipping	45
3	70	Public Relations	1
4	30	Purchasing	6
5	90	Executive	3
6	10	Administration	1
7	110	Accounting	2
8	40	Human Resources	1
9	20	Marketing	2
10	60	IT	5
11	80	Sales	34

Find the list of all the employees who earns more than the average salary [sub-query]

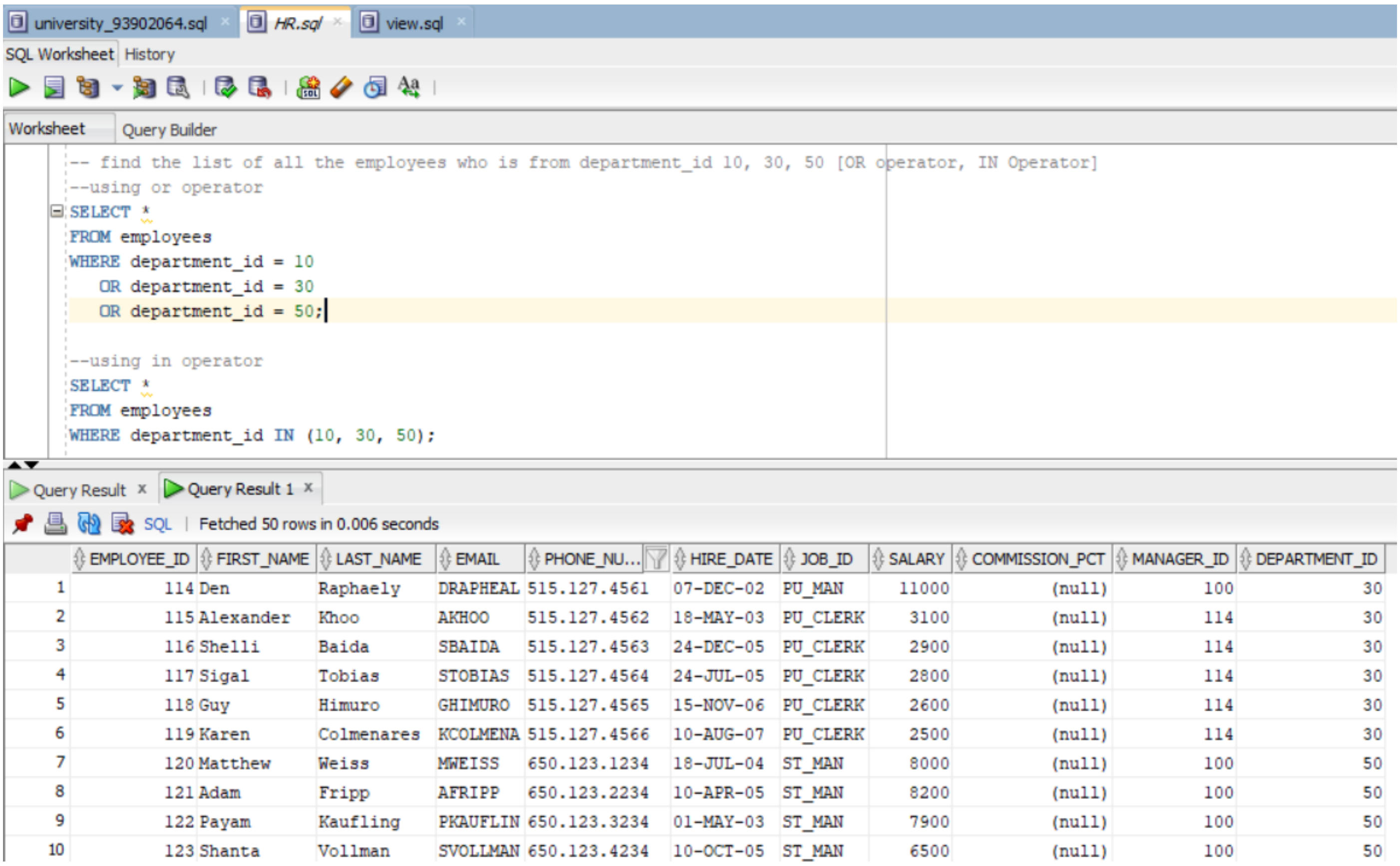


```
--find the list of all the employees who earns more than the average salary [sub-query]
SELECT *
FROM employees
WHERE salary > (SELECT AVG(salary) FROM employees);
```

