DBMS ASSIGNMENT-5

Submitted by:
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19BCS124

1) Illustrate logical ANY, ALL and LIKE operator- the queries should be relevant to your respective databases 3 queries for each operator. One query explaining the difference between ANY and ALL.

ANY Operator:

Query-1:

```
SELECT*FROM T5_Studentinfo WHERE Age>ANY(SELECT Age FROM T5_Studentinfo WHERE Age>20);
```

Result:

	Student_ID	First_Name	Last_Name	DOB	Age	Email_ID	Phone_No.	Study_Year
1	108	Sai	Priya	2000-01-02	21	@nitr.ac.in	9993336660	2018
2	110	Pragnya	Nayini	2000-03-20	21	@ou.ac.in	5678901234	2018
3	116	Lalith	Gupta	2000-12-12	21	@iiitdwd.ac.in	4444777700	2018

Query-2:

```
SELECT*FROM T5_Grades WHERE Marks>ANY(SELECT Marks FROM T5_Grades WHERE Marks>64);
```

Result:

```
SELECT*FROM T5_Grades;

SELECT*FROM T5_Grades WHERE Marks>ANY(SELECT Marks FROM T5_Grades WHERE Marks>64);
```

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Results | Messages

	Course_ID	Student_ID	Marks	Grade
1	CS202	110	74	B
2	CS204	108	85	A-
3	CS210	104	98	A
4	EC201	124	85	A-
5	EC204	113	92	A
6	HS202	105	75	B
7	MA202	115	90	A

Query-3:

```
SELECT*FROM T5_Grades where Grade=ANY(SELECT Grade FROM T5_Grades WHERE
Grade='A');
```

Result:

```
SELECT*FROM T5_Grades where Grade=ANY(SELECT Grade FROM T5_Grades WHERE Grade='A');
```

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Results | Messages

	Course_ID	Student_ID	Marks	Grade
1	CS210	104	98	A
2	EC204	113	92	A
3	MA202	115	90	A

ALL Operator:

Query-1:

```
SELECT ALL Course_Year,Course_Name FROM T5_Courses WHERE Course_Year=3;
```

Result:

```
SELECT*FROM T5_Courses;

SELECT ALL Course_Year,Course_Name FROM T5_Courses WHERE Course_Year=3;
```

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Results | Messages

	Course_Year	Course_Name
1	3	SE
2	3	ML
3	3	DBMS
4	3	OOPS
5	3	OS
6	3	DAA
7	3	DBMS

Query-2:

```
SELECT Student_ID,Course_ID,Grade,Staff_ID FROM T5_CourseandStaff WHERE Grade =
ALL(SELECT Grade FROM T5_CourseandStaff WHERE Grade='B-');
```

Result:

```
SELECT Student_ID,Course_ID,Grade,Staff_ID FROM T5_CourseandStaff WHERE Grade =
ALL(SELECT Grade FROM T5_CourseandStaff WHERE Grade='B-');
```

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Results | Messages

	Student_ID	Course_ID	Grade	Staff_ID
1	106	CS310	B-	3
2	117	EC352	B-	14
3	114	HS205	B-	11

Query-3:

```
SELECT ALL Staff_ID,Staff_Name,Salary FROM T5_Staff WHERE Salary<60000;
```

Result:

```
SELECT ALL Staff_ID,Staff_Name,Salary FROM T5_Staff WHERE Salary<60000;
```

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Results | Messages

	Staff_ID	Staff_Name	Salary
1	2	Suraj	50000
2	10	Kavya	50000

LIKE Operator:

Query-1:

```
SELECT Course_ID,Course_Name FROM T5_Courses WHERE Course_Name LIKE '%S';
```

Result:

```
SELECT Course_ID,Course_Name FROM T5_Courses WHERE Course_Name LIKE '%S';
```

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Results | Messages

	Course_ID	Course_Name
1	HS202	Economics
2	CS210	OOPS
3	CS204	OS
4	CS310	DBMS
5	CS210	OOPS
6	CS204	OS
7	CS310	DBMS
8	CS310	DBMS

Query-2:

```
SELECT Student_ID,First_Name FROM T5_Studentinfo WHERE First_Name LIKE 'S%a';
```

Result:

```
SELECT Student_ID,First_Name FROM T5_Studentinfo WHERE First_Name LIKE 'S%a';
```

