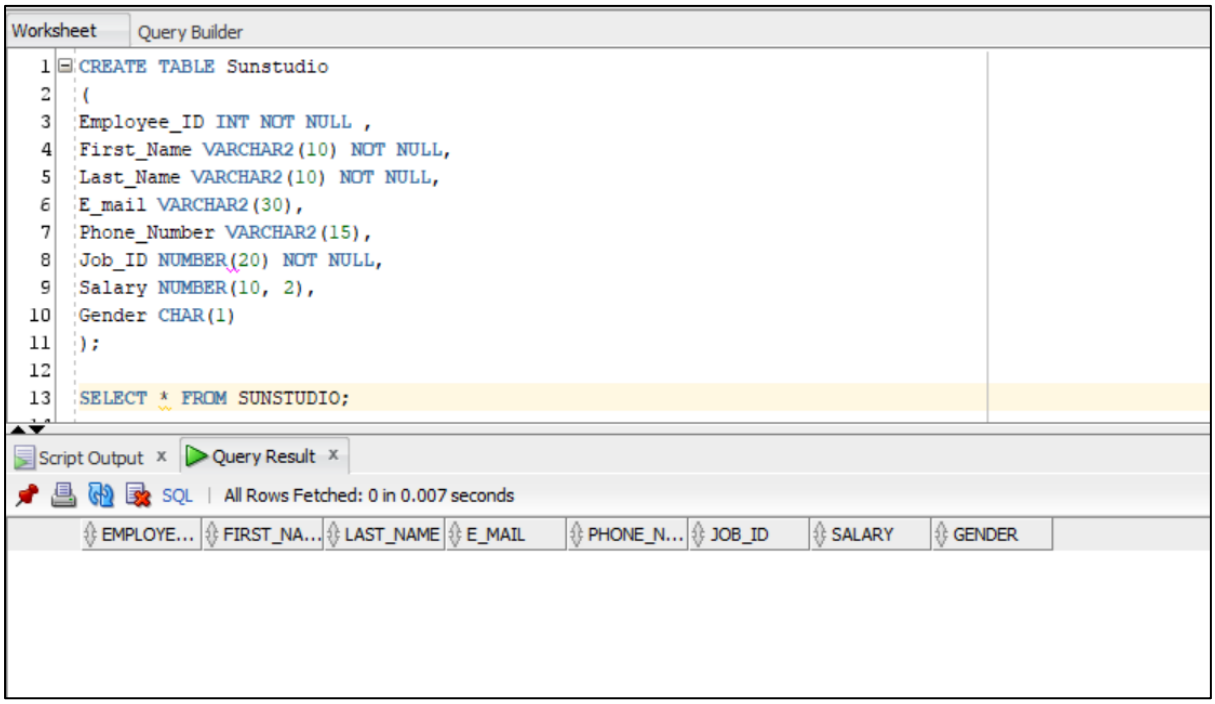
SQL

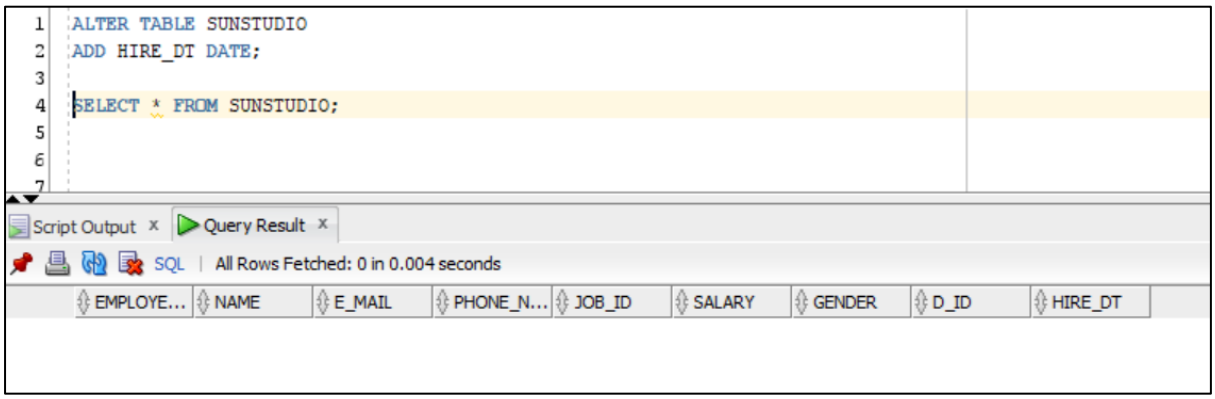
DDL (Data Definition Language)