Fetched 50 rows in 0.012 seconds

	EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
1	100	Steven	King	SKING	515.123.4567	17-JUN-03	AD_PRES	24000	(null)	(null)	90
2	101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-05	AD_VP	17000	(null)	100	90
3	102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-01	AD_VP	17000	(null)	100	90
4	103	Alexander	Hunold	AHUNOLD	590.423.4567	03-JAN-06	IT_PROG	9000	(null)	102	60
5	108	Nancy	Greenberg	NGREENBE	515.124.4569	17-AUG-02	FI_MGR	12008	(null)	101	100
6	109	Daniel	Faviet	DFAVIET	515.124.4169	16-AUG-02	FI_ACCOUNT	9000	(null)	108	100
7	110	John	Chen	JCHEN	515.124.4269	28-SEP-05	FI_ACCOUNT	8200	(null)	108	100
8	111	Ismael	Sciarra	ISCIARRA	515.124.4369	30-SEP-05	FI_ACCOUNT	7700	(null)	108	100
9	112	Jose Manuel	Urman	JMURMAN	515.124.4469	07-MAR-06	FI_ACCOUNT	7800	(null)	108	100

Find the list of all the employees who is from department_id 10, 30, 50 [OR operator, IN Operator]

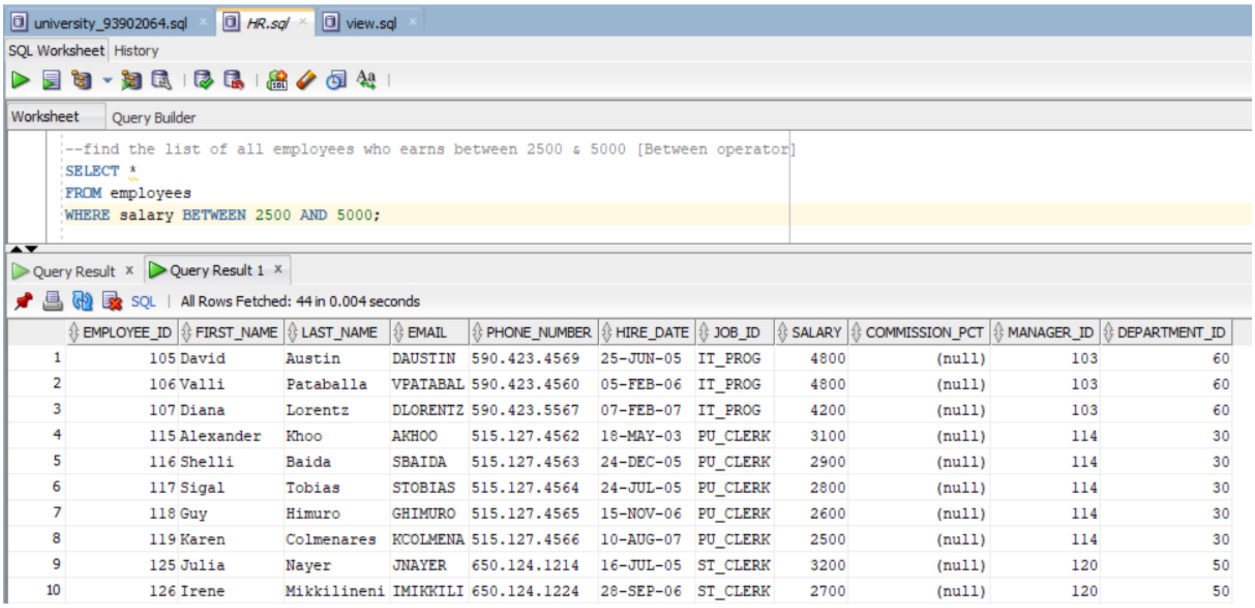


```
-- find the list of all the employees who is from department_id 10, 30, 50 [OR operator, IN Operator]
--using or operator
SELECT *
FROM employees
WHERE department_id = 10
   OR department_id = 30
   OR department_id = 50;

--using in operator
SELECT *
FROM employees
WHERE department_id IN (10, 30, 50);
```