00 % Results Messages

	Student_ID	First_Name
1	111	Swetha
2	112	Swama

Query-3:

```
SELECT Staff_ID,Staff_Name,Course_ID FROM T5_Staff WHERE Course_ID LIKE '_C%';
```

Result:

```
SELECT Staff_ID,Staff_Name,Course_ID FROM T5_Staff WHERE Course_ID LIKE '_C%';
```

00 % Results Messages

	Staff_ID	Staff_Name	Course_ID
1	15	Carl	EC201
2	9	Max	EC204
3	13	Prathyush	EC307
4	14	Dev	EC352

<u>Difference between ANY and ALL operator:</u>

Query:

ANY:

```
SELECT*FROM T5_Studentinfo WHERE Age>ANY(SELECT Age FROM T5_Studentinfo WHERE DOB
LIKE '200[12]%');
```

Result:

```
SELECT*FROM T5_Studentinfo WHERE Age>ANY(SELECT Age FROM T5_Studentinfo WHERE DOB LIKE '200[12]%');
```

Results | Messages

	Student_ID	First_Name	Last_Name	DOB	Age	Email_ID	Phone_No.	Study_Year
1	108	Sai	Priya	2000-01-02	21	@nitr.ac.in	9993336660	2018
2	109	Ananya	Bhaskar	2001-01-20	20	@nitk.ac.in	8888666680	2019
3	110	Pragnya	Nayini	2000-03-20	21	@ou.ac.in	5678901234	2018
4	112	Swarna	Reddy	2001-06-24	20	@anits.ac.in	7865402139	2019
5	115	Abhishek	Yadav	2001-04-05	20	@anits.ac.in	3456789021	2019
6	116	Lalith	Gupta	2000-12-12	21	@iiitdwd.ac.in	4444777700	2018
7	117	Sanjay	Shetty	2001-05-20	20	@risali.ac.in	3333777788	2020

ALL:

```
SELECT*FROM T5_Studentinfo WHERE Age > ALL(Select Age FROM T5_Studentinfo WHERE DOB LIKE '200[12]%');
```

Result:

```
SELECT*FROM T5_Studentinfo WHERE Age > ALL(Select Age FROM T5_Studentinfo WHERE DOB LIKE '200[12]%');
```

Results | Messages

	Student_ID	First_Name	Last_Name	DOB	Age	Email_ID	Phone_No.	Study_Year
1	108	Sai	Priya	2000-01-02	21	@nitr.ac.in	9993336660	2018
2	110	Pragnya	Nayini	2000-03-20	21	@ou.ac.in	5678901234	2018
3	116	Lalith	Gupta	2000-12-12	21	@iiitdwd.ac.in	4444777700	2018

2) One query for each Aggregate function.

There are 5 aggregate functions. They are :

i. MIN
ii. MAX
iii. AVG
iv. SUM
v. COUNT

MIN:

Query:

```
SELECT*FROM T5_Courses WHERE Course_Year=(SELECT MIN(Course_Year) FROM T5_Courses);
```

Result:

```
SELECT*FROM T5_Courses WHERE Course_Year=(SELECT MIN(Course_Year) FROM T5_Courses);
```

00 %

Results | Messages

	Course_ID	Course_Name	Course_Year	Student_ID
1	HS202	Economics	2	104
2	CS210	OOPS	2	105
3	CS204	OS	2	107
4	CS206	ToC	2	108
5	CS202	DAA	2	109

MAX:

Query:

```
SELECT*FROM T5_Courses WHERE Course_Year=(SELECT MAX(Course_Year) FROM T5_Courses);
```

Result:

```
SELECT*FROM T5_Courses WHERE Course_Year=(SELECT MAX(Course_Year) FROM T5_Courses);
```

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Results | Messages

	Course_ID	Course_Name	Course_Year	Student_ID
1	CS301	SE	3	106
2	CS307	ML	3	110
3	CS310	DBMS	3	124

SUM:

Here, is the T5_Grades Table:

```
SELECT*FROM T5_Grades;

SELECT SUM(Marks) FROM T5_Grades WHERE Marks>89;
```