CREATE TABLE:-

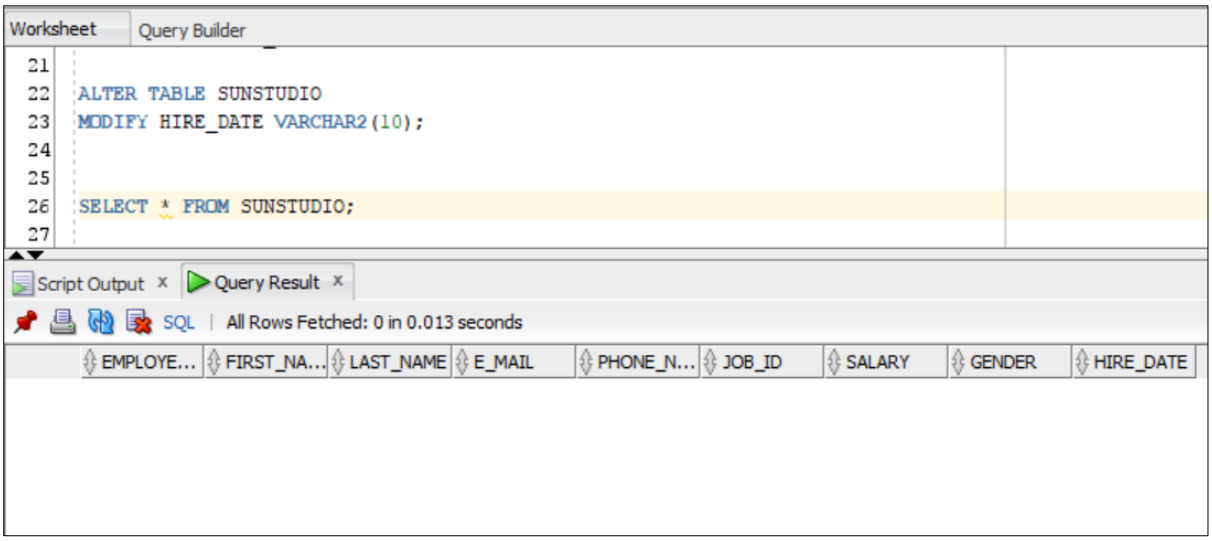


ALTER

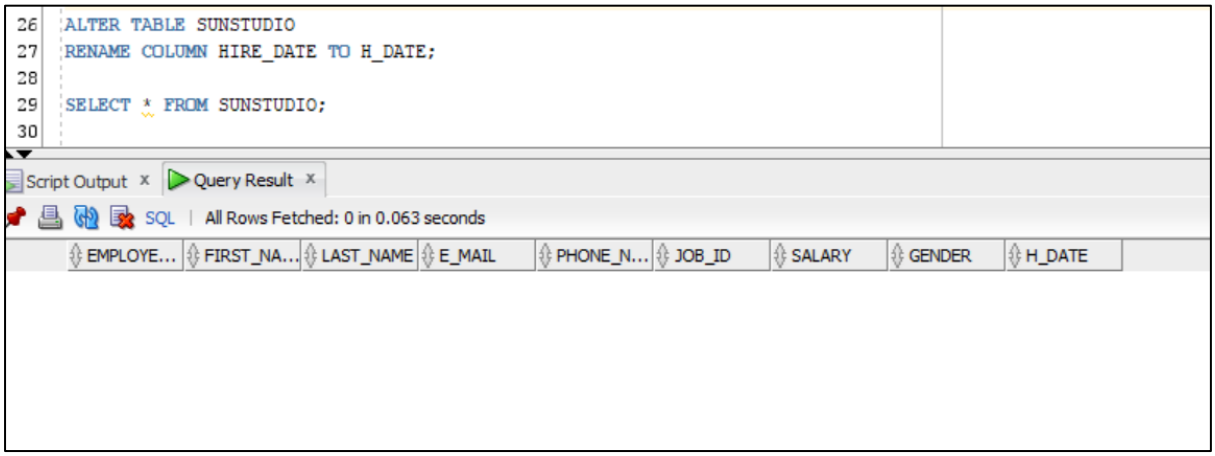
ADD (add new column):-



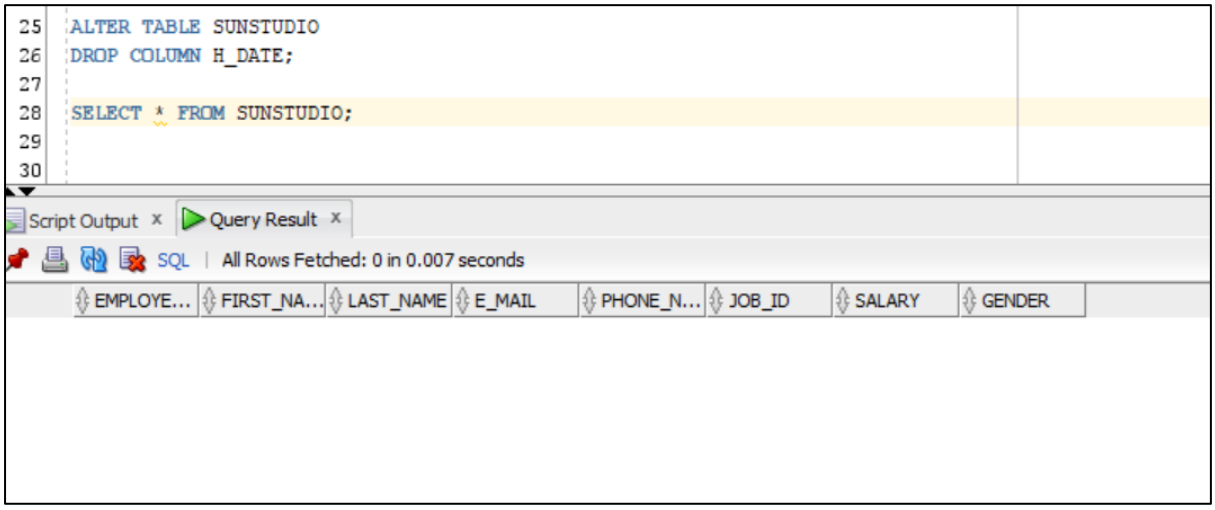
MODIFY(modify column):-



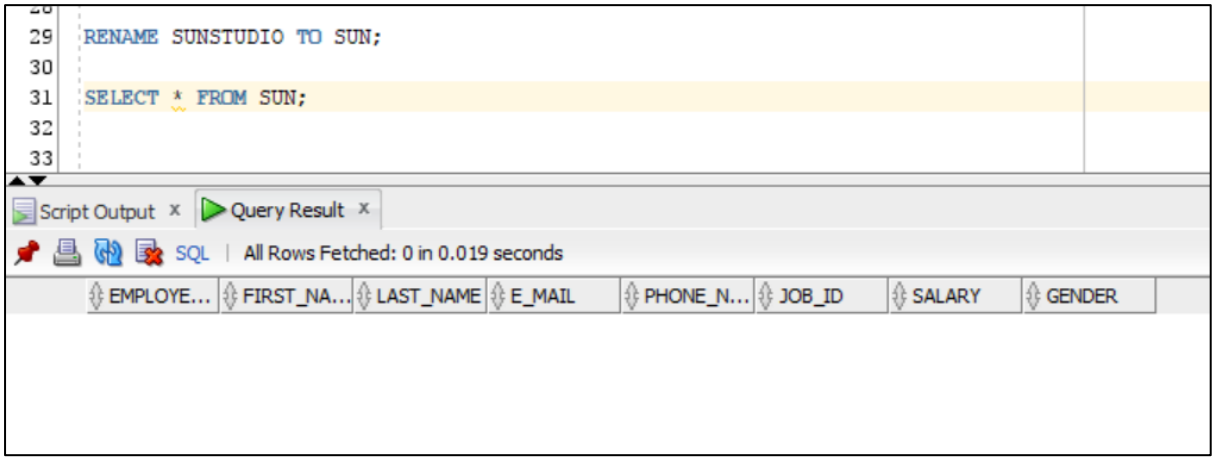
RENAME(rename column heading):-



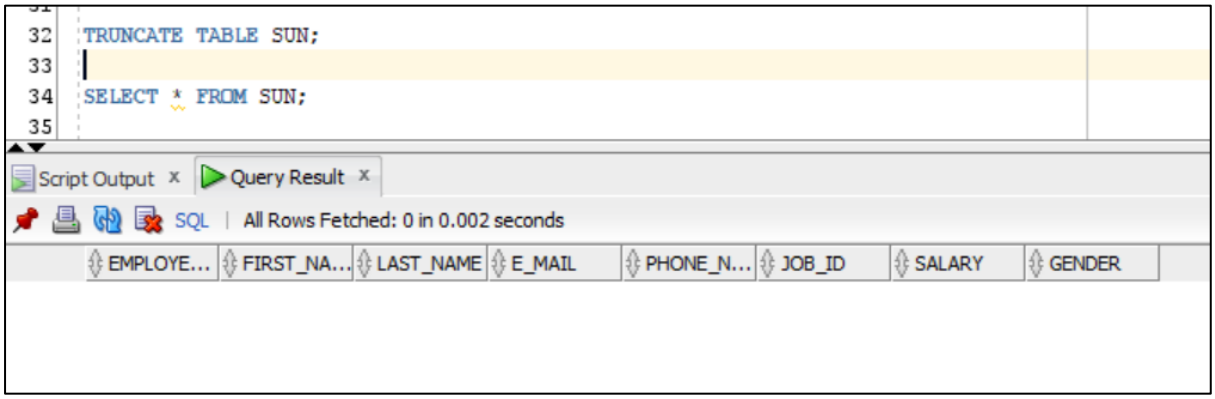
DROP(to delete particular column):-



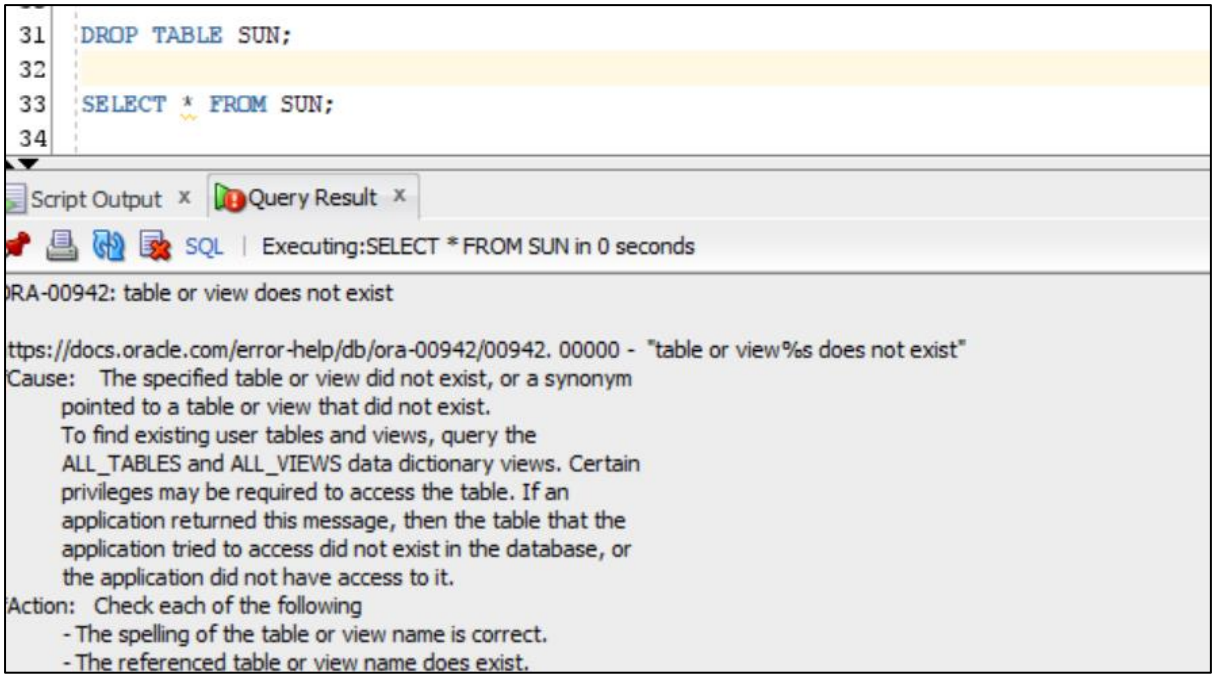
RENAME(rename table name):-



TRUNCATE(delete the entire data):-



DROP(delete the entire table):-



DML (Data Manipulation Language)

INSERT (insert new data):-

```
44
45  SELECT * FROM SUN;
46
47  INSERT INTO SUN
48  VALUES (100, 'RAGU', 'taran@gmail.com', 8775544566, 10000, 'M');
49
50  INSERT INTO SUN
51  VALUES (102, 'SIDHARTH', 'sidharth5@gmail.com', 8956342176, 20000, 'M');
52
53  INSERT INTO SUN
54  VALUES (103, 'BARRY', 'barry6@gmail.com', 6789436521, 30000, 'M');
55
56  INSERT INTO SUN
57  VALUES (104, 'SATHYA', 'sathya8@gmail.com', 9864657878, 40000, 'F');
58
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.004 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_N...	SALARY	GENDER
1	100	RAGU	taran@gmail...	8775544566	10000	M
2	102	SIDHARTH	sidharth5@g...	8956342176	20000	M
3	103	BARRY	barry6@gmai...	6789436521	30000	M
4	104	SATHYA	sathya8@gma...	9864657878	40000	F

UPDATE(rename in already exist data):-

```
57  SELECT * FROM SUN;
58
59  UPDATE SUN
60  SET NAME = 'HEMA',
61  GENDER = 'F'
62  WHERE EMPLOYEE_ID = 102;
63
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.004 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_N...	SALARY	GENDER
1	100	RAGU	taran@gmail...	8775544566	10000	M
2	102	HEMA	sidharth5@g...	8956342176	20000	F
3	103	BARRY	barry6@gmai...	6789436521	30000	M
4	104	SATHYA	sathya8@gma...	9864657878	40000	F

DELETE(delete entire row):-

```
65  DELETE
66  FROM SUN
67  WHERE EMPLOYEE_ID = 104;
68
69  SELECT * FROM SUN;
70
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.004 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_N...	SALARY	GENDER
1	100	RAGU	taran@gmail...	8775544566	10000	M
2	102	HEMA	sidharth5@g...	8956342176	20000	F
3	103	BARRY	barry6@gmai...	6789436521	30000	M

TCL (Transaction Control Language)

COMMIT(permanent save):-

```
65  DELETE
66  FROM SUN
67  WHERE EMPLOYEE_ID = 104;
68
69  SELECT * FROM SUN;
70  COMMIT;
```

Script Output | Query Result

Task completed in 0.067 seconds

```
0 rows deleted.

0 rows deleted.

1 row deleted.

Commit complete.
```

ROLL BACK(correction check):-

```
63  SELECT * FROM SUN;
64
65  DELETE
66  FROM SUN
67  WHERE EMPLOYEE_ID = 104;
68
69  SELECT * FROM SUN;
70  ROLL BACK;
71
```

Query Result | Script Output

Task completed in 0.048 seconds

```
Rollback complete.
```

SAVE POINT(temporary save):-

```
57  SAVEPOINT A;
58  UPDATE SUN
59  SET NAME = 'HEMA',
60  GENDER = 'F'
61  WHERE EMPLOYEE_ID = 102;
62  SAVEPOINT B;
63  DELETE
64  FROM SUN
65  WHERE EMPLOYEE_ID = 104;
66  SAVEPOINT C;
67  SELECT * FROM SUN;
68  ROLL BACK TO A;
69
70
```

Script Output

Task completed in 0.057 seconds

```
Savepoint created.


Savepoint created.

Rollback complete.
```

RESTRICTION

ROW LEVEL RESTRICTION (select to from):-

```
71  SELECT * FROM SUN;
72
73  SELECT NAME,
74  SALARY
75  FROM SUN;
76
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.043 seconds

	NAME	SALARY
1	RAGU	10000
2	HEMA	20000
3	BARRY	30000

COLUMN LEVEL RESTRICTION (where clause):-

```
71  SELECT * FROM SUN;
72
73  SELECT NAME,
74  SALARY
75  FROM SUN
76  WHERE SALARY >= 20000;
77
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.006 seconds

	NAME	SALARY
1	HEMA	20000
2	BARRY	30000

ARITHMETIC EXPRESSION (+, -, *, /):-

```
78  SELECT EMPLOYEE_ID, SALARY, SALARY+1000
79  FROM SUN;
80
81
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.037 seconds

	EMPLOYEE_ID	SALARY	SALARY+1000
1	100	10000	11000
2	102	20000	21000
3	103	30000	31000

ALIAS:- (rename column name)

```
81  SELECT
82  EMPLOYEE_ID, SALARY, SALARY+1000 AS BONUS
83  FROM SUN;
84
85
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.006 seconds

	EMPLOYEE_ID	SALARY	BONUS
1	100	10000	11000
2	102	20000	21000
3	103	30000	31000

PIPELINE STATEMENT (space between sentence):-

```
select
Name ||q'('s Salary is  )'|| salary as combine
from sun;
```

Query Result

SQL | All Rows Fetched: 3 in 0.019 seconds

	COMBINE
1	RAGU's Salary is 10000
2	HEMA's Salary is 20000
3	BARRY's Salary is 30000

COMMENT LINE:- (Single line comment, Multi line comment)

```
84  SELECT * FROM SUN;
85
86  select
87  employee_id,
88  name,
89  E_mail,
90  phone_number,
91  --salary
92  gender
93  from sun;
94
```

Query Result

SQL | All Rows Fetched: 3 in 0.015 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	GENDER
1	100	RAGU	taran@gmail.com	8775544566	M
2	102	HEMA	sidharth5@gmail.com	8956342176	F
3	103	BARRY	barry6@gmail.com	6789436521	M

```
84  SELECT * FROM SUN;
85
86  select
87  employee_id,
88  name
89  /*
90  E_mail
91  phone_number
92  salary
93  gender
94  */
95  from sun;
```

Query Result

SQL | All Rows Fetched: 3 in 0.007 seconds

	EMPLOYEE_ID	NAME
1	100	RAGU
2	102	HEMA
3	103	BARRY

DUAL TABLE (special one-row, one-column table):-

```
97  select * from sun;
98
99  select
100 'salary ' || 'Package' as Sun
101 from dual;
102
103 select 10000+100 as bonus from dual;
104
```

Query Result

SQL | All Rows Fetched: 1 in 0.006 seconds

	BONUS
1	10100

COMPARISON OPERATOR (compare data):-

```
106 select * from sun
107 where salary < 20000;
108
109 select * from sun
110 where salary <= 20000;
111
112
```

Query Result

SQL | All Rows Fetched: 2 in 0.019 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	100	RAGU	taran@gmail.com	8775544566	10000	M
2	102	HEMA	sidharth5@gmail.com	8956342176	20000	F

BETWEEN…. AND…. (find between values):-

```
112 select * from Sun
113 where salary between 20000 and 30000;
114
115
```

Query Result

SQL | All Rows Fetched: 2 in 0.007 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	102	HEMA	sidharth5@gmail.com	8956342176	20000	F
2	103	BARRY	barry6@gmail.com	6789436521	30000	M

NOT BETWEEN… AND …(not consider values):-