Fetched 50 rows in 0.006 seconds

	EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NU...	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
1	114	Den	Raphaely	DRAPHEAL	515.127.4561	07-DEC-02	PU_MAN	11000	(null)	100	30
2	115	Alexander	Khoo	AKHOO	515.127.4562	18-MAY-03	PU_CLERK	3100	(null)	114	30
3	116	Shelli	Baida	SBAIDA	515.127.4563	24-DEC-05	PU_CLERK	2900	(null)	114	30
4	117	Sigal	Tobias	STOBIAS	515.127.4564	24-JUL-05	PU_CLERK	2800	(null)	114	30
5	118	Guy	Himuro	GHIMURO	515.127.4565	15-NOV-06	PU_CLERK	2600	(null)	114	30
6	119	Karen	Colmenares	KCOLMENA	515.127.4566	10-AUG-07	PU_CLERK	2500	(null)	114	30
7	120	Matthew	Weiss	MWEISS	650.123.1234	18-JUL-04	ST_MAN	8000	(null)	100	50
8	121	Adam	Fripp	AFRIPP	650.123.2234	10-APR-05	ST_MAN	8200	(null)	100	50
9	122	Payam	Kaufling	PKAUFLIN	650.123.3234	01-MAY-03	ST_MAN	7900	(null)	100	50
10	123	Shanta	Vollman	SVOLLMAN	650.123.4234	10-OCT-05	ST_MAN	6500	(null)	100	50

Find the list of all employees who earns between 2500 & 5000 [Between operator]

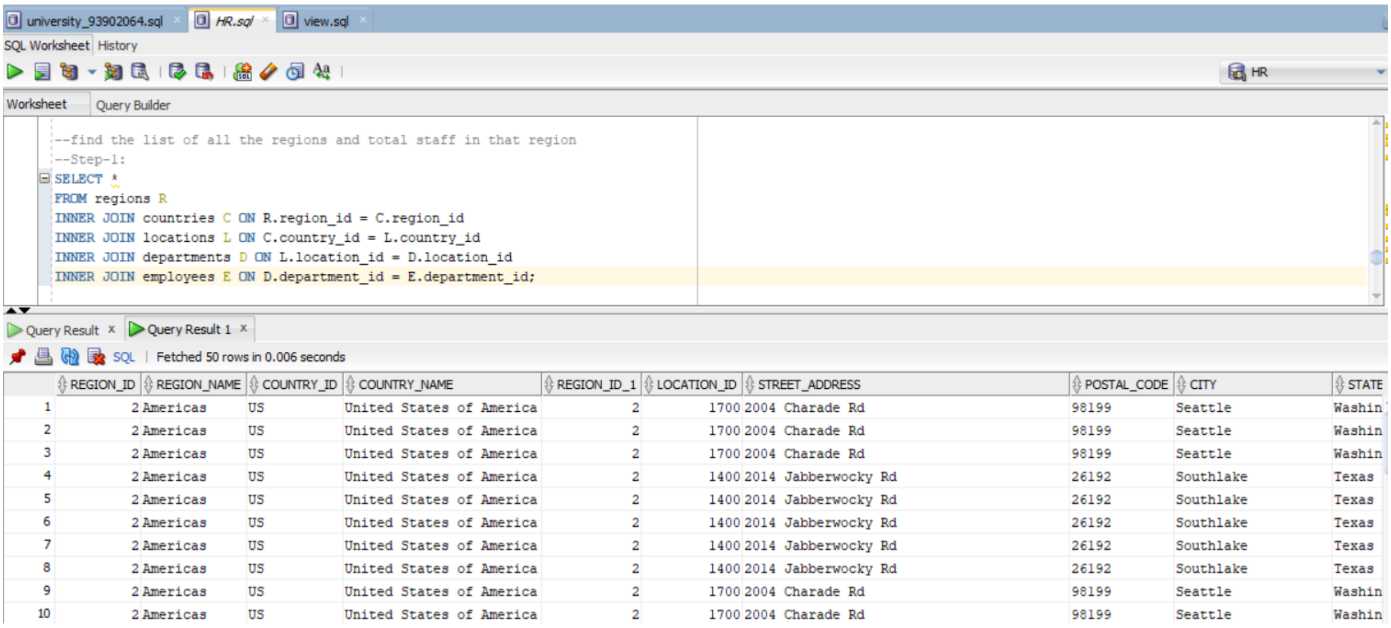


```
--find the list of all employees who earns between 2500 & 5000 [Between operator]
SELECT *
FROM employees
WHERE salary BETWEEN 2500 AND 5000;
```

All Rows Fetched: 44 in 0.004 seconds

	EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID
1	105	David	Austin	DAUSTIN	590.423.4569	25-JUN-05	IT_PROG	4800	(null)	103	60
2	106	Valli	Pataballa	VPATABAL	590.423.4560	05-FEB-06	IT_PROG	4800	(null)	103	60
3	107	Diana	Lorentz	DLORENTZ	590.423.5567	07-FEB-07	IT_PROG	4200	(null)	103	60
4	115	Alexander	Khoo	AKHOO	515.127.4562	18-MAY-03	PU_CLERK	3100	(null)	114	30
5	116	Shelli	Baida	SBAIDA	515.127.4563	24-DEC-05	PU_CLERK	2900	(null)	114	30
6	117	Sigal	Tobias	STOBIAS	515.127.4564	24-JUL-05	PU_CLERK	2800	(null)	114	30
7	118	Guy	Himuro	GHIMURO	515.127.4565	15-NOV-06	PU_CLERK	2600	(null)	114	30
8	119	Karen	Colmenares	KCOLMENA	515.127.4566	10-AUG-07	PU_CLERK	2500	(null)	114	30
9	125	Julia	Nayer	JNAYER	650.124.1214	16-JUL-05	ST_CLERK	3200	(null)	120	50
10	126	Irene	Mikkilineni	IMIKKILI	650.124.1224	28-SEP-06	ST_CLERK	2700	(null)	120	50

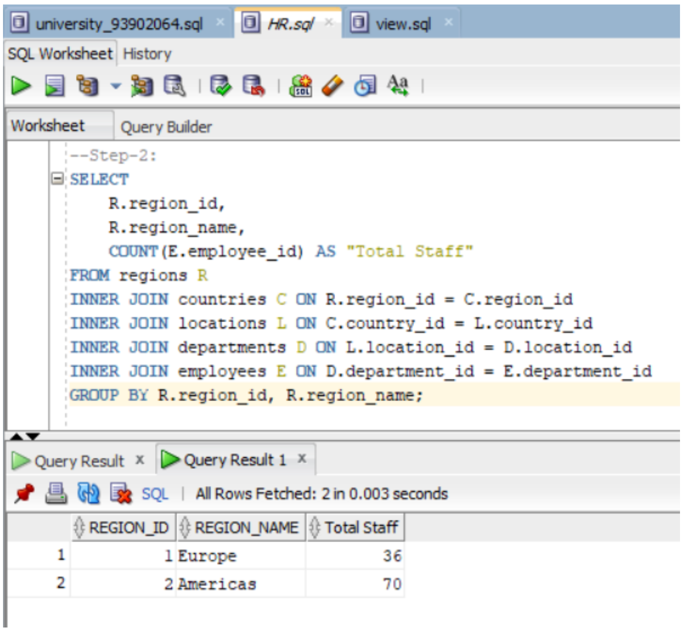
Find the list of all the regions and total staff in that region



```
--find the list of all the regions and total staff in that region
--Step-1:
SELECT *
FROM regions R
INNER JOIN countries C ON R.region_id = C.region_id
INNER JOIN locations L ON C.country_id = L.country_id
INNER JOIN departments D ON L.location_id = D.location_id
INNER JOIN employees E ON D.department_id = E.department_id;
```

Fetched 50 rows in 0.006 seconds

	REGION_ID	REGION_NAME	COUNTRY_ID	COUNTRY_NAME	REGION_ID_1	LOCATION_ID	STREET_ADDRESS	POSTAL_CODE	CITY	STATE
1	2	Americas	US	United States of America	2	1700	2004 Charade Rd	98199	Seattle	Washin
2	2	Americas	US	United States of America	2	1700	2004 Charade Rd	98199	Seattle	Washin
3	2	Americas	US	United States of America	2	1700	2004 Charade Rd	98199	Seattle	Washin
4	2	Americas	US	United States of America	2	1400	2014 Jabberwocky Rd	26192	Southlake	Texas
5	2	Americas	US	United States of America	2	1400	2014 Jabberwocky Rd	26192	Southlake	Texas
6	2	Americas	US	United States of America	2	1400	2014 Jabberwocky Rd	26192	Southlake	Texas
7	2	Americas	US	United States of America	2	1400	2014 Jabberwocky Rd	26192	Southlake	Texas
8	2	Americas	US	United States of America	2	1400	2014 Jabberwocky Rd	26192	Southlake	Texas
9	2	Americas	US	United States of America	2	1700	2004 Charade Rd	98199	Seattle	Washin
10	2	Americas	US	United States of America	2	1700	2004 Charade Rd	98199	Seattle	Washin



```
--Step-2:
SELECT
    R.region_id,
    R.region_name,
    COUNT(E.employee_id) AS "Total Staff"
FROM regions R
INNER JOIN countries C ON R.region_id = C.region_id
INNER JOIN locations L ON C.country_id = L.country_id
INNER JOIN departments D ON L.location_id = D.location_id
INNER JOIN employees E ON D.department_id = E.department_id
GROUP BY R.region_id, R.region_name;
```

All Rows Fetched: 2 in 0.003 seconds

	REGION_ID	REGION_NAME	Total Staff
1	1	Europe	36
2	2	Americas	70