100 %

Results | Messages

	Course_ID	Student_ID	Marks	Grade
1	CS202	110	98	A+
2	CS204	108	34	F
3	CS206	109	78	B+
4	CS210	104	64	B
5	CS301	107	53	C
6	CS307	111	49	C-
7	CS310	106	90	A+
8	CS360	112	45	C-
9	EC201	124	69	B
10	EC204	113	36	D
11	EC307	116	83	A
12	EC352	117	56	C
13	HS202	105	80	A
14	HS205	114	77	B+
15	MA202	115	94	A+

Query:

```
SELECT SUM(Marks) FROM T5_Grades WHERE Marks>89;
```

Result:

```
SELECT SUM(Marks) FROM T5_Grades WHERE Marks>89;
```

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Results | Messages

	(No column name)
1	282

AVG:

Query:

```
SELECT AVG(Marks) FROM T5_Grades WHERE Grade LIKE '%C';
```

Result:

```
SELECT AVG(Marks) FROM T5_Grades WHERE Grade LIKE '%C';
```

00 %

Results | Messages

	(No column name)
1	54

COUNT:

Query:

```
SELECT COUNT(Grade) FROM T5_Grades WHERE Grade LIKE 'B%';
```

Result:

```
SELECT COUNT(Grade) FROM T5_Grades WHERE Grade LIKE 'B%';
```

00 %

Results | Messages

	(No column name)
1	4

3) Illustrate the usage of order by, group by and having clause (2 queries for each case)

ORDER BY:

Query-1:

```
SELECT*FROM T5_Parentinfo ORDER BY Address;
```

Result:

```
SELECT*FROM T5_Parentinfo ORDER BY Address;
```

100 %

Results | Messages

	Parent_Name	Parent_Phone_No	Address	Student_ID
1	Raju	990099009	AP	104
2	Surya	4560489321	AP	108
3	Hari	6890890765	AP	116
4	Kaviths	6668889990	AP	124
5	Abhijeet	5634218907	Haryana	109
6	Aklil	6784321905	Haryana	110
7	Avinash	4666788890	Karnataka	112
8	Shanmukh	3456345670	Maharastra	107
9	Gangadhar	9569789567	MVP	115
10	Noel	7897897890	TamilNadu	113
11	Aravind	4560456098	TamilNadu	106
12	Sohel	9765976543	Telangana	105
13	Shekhar	9000966766	Telangana	111
14	Kiran	4564564560	Telangana	114
15	Sujatha	9944556677	Telangana	117

Query-2:

```
SELECT*FROM T5_Studentinfo ORDER BY Age DESC;
```

Result:

```
SELECT*FROM T5_Studentinfo ORDER BY Age DESC;
```

00 %

Results | Messages

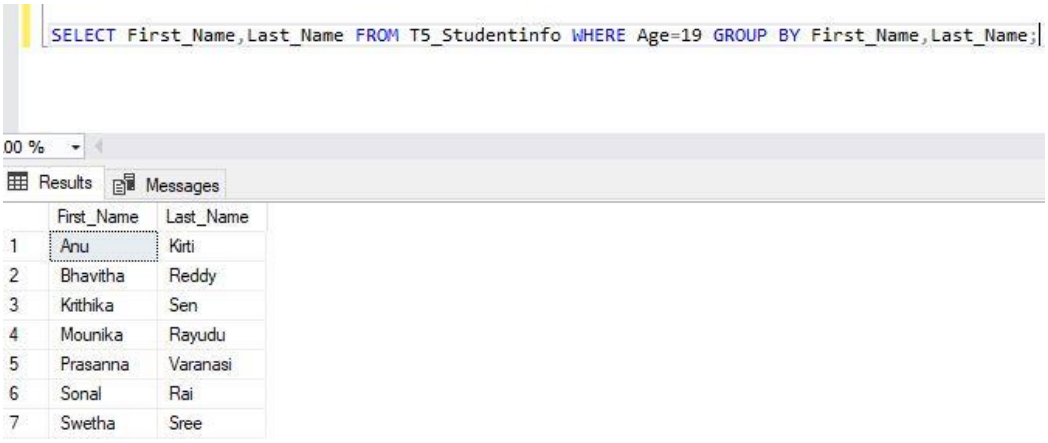
	Student_ID	First_Name	Last_Name	D.O.B	Age	Email_ID	Phone_No.	Study_Ye
1	108	Sai	Priya	2000-01-02	21	@nitr.ac.in	9993336660	2018
2	110	Pragnya	Nayini	2000-03-20	21	@ou.ac.in	5678901234	2018
3	116	Lalith	Gupta	2000-12-12	21	@iiitdwd.ac.in	4444777700	2018
4	117	Sanjay	Shetty	2001-05-20	20	@risali.ac.in	3333777788	2020
5	112	Swarna	Reddy	2001-06-24	20	@anits.ac.in	7865402139	2019
6	115	Abhishek	Yadav	2001-04-05	20	@anits.ac.in	3456789021	2019
7	109	Ananya	Bhaskar	2001-01-20	20	@nitk.ac.in	8888666680	2019
8	111	Swetha	Sree	2002-03-25	19	@au.ac.in	4555666432	2020
9	104	Bhavitha	Reddy	2002-05-30	19	@nitap.ac.in	9999900000	2021
10	105	Prasanna	Varanasi	2002-01-11	19	@nitrr.ac.in	9966331363	2020
11	106	Anu	Kirti	2002-05-14	19	2002@gmail.com	5555533322	2019
12	107	Krithika	Sen	2002-05-25	19	@iiitdwd.ac.in	4444666678	2019
13	114	Sonal	Rai	2002-06-06	19	@iiitdwd.ac.in	9133790522	2020
14	124	Mounika	Rayudu	2002-05-20	19	@iiitdwd.ac.in	9908535176	2020
15	113	Indu	Priya	2003-09-05	18	@jntuk.ac.in	9099883344	2021

GROUP BY:

Query-1:

```
SELECT First_Name,Last_Name FROM T5_Studentinfo WHERE Age=19 GROUP BY
First_Name,Last_Name;
```

Result:



```
SELECT First_Name,Last_Name FROM T5_Studentinfo WHERE Age=19 GROUP BY First_Name,Last_Name;
```

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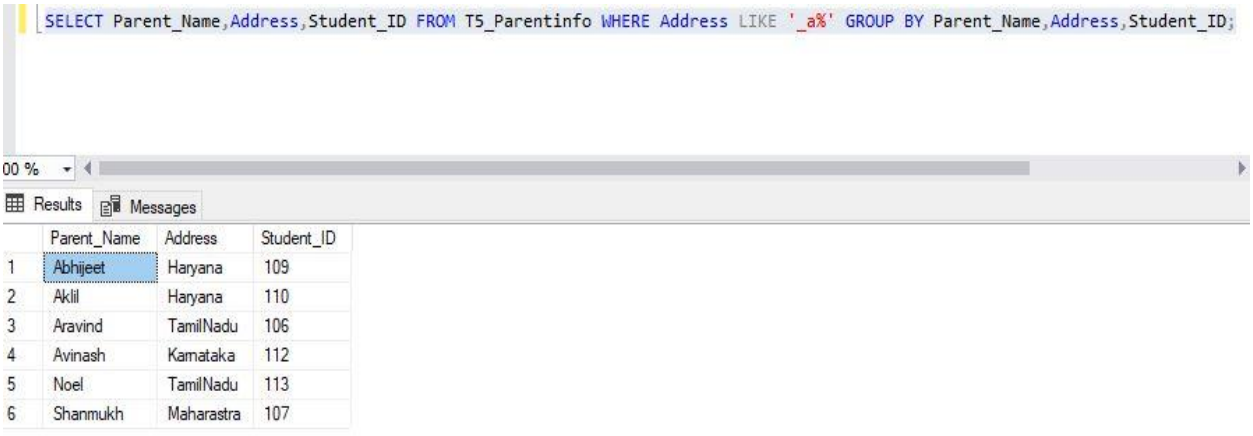
Results | Messages

	First_Name	Last_Name
1	Anu	Kirti
2	Bhavitha	Reddy
3	Krithika	Sen
4	Mounika	Rayudu
5	Prasanna	Varanasi
6	Sonal	Rai
7	Swetha	Sree

Query-2:

```
SELECT Parent_Name,Address,Student_ID FROM T5_Parentinfo WHERE Address LIKE '_a%'
GROUP BY Parent_Name,Address,Student_ID;
```

Result:



```
SELECT Parent_Name,Address,Student_ID FROM T5_Parentinfo WHERE Address LIKE '_a%' GROUP BY Parent_Name,Address,Student_ID;
```

00 %

Results | Messages

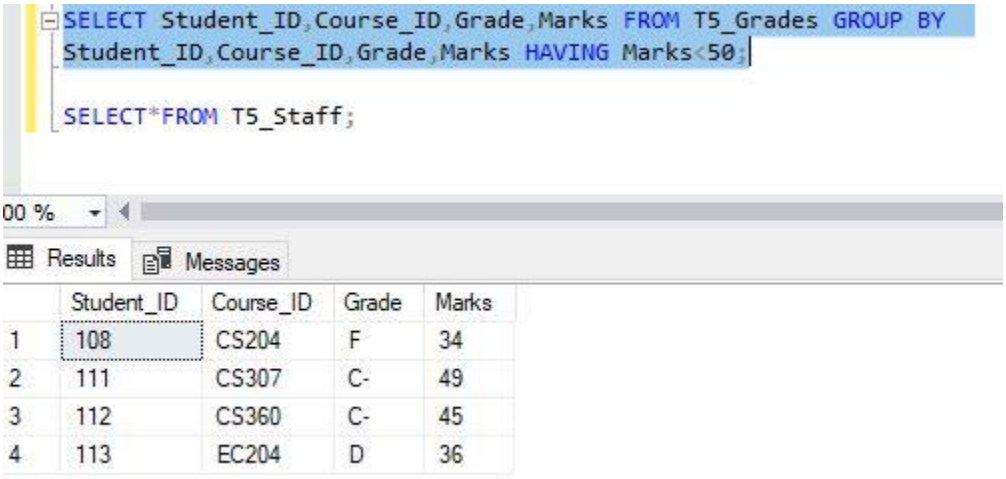
	Parent_Name	Address	Student_ID
1	Abhijeet	Haryana	109
2	Aklil	Haryana	110
3	Aravind	TamilNadu	106
4	Avinash	Kamataka	112
5	Noel	TamilNadu	113
6	Shanmukh	Maharastra	107

HAVING Clause:

Query-1:

```
SELECT Student_ID,Course_ID,Grade,Marks FROM T5_Grades GROUP BY
Student_ID,Course_ID,Grade,Marks HAVING Marks<50;
```

Result:



```
SELECT Student_ID,Course_ID,Grade,Marks FROM T5_Grades GROUP BY
Student_ID,Course_ID,Grade,Marks HAVING Marks<50;

SELECT*FROM T5_Staff;
```

00 %

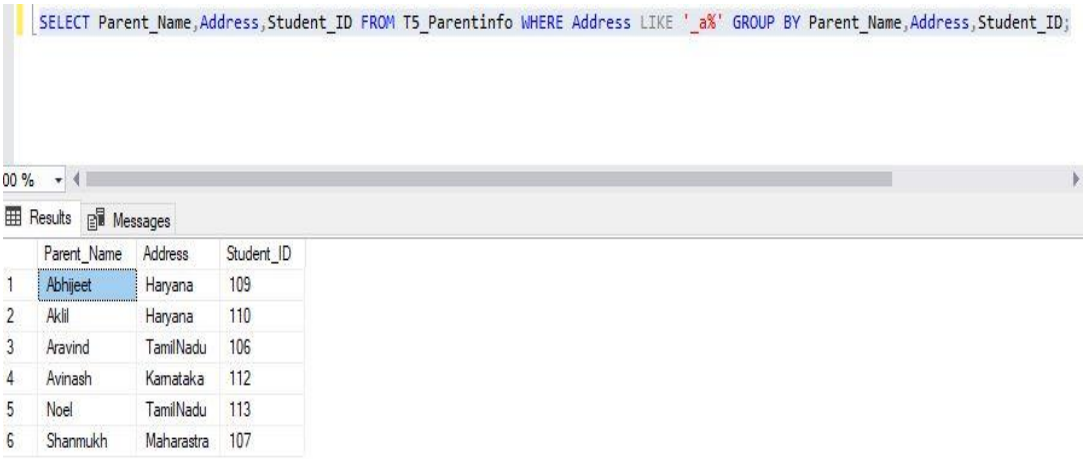
Results | Messages

	Student_ID	Course_ID	Grade	Marks
1	108	CS204	F	34
2	111	CS307	C-	49
3	112	CS360	C-	45
4	113	EC204	D	36

Query-2:

```
SELECT Student_ID,Course_ID,Grade FROM T5_Grades GROUP BY
Student_ID,Course_ID,Grade HAVING Course_ID LIKE '_S%';
```

Result:



```
SELECT Parent_Name,Address,Student_ID FROM T5_Parentinfo WHERE Address LIKE '_a%' GROUP BY Parent_Name,Address,Student_ID;
```

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Results | Messages

	Parent_Name	Address	Student_ID
1	Abhijeet	Haryana	109
2	Akil	Haryana	110
3	Aravind	TamilNadu	106
4	Avinash	Karnataka	112
5	Noel	TamilNadu	113
6	Shanmukh	Maharastra	107

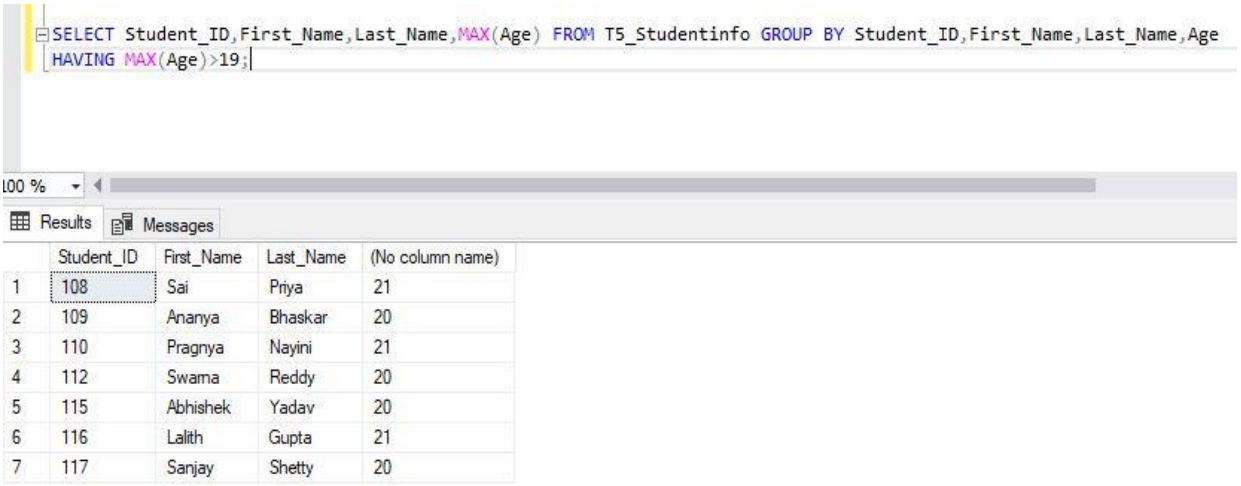
4) Use Aggregate function with Group By and Having clause

MAX:

Query:

```
SELECT Student_ID,First_Name,Last_Name,MAX(Age) FROM T5_Studentinfo GROUP BY
Student_ID,First_Name,Last_Name,Age HAVING MAX(Age)>19;
```

Result:



```
SELECT Student_ID,First_Name,Last_Name,MAX(Age) FROM T5_Studentinfo GROUP BY Student_ID,First_Name,Last_Name,Age
HAVING MAX(Age)>19;
```

100 %

Results | Messages

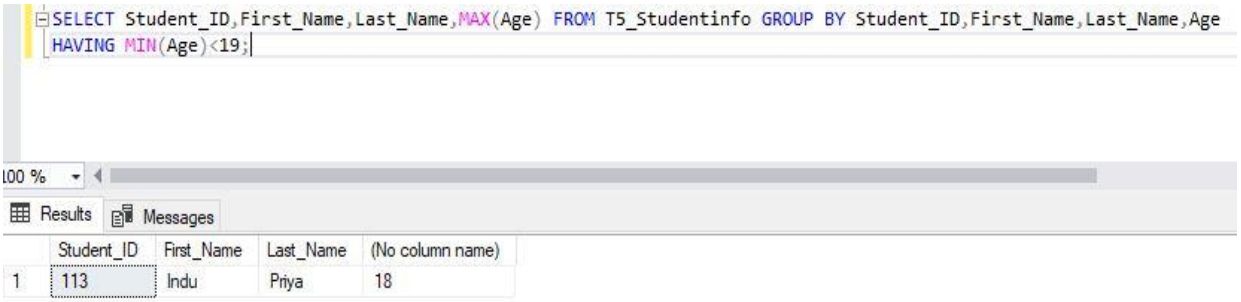
	Student_ID	First_Name	Last_Name	(No column name)
1	108	Sai	Priya	21
2	109	Ananya	Bhaskar	20
3	110	Pragnya	Nayini	21
4	112	Swama	Reddy	20
5	115	Abhishek	Yadav	20
6	116	Lalith	Gupta	21
7	117	Sanjay	Shetty	20

MIN:

Query:

```
SELECT Student_ID,First_Name,Last_Name,MAX(Age) FROM T5_Studentinfo GROUP BY
Student_ID,First_Name,Last_Name,Age HAVING MIN(Age)<19;
```

Result:



```
SELECT Student_ID,First_Name,Last_Name,MAX(Age) FROM T5_Studentinfo GROUP BY Student_ID,First_Name,Last_Name,Age
HAVING MIN(Age)<19;
```

100 %

Results | Messages

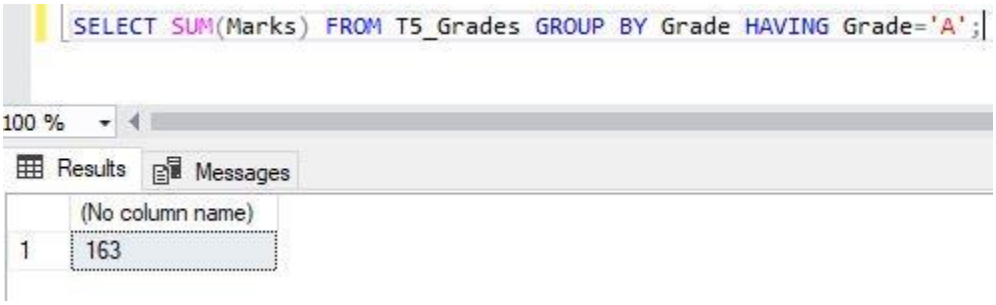
	Student_ID	First_Name	Last_Name	(No column name)
1	113	Indu	Priya	18

SUM:

Query:

```
SELECT SUM(Marks) FROM T5_Grades GROUP BY Grade HAVING Grade='A';
```

Result:

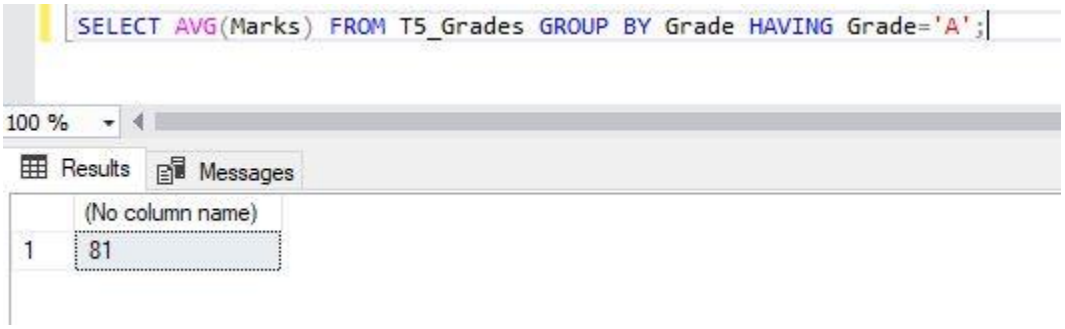


AVG:

Query:

```
SELECT AVG(Marks) FROM T5_Grades GROUP BY Grade HAVING Grade='A';
```

Result:

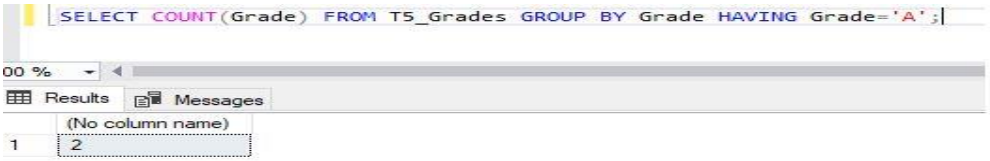


COUNT:

Query:

```
SELECT COUNT(Grade) FROM T5_Grades GROUP BY Grade HAVING Grade='A';
```

Result:

