DBMS Lab Assignment 4

Team 4

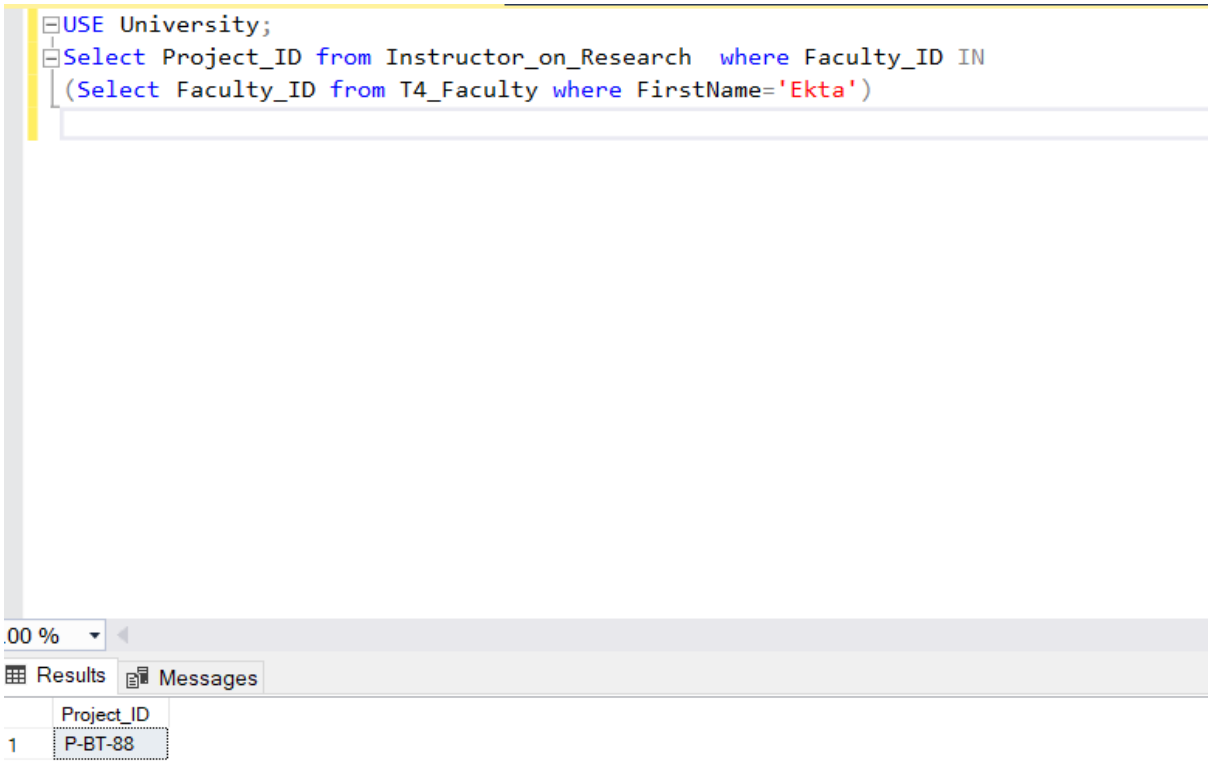
1. **Write 5 Nested Queries for your respective database- the queries should not be very similar like just changing the where clause or just building all the queries on only one or two tables etc. The queries should make sense, it should cover most part of your database tables.**

Query:

Select Project_ID from T4_Instructor_on_Research where Faculty_ID IN

(Select Faculty_ID from T4_Faculty where FirstName='Ekta')

Output:



Query:

Select Faculty_ID from T4_Instructor_on_Research where Project_ID IN

(Select Project_ID from T4_Research_Projects where Project_Name='FPGAs')

Output:

```
USE University;
Select Faculty_ID from Instructor_on_Research  where Project_ID IN
(Select Project_ID from T4_Research_Projects where Project_Name='FPGAs')
```

100 %

Results | Messages

	Faculty_ID
1	117

Query:

Select COURSE_ID from T4_Course_offered where Faculty_ID IN

(Select Faculty_ID from T4_Faculty where FirstName='Virat')

Output:

```
USE University;
Select COURSE_ID from T4_Course_offered  where Faculty_ID IN
(Select Faculty_ID from T4_Faculty where FirstName='Virat')
```

100 %

Results | Messages

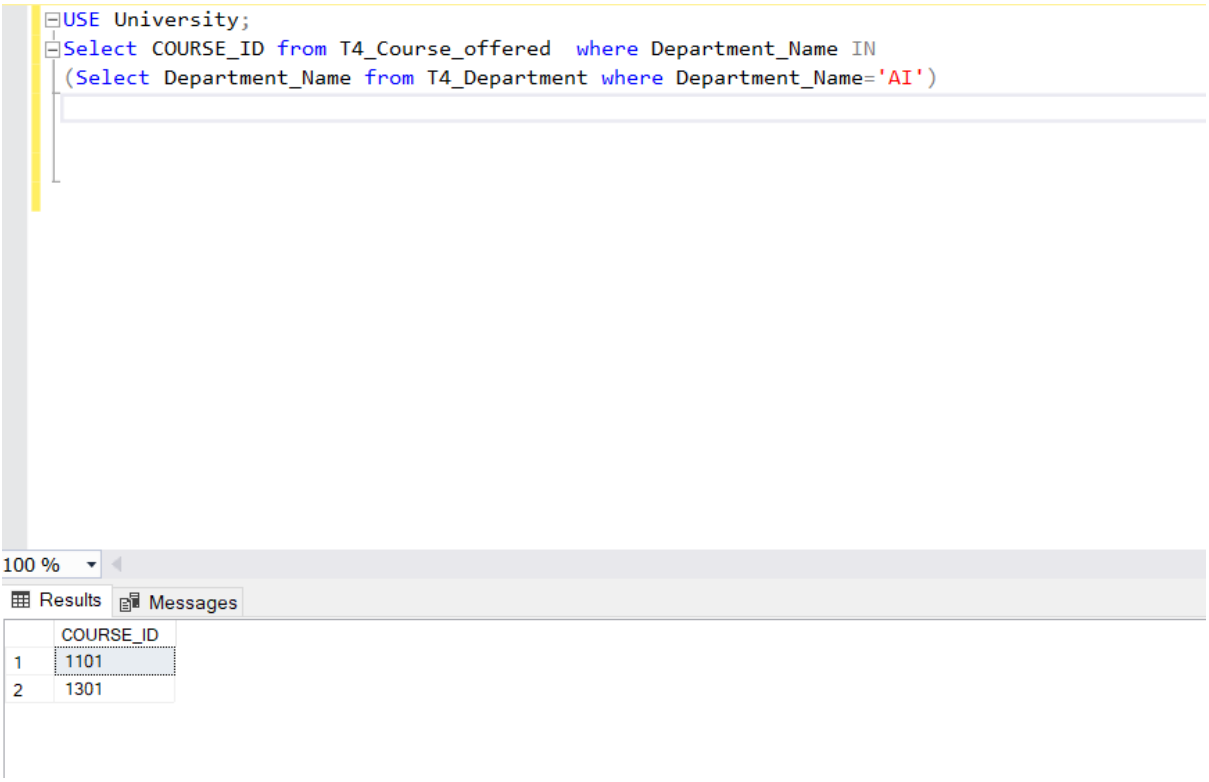
	COURSE_ID
1	1301

Query:

Select COURSE_ID from T4_Course_offered where Department_Name IN

(Select Department_Name from T4_Department where Department_Name='AI')

Output:

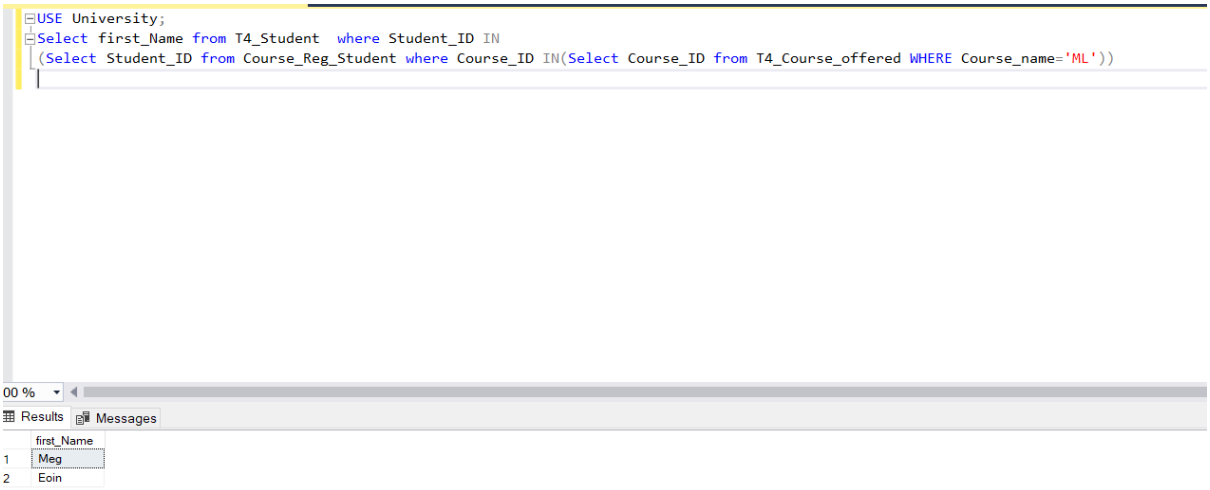


Query:

Select first_Name from T4_Student where Student_ID IN

(Select Student_ID from Course_Reg_Student where Course_ID IN(Select Course_ID from T4_Course_offered WHERE Course_name='ML'))

Output:

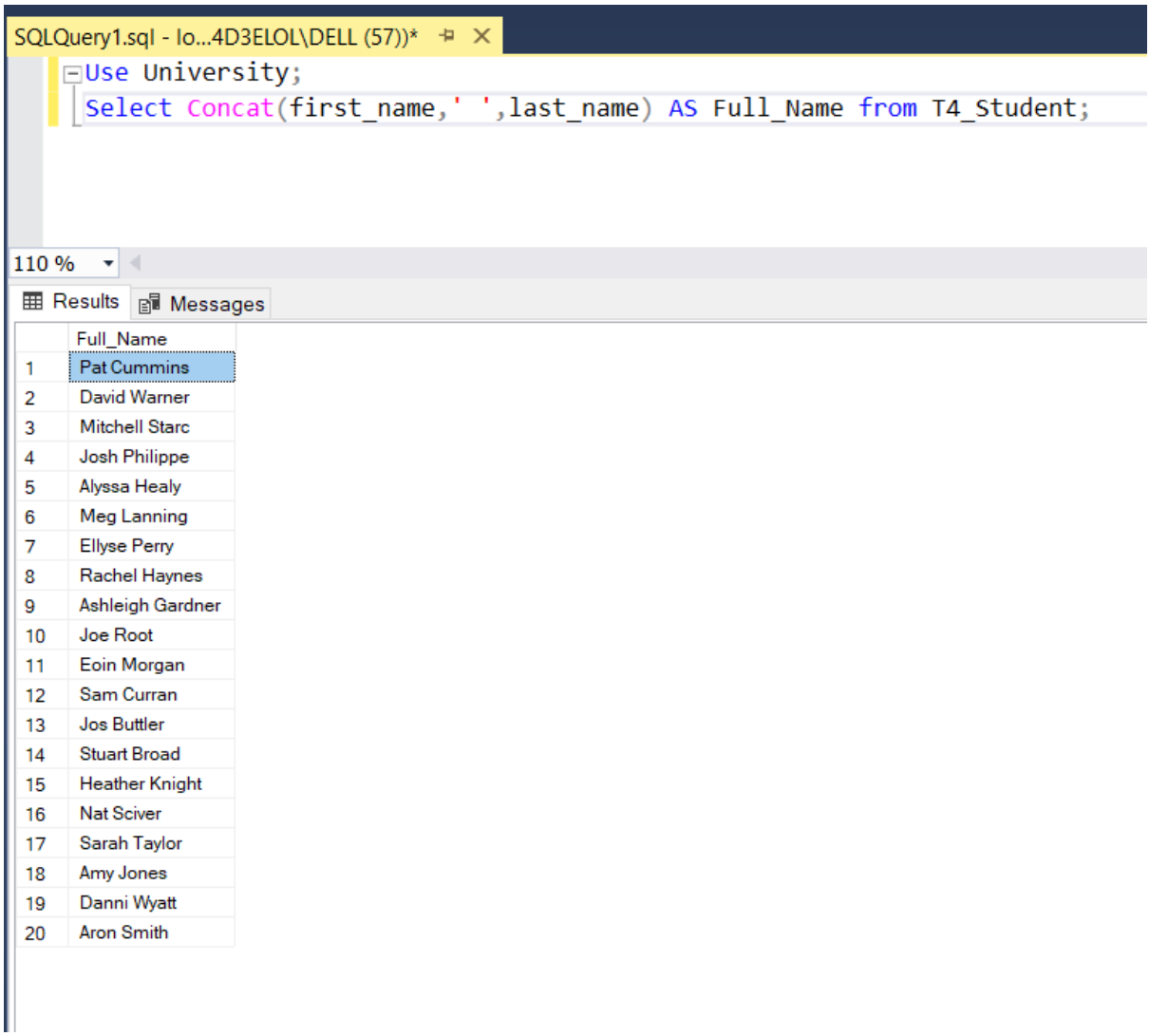


2. Illustrate how we can use Concat and As operators in SQL

Query:

Select Concat(first_Name , ‘ ‘, last_Name) AS Full_Name from T4_Student;

Output:

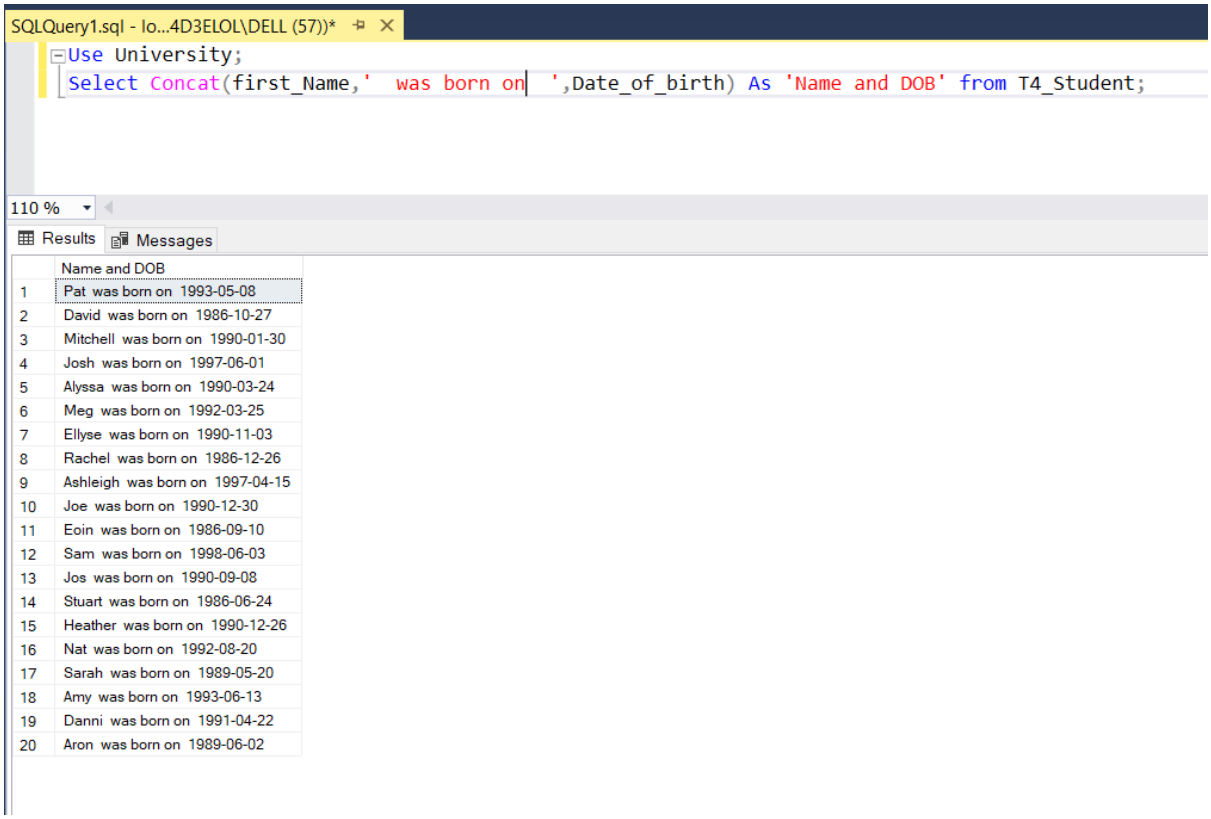


	Full_Name
1	Pat Cummins
2	David Warner
3	Mitchell Starc
4	Josh Philippe
5	Alyssa Healy
6	Meg Lanning
7	Ellyse Perry
8	Rachel Haynes
9	Ashleigh Gardner
10	Joe Root
11	Eoin Morgan
12	Sam Curran
13	Jos Buttler
14	Stuart Broad
15	Heather Knight
16	Nat Sciver
17	Sarah Taylor
18	Amy Jones
19	Danni Wyatt
20	Aron Smith

Query:

Select Concat(first_Name , ‘ was born on ‘, Date_of_birth) AS ‘Name and DOB’ from T4_Student;

Output:

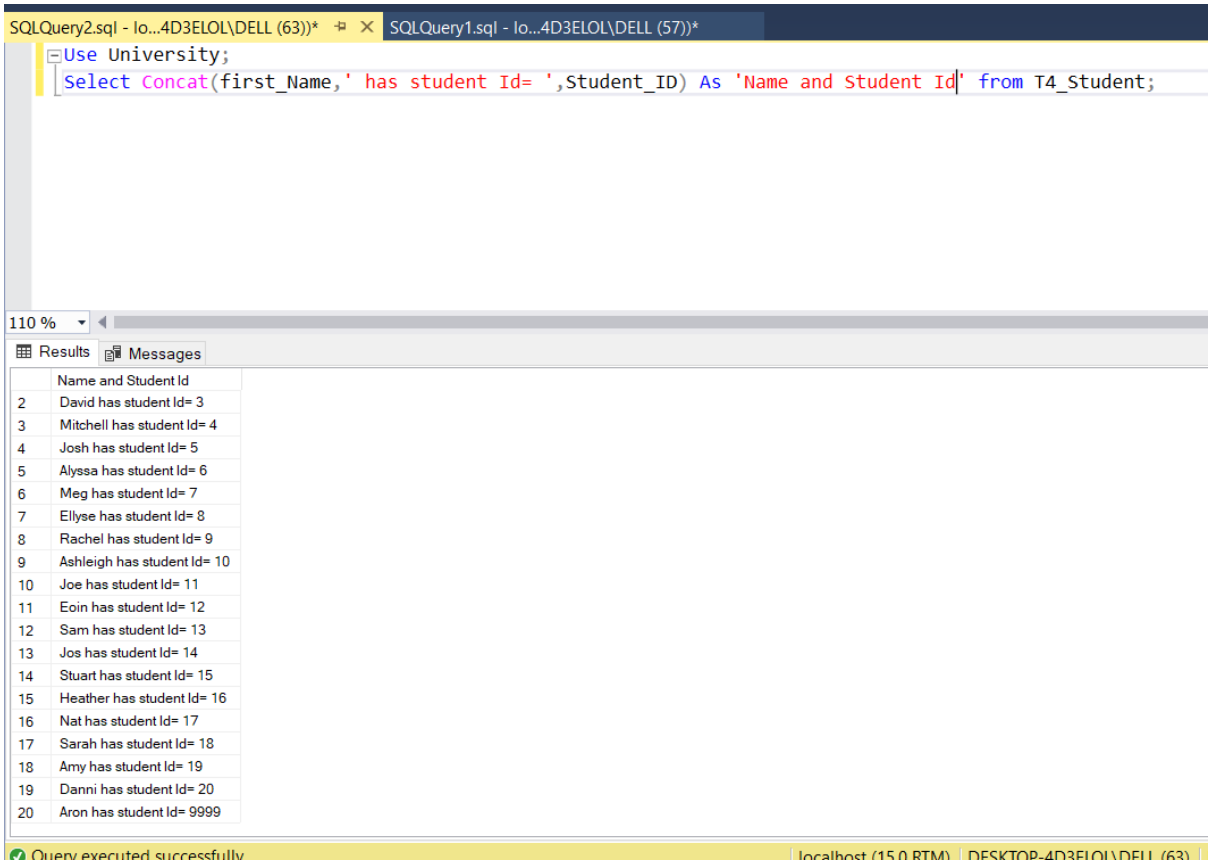


	Name and DOB
1	Pat was born on 1993-05-08
2	David was born on 1986-10-27
3	Mitchell was born on 1990-01-30
4	Josh was born on 1997-06-01
5	Alyssa was born on 1990-03-24
6	Meg was born on 1992-03-25
7	Ellyse was born on 1990-11-03
8	Rachel was born on 1986-12-26
9	Ashleigh was born on 1997-04-15
10	Joe was born on 1990-12-30
11	Eoin was born on 1986-09-10
12	Sam was born on 1998-06-03
13	Jos was born on 1990-09-08
14	Stuart was born on 1986-06-24
15	Heather was born on 1990-12-26
16	Nat was born on 1992-08-20
17	Sarah was born on 1989-05-20
18	Amy was born on 1993-06-13
19	Danni was born on 1991-04-22
20	Aron was born on 1989-06-02

Query:

Select Concat(first_Name,' has student Id= ',Student_ID) As 'Name and Student Id' from T4_Student;

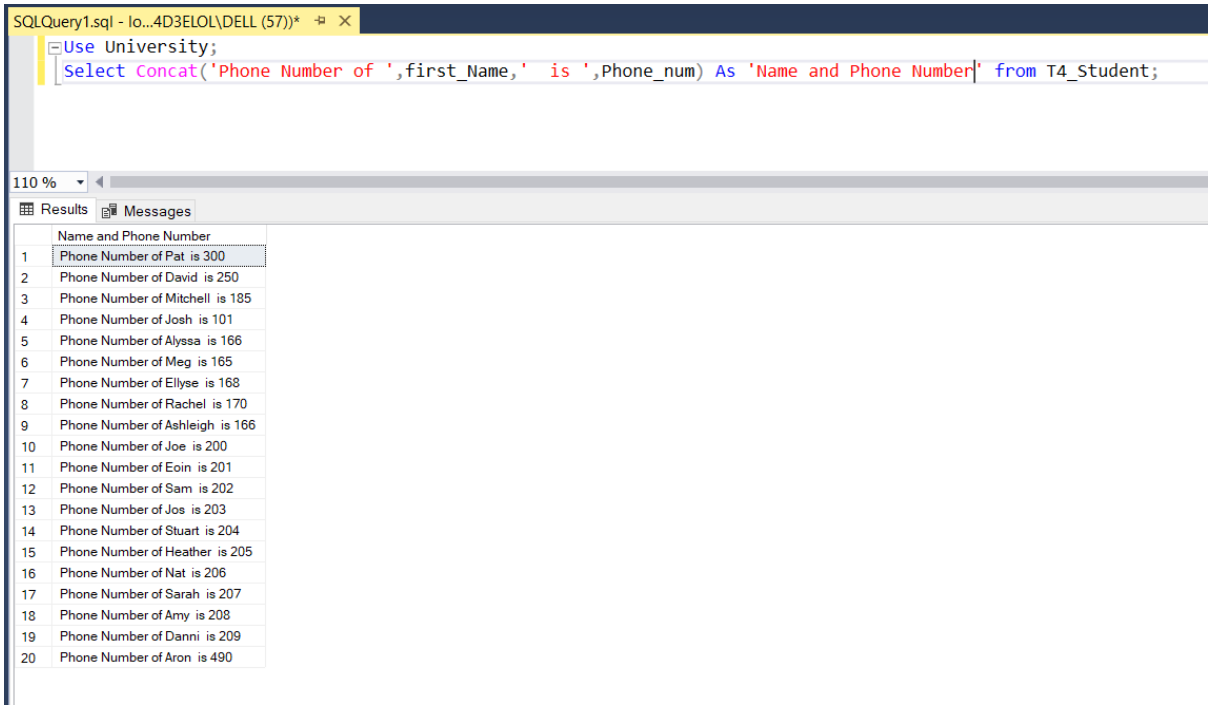
Output:



Query:

Select Concat('Phone Number of ',first_Name,' is ',Phone_num) As 'Name and Phone Number' from T4_Student;

Output:



	Name and Phone Number
1	Phone Number of Pat is 300
2	Phone Number of David is 250
3	Phone Number of Mitchell is 185
4	Phone Number of Josh is 101
5	Phone Number of Alyssa is 166
6	Phone Number of Meg is 165
7	Phone Number of Ellyse is 168
8	Phone Number of Rachel is 170
9	Phone Number of Ashleigh is 166
10	Phone Number of Joe is 200
11	Phone Number of Eoin is 201
12	Phone Number of Sam is 202
13	Phone Number of Jos is 203
14	Phone Number of Stuart is 204
15	Phone Number of Heather is 205
16	Phone Number of Nat is 206
17	Phone Number of Sarah is 207
18	Phone Number of Amy is 208
19	Phone Number of Danni is 209
20	Phone Number of Aron is 490

3. Illustrate all the Comparison operator (2 queries for each operator)

Query:

Equal to = operator

1.

```
SELECT
   Faculty_ID, FirstName, LastName
FROM
   T4_Faculty
WHERE
   LastName = 'Raj';
```

```
/* Equal to = operator*/
SELECT
    Faculty_ID, FirstName, LastName
FROM
    T4_Faculty
WHERE
    LastName = 'Raj';
```

100 %

Results | Messages

	Faculty_ID	FirstName	LastName
1	103	Mithali	Raj

2.

```
SELECT *
FROM T4_Course_offered
WHERE Course_name = 'ML'
```

100 %

Results | Messages

	Course_ID	Department_Name	Faculty_ID	Duration	Course_name
1	1301	AI	100	12	ML

Not equal to <> operator

1.

```
SELECT    Faculty_ID, FirstName, LastName
```

FROM T4_Faculty

WHERE Faculty_ID <> 105

ORDER BY FirstName;

```
SELECT
    Faculty_ID, FirstName, LastName
FROM
    T4_Faculty
WHERE Faculty_ID <> 105
ORDER BY FirstName;
```

100 %

Results | Messages

	Faculty_ID	FirstName	LastName
1	104	Ajinkya	Rahane
2	119	Bhuvi	Kumar
3	112	Che	Pujara
4	108	Ekta	Bisht
5	109	Hardik	Pandya
6	106	Harleen	Deol
7	120	Harman	Kaur
8	107	Jasprit	Bumrah
9	113	Kuldeep	Yadav
10	102	Mahendra Singh	Dhoni
11	115	Md	Siraj
12	103	Mithali	Raj
13	110	Ravi	Ashwin
14	111	Ravindra	Jadeja
15	117	Rishabh	Pant
16	101	Rohit	Sharma
17	118	Shikhar	Dhawan
18	114	Smriti	Mandha...
19	100	Virat	Kohli

2.

SELECT *

FROM T4_Student

WHERE Gender <> 'M';

```
SELECT *
FROM T4_Student
WHERE Gender <> 'M';
```

100 %

Results | Messages

	Student_ID	first_Name	last_Name	Phone_num	Date_of_birth	Gender
1	6	Alyssa	Healy	166	1990-03-24	F
2	7	Meg	Lanning	165	1992-03-25	F
3	8	Ellyse	Perry	168	1990-11-03	F
4	9	Rachel	Haynes	170	1986-12-26	F
5	10	Ashleigh	Gardner	166	1997-04-15	F
6	16	Heather	Knight	205	1990-12-26	F
7	17	Nat	Sciver	206	1992-08-20	F
8	18	Sarah	Taylor	207	1989-05-20	F
9	19	Amy	Jones	208	1993-06-13	F
10	20	Danni	Wyatt	209	1991-04-22	F

Greater than >

1.

```
SELECT
   first_Name, last_Name, Date_of_birth
FROM
   T4_Student
WHERE
   Date_of_birth > '1990-01-01';
```

```
SELECT
    first_Name, last_Name, Date_of_birth
FROM
    T4_Student
WHERE
    Date_of_birth > '1990-01-01';
```

100 %

Results | Messages

	first_Name	last_Name	Date_of_birth
1	Pat	Cummins	1993-05-08
2	Mitchell	Starc	1990-01-30
3	Josh	Philippe	1997-06-01
4	Alyssa	Healy	1990-03-24
5	Meg	Lanning	1992-03-25
6	Ellyse	Perry	1990-11-03
7	Ashleigh	Gardner	1997-04-15
8	Joe	Root	1990-12-30
9	Sam	Curran	1998-06-03
10	Jos	Buttler	1990-09-08
11	Heather	Knight	1990-12-26
12	Nat	Sciver	1992-08-20
13	Amy	Jones	1993-06-13
14	Danni	Wyatt	1991-04-22

2.

```
SELECT
   Course_ID, Department_Name, Course_Name
FROM
   T4_Course_offered
WHERE
   Duration > 8;
```

```
SELECT
    Course_ID, Department_Name, Course_Name
FROM
    T4_Course_offered
WHERE
    Duration > 8;
```

100 %

Results | Messages

	Course_ID	Department_Name	Course_Name
1	1101	AI	Programming
2	1301	AI	ML
3	3204	ECE	Computer Organization
4	4305	BT	Genetics
5	6202	CVE	Structural Analysis
6	8301	MATH	Scientific Computing
7	11202	AERO	Aerodynamics

Less than <

1.

```
SELECT *
FROM
   T4_Course_offered
WHERE
   Duration < 6;
```

```
SELECT *
FROM
    T4_Course_offered
WHERE
    Duration < 6;
```

100 %

Results | Messages

	Course_ID	Department_Name	Faculty_ID	Duration	Course_name
1	5103	ME	111	4	Solid Mechanics

2.

```
SELECT *
FROM
   Instructor_on_Research
WHERE
   Date_from < '2017-12-31';
```

```
SELECT *
FROM
    Instructor_on_Research
WHERE
    Date_from < '2017-12-31';
```

100 %

Results | Messages

	Project_ID	Faculty_ID	Date_from	Date_to
1	P-BT-88	108	2017-11-01	2021-02-17
2	P-M-50	112	2017-10-01	2021-02-14

Greater than or equal operator (>=):

1.

```
SELECT *
FROM
  T4_Faculty
WHERE
  Faculty_ID >= 116;
```

	Faculty_ID	Department_Name	HOD	FirstName	LastName	Phone
1	116	CVE	0	Yuz	Chahal	11117
2	117	ECE	0	Rishabh	Pant	11116
3	118	HSE	1	Shikhar	Dhawan	11114
4	119	AI	0	Bhuvi	Kumar	11113
5	120	Chem	1	Harman	Kaur	66666

2.

```
SELECT *
FROM
  T4_Student
WHERE
  Student_ID >= 8;
```

```
SELECT *
FROM
    T4_Student
WHERE
    Student_ID >= 8;
```

100 %

Results | Messages

	Student_ID	first_Name	last_Name	Phone_num	Date_of_birth	Gender
1	8	Ellyse	Perry	168	1990-11-03	F
2	9	Rachel	Haynes	170	1986-12-26	F
3	10	Ashleigh	Gardner	166	1997-04-15	F
4	11	Joe	Root	200	1990-12-30	M
5	12	Eoin	Morgan	201	1986-09-10	M
6	13	Sam	Curran	202	1998-06-03	M
7	14	Jos	Buttler	203	1990-09-08	M
8	15	Stuart	Broad	204	1986-06-24	M
9	16	Heather	Knight	205	1990-12-26	F
10	17	Nat	Sciver	206	1992-08-20	F
11	18	Sarah	Taylor	207	1989-05-20	F
12	19	Amy	Jones	208	1993-06-13	F
13	20	Danni	Wyatt	209	1991-04-22	F

Less than or equal to <= operator:

1.

```
SELECT *
FROM
  T4_Course_offered
WHERE
  Course_ID <= 3204;
```

```
SELECT *
FROM
    T4_Course_offered
WHERE
    Course_ID <= 3204;
```

100 %

Results | Messages

	Course_ID	Department_Name	Faculty_ID	Duration	Course_name
1	1101	AI	104	12	Programming
2	1301	AI	100	12	ML
3	2201	CSE	102	8	DSA
4	3101	ECE	105	6	Digital Logic
5	3204	ECE	106	12	Computer Organization

2.

```
SELECT *
FROM
   T4_Course_offered
WHERE
   Duration <= 8;
```

```
SELECT *
FROM
    T4_Course_offered
WHERE
    Duration <= 8;
```

100 %

Results | Messages

	Course_ID	Department_Name	Faculty_ID	Duration	Course_name
1	1101	AI	104	12	Programming
2	1301	AI	100	12	ML
3	2201	CSE	102	8	DSA
4	3101	ECE	105	6	Digital Logic
5	3204	ECE	106	12	Computer Organization

4. Illustrate Logical operators except ANY, ALL and Like (2 queries for each operator)

EXISTS

```
SELECT
   Faculty_ID, FirstName, LastName
FROM
   T4_Faculty
WHERE
   EXISTS( SELECT
        1
```

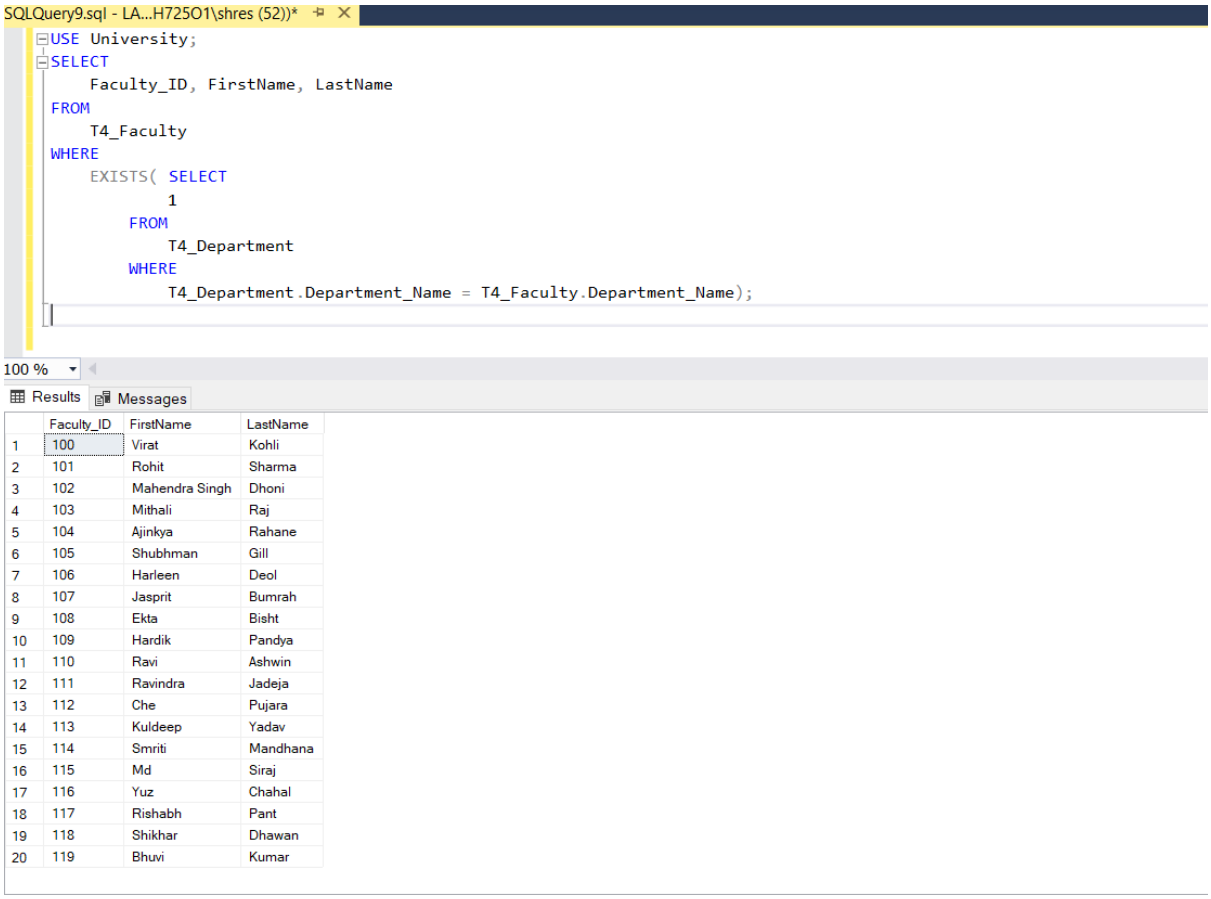
FROM

T4_Department

WHERE

T4_Department.Department_Name = T4_Faculty.Department_Name);

OUTPUT:



```
USE University;
SELECT
    Faculty_ID, FirstName, LastName
FROM
    T4_Faculty
WHERE
    EXISTS( SELECT
            1
        FROM
            T4_Department
        WHERE
            T4_Department.Department_Name = T4_Faculty.Department_Name);
```

100 %

Results | Messages

	Faculty_ID	FirstName	LastName
1	100	Virat	Kohli
2	101	Rohit	Sharma
3	102	Mahendra Singh	Dhoni
4	103	Mithali	Raj
5	104	Ajinkya	Rahane
6	105	Shubhman	Gill
7	106	Harleen	Deol
8	107	Jasprit	Bumrah
9	108	Ekta	Bisht
10	109	Hardik	Pandya
11	110	Ravi	Ashwin
12	111	Ravindra	Jadeja
13	112	Che	Pujara
14	113	Kuldeep	Yadav
15	114	Smriti	Mandhana
16	115	Md	Siraj
17	116	Yuz	Chahal
18	117	Rishabh	Pant
19	118	Shikhar	Dhawan
20	119	Bhuvi	Kumar

BETWEEN

SELECT

Faculty_ID, Course_ID, Course_name, Duration

FROM

T4_Course_offered

WHERE

Duration BETWEEN 2 AND 4;

```
SELECT
    Faculty_ID, Course_ID, Course_name, Duration
FROM
    T4_Course_offered
WHERE
    Duration BETWEEN 2 AND 4;
```

100 %

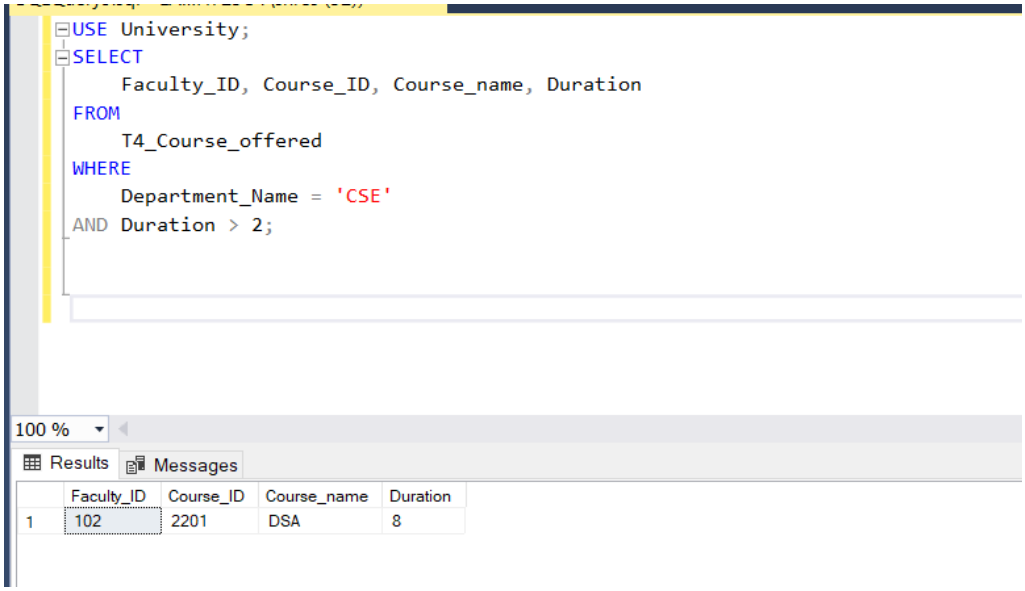
Results | Messages

	Faculty_ID	Course_ID	Course_name	Duration
1	111	5103	Solid Mechanics	4

AND

```
SELECT
        Faculty_ID, Course_ID, Course_name, Duration
FROM
        T4_Course_offered
WHERE
        Department_Name = 'CSE'
AND Duration > 2;
```

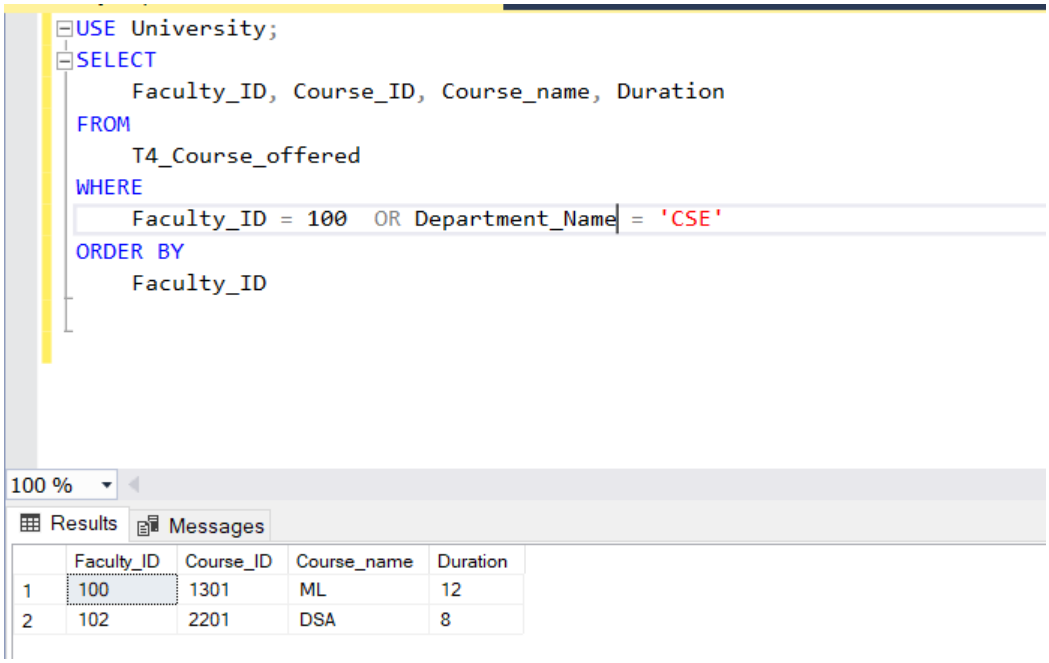
OUTPUT:



OR

```
SELECT
        Faculty_ID, Course_ID, Course_name, Duration
FROM
        T4_Course_offered
WHERE
        Faculty_ID = 100  OR Department_Name = 'CSE'
ORDER BY
        Faculty_ID
```

OUTPUT:



NOT

SELECT

Faculty_ID, Course_ID, Course_name, Duration

FROM

T4_Course_offered

WHERE

Faculty_ID=100

AND NOT Department = ‘CSE’

ORDER BY

Faculty_ID;

OUTPUT:

```
SELECT
    Faculty_ID, Course_ID, Course_name, Duration
FROM
    T4_Course_offered
WHERE
    Faculty_ID=100
AND NOT Department_Name = 'CSE'
ORDER BY
    Faculty_ID;
```

.00 %

Results | Messages

	Faculty_ID	Course_ID	Course_name	Duration
1	100	1301	ML	12

IN :

Query:

Select Project_ID from T4_Instructor_on_Research where Faculty_ID IN

(Select Faculty_ID from T4_Faculty where FirstName='Ekta')

Output:

```
USE University;
Select Project_ID from Instructor_on_Research  where Faculty_ID IN
(Select Faculty_ID from T4_Faculty where FirstName='Ekta')
```

00 %

Results | Messages

	Project_ID
1	P-BT-88