```
112 select * from Sun
113 where salary not between 20000 and 30000;
114
115
```

Query Result

SQL | All Rows Fetched: 1 in 0.008 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	100	RAGU	taran@gmail.com	8775544566	10000	M

IN OPERATOR (exact value):-

```
112  select * from Sun
113  where salary in (10000, 30000);
114
115
```

Query Result

SQL | All Rows Fetched: 2 in 0.01 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	100	RAGU	taran@gmail.com	8775544566	10000	M
2	103	BARRY	barry6@gmail.com	6789436521	30000	M

NOT IN OPERATOR (not exact value):-

```
112  select * from Sun
113  where salary not in (10000, 30000);
114
115
```

Query Result

SQL | All Rows Fetched: 1 in 0.03 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	102	HEMA	sidharth5@gmail.com	8956342176	20000	F

LIKE OPERATOR (pattern matching operator):-

```
115  select * from sun
116  where name like 'H_%_A';
117
118
```

Query Result

SQL | All Rows Fetched: 1 in 0.009 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	102	HEMA	sidharth5@gmail.com	8956342176	20000	F

ESCAPE OPERATOR (consider special character):-

```
115  select * from sun
116  where name like 'H_%_A';
117
118
```

Query Result

SQL | All Rows Fetched: 1 in 0.003 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER
1	102	HEMA	sidharth5@gmail.com	8956342176	20000	F

IS NULL (consider null):-

```
124
125  select * from sun
126  where bonus is null;
127
128
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.008 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	102	HEMA	sidharth5@gmail.com	8956342176	20000	F	(null)
2	103	BARRY	barry6@gmail.com	6789436521	30000	M	(null)

IS NOT NULL (not consider null):-

```
125  select * from sun
126  where bonus is not null;
127
128
```

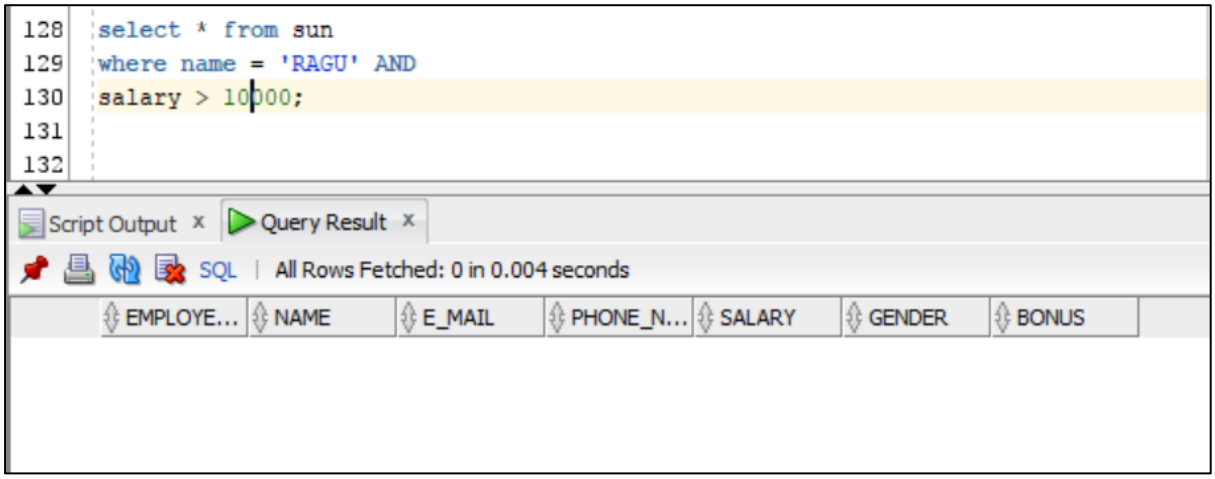
Script Output | Query Result

SQL | All Rows Fetched: 1 in 0.005 seconds

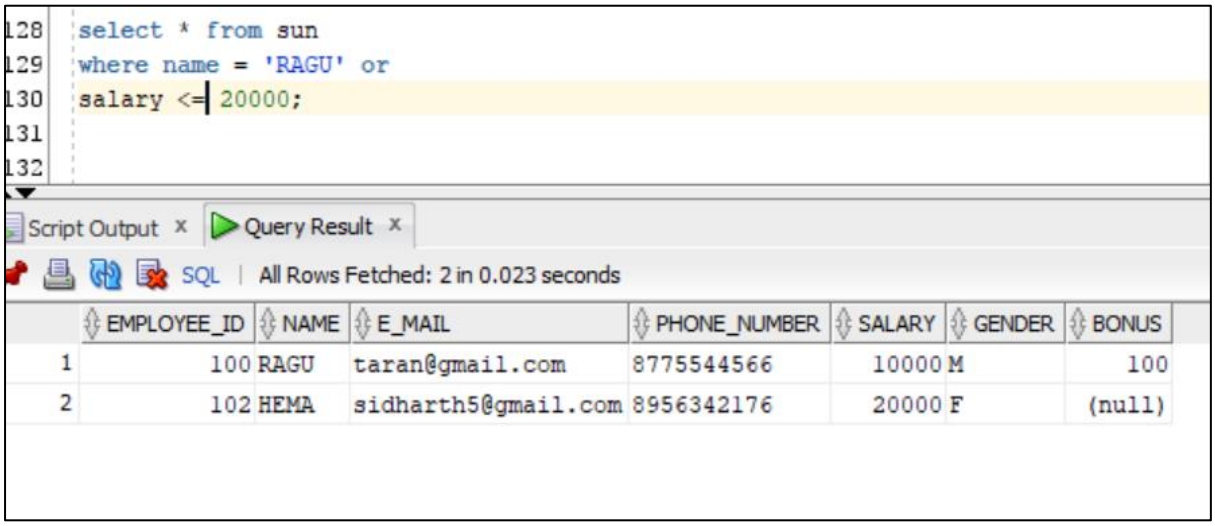
	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	100	RAGU	taran@gmail.com	8775544566	10000	M	100

LOGICAL OPERATOR

AND (each, every condition):-

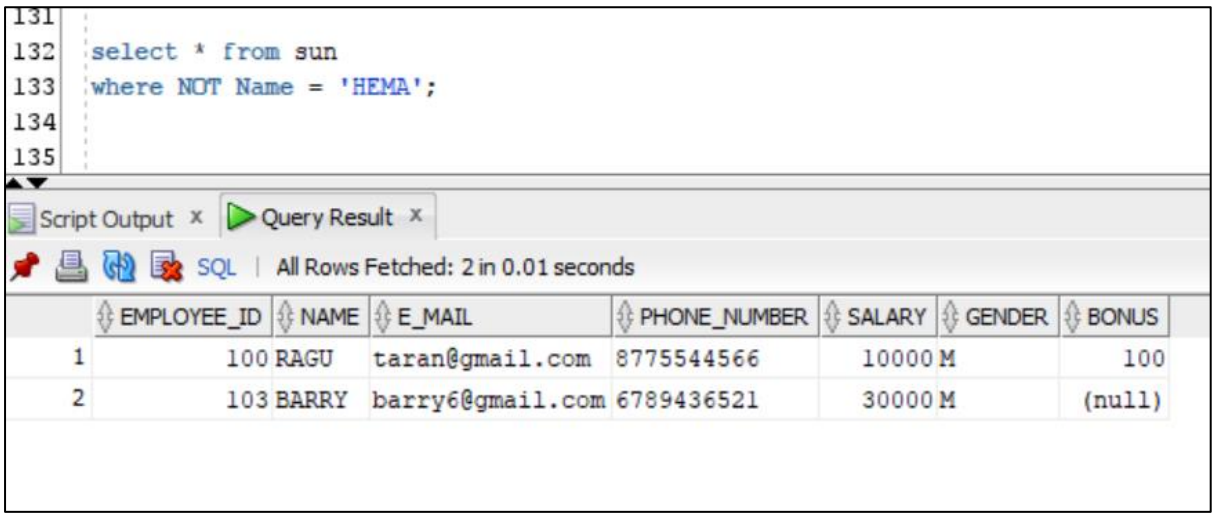


OR :- (anyone condition)



	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	100	RAGU	taran@gmail.com	8775544566	10000	M	100
2	102	HEMA	sidharth5@gmail.com	8956342176	20000	F	(null)

NOT (Not consider):-



	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	100	RAGU	taran@gmail.com	8775544566	10000	M	100
2	103	BARRY	barry6@gmail.com	6789436521	30000	M	(null)

SORTING

ASCENDING :-

```
135  select * from sun
136  order by salary asc;
137
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.003 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	100	RAGU	taran@gmail.com	8775544566	10000	M	100
2	102	HEMA	sidharth5@gmail.com	8956342176	20000	F	(null)
3	103	BARRY	barry6@gmail.com	6789436521	30000	M	(null)

DESCENDING:-

```
135  select * from sun
136  order by salary desc;
137
```

Script Output | Query Result

SQL | All Rows Fetched: 3 in 0.009 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	103	BARRY	barry6@gmail.com	6789436521	30000	M	(null)
2	102	HEMA	sidharth5@gmail.com	8956342176	20000	F	(null)
3	100	RAGU	taran@gmail.com	8775544566	10000	M	100

CONSTRAINTS

PRIMARY KEY, UNIQUE, NOT NULL, CHECK, FOREIGN KEY:-

```
1  CREATE TABLE Sunstudio
2  (
3  Employee_ID INT PRIMARY KEY,
4  Name VARCHAR2(10) NOT NULL,
5  E_mail VARCHAR2(30) UNIQUE,
6  Phone_Number VARCHAR2(15)UNIQUE NOT NULL,
7  Job_ID NUMBER(20) NOT NULL,
8  Salary NUMBER(10, 2) NOT NULL,
9  Gender CHAR(1) CHECK (Gender IN ('M', 'F')),
10 D_ID INT, CONSTRAINT FK_Department FOREIGN KEY (D_ID) REFERENCES Department(D_ID)
11 );
12
13 SELECT * FROM DEPARTMENT;
14
15 select * from sun;
16
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.004 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	SALARY	GENDER	BONUS
1	104	CHARU	charu7@gmail.com	7964375698	40000	F	(null)
2	100	RAGU	taran@gmail.com	8775544566	10000	M	100
3	102	HEMA	sidharth5@gmail.com	8956342176	20000	F	(null)
4	103	BARRY	barry6@gmail.com	6789436521	30000	M	(null)

PARENT TABLE (its used for reference in foreign key):-

```
1  Create  table Department
2  (
3  ROLL_ID number(10) primary key,
4  D_NAME varchar2(20) not null,
5  D_ID number(10) unique not null
6  );
7  commit;
8
9  select * from Department;
10
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.009 seconds

	ROLL_ID	D_NAME	D_ID
1	1	ragu	10
2	2	IT	20
3	3	MARKETING	30
4	4	HR	40

INSERT (insert values through constraints):-

```
SELECT * FROM SUNSTUDIO;

INSERT INTO SUNSTUDIO
VALUES (100, 'RAGU', 'sidharth6@gmail.com', 7698765432, 2001, 30000, 'M', '10');

INSERT INTO SUNSTUDIO
VALUES (102, 'SIVA', 'siva56@gmail.com', 9876543209, 2002, 40000, 'M', '20');
```

Script Output | Query Result

SQL | All Rows Fetched: 2 in 0.003 seconds

	EMPLOYEE_ID	NAME	E_MAIL	PHONE_NUMBER	JOB_ID	SALARY	GENDER	D_ID
1	100	RAGU	sidharth6@gmail.com	7698765432	2001	30000	M	10
2	102	SIVA	siva56@gmail.com	9876543209	2002	40000	M	20

FUNCTION

SINGLE ROW FUNCTION

1. CHARACTER FUNCTION :-

CASE MANIPULATION:- **(UPPER, LOWER, INIT CAP)**

Worksheet | Query Builder

```
SELECT * FROM SUN;
SELECT UPPER ('Ragul') FROM DUAL;
SELECT LOWER ('Ragul') FROM DUAL;
SELECT INITCAP ('Ragul') FROM DUAL;
SELECT NAME, UPPER (NAME), LOWER (NAME), INITCAP (NAME) FROM SUN;
```

Query Result

SQL | All Rows Fetched: 4 in 0.003 seconds

	NAME	UPPER(NAME)	LOWER(NAME)	INITCAP(NAME)
1	CHARU	CHARU	charu	Charu
2	RAGU	RAGU	ragu	Ragu
3	HEMA	HEMA	hema	Hema
4	BARRY	BARRY	barry	Barry

CHARACTER MANIPULATION :-

(**LENGTH**) (consider number of characters)

```
10  SELECT
11  NAME, LENGTH (NAME)
12  FROM SUN;
13
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.011 seconds

	NAME	LENGTH(NAME)
1	CHARU	5
2	RAGU	4
3	HEMA	4
4	BARRY	5

(SUBSTR) (extract a substring from a string)

```
18  SELECT SUBSTR ('BARRY', 1, 7) FROM SUN; (--FROM TABLE)
19  SELECT SUBSTR ('HEMA', 2, 4)FROM DUAL; (--FROM DUAL)
20
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.004 seconds

	SUBSTR('BARRY',1,7)
1	BARRY
2	BARRY
3	BARRY
4	BARRY

(INSTR) (checking particular position)

```
22  /
23
24  SELECT INSTR ('BARRY', 'R', 2, 4) FROM DUAL;
25  SELECT INSTR ('BARRY', 'R', 1, 2, 4) FROM SUN;
26
```

Script Output | Query Result

SQL | Executing:SELECT INSTR ('BARRY', 'R', 1, 2, 4) FROM SUN in 0 seconds

```
ORA-00939: too many arguments for function

https://docs.oracle.com/error-help/db/ora-00939/00939. 00000 - "too many arguments for function"
*Cause:    The function was referenced with too many arguments.
*Action:   Check the function syntax and specify only the
           required number of arguments.
Error at Line: 25 Column: 32
```

```
26  SELECT INSTR ('BARRY', 'R', 2, 4) FROM DUAL;
27  SELECT INSTR ('BARRY', 'R', -1, 1) FROM SUN;
28
```

Script Output | Query Result

SQL | All Rows Fetched: 4 in 0.01 seconds

	INSTR('BARRY','R',-1,1)
1	4
2	4
3	4
4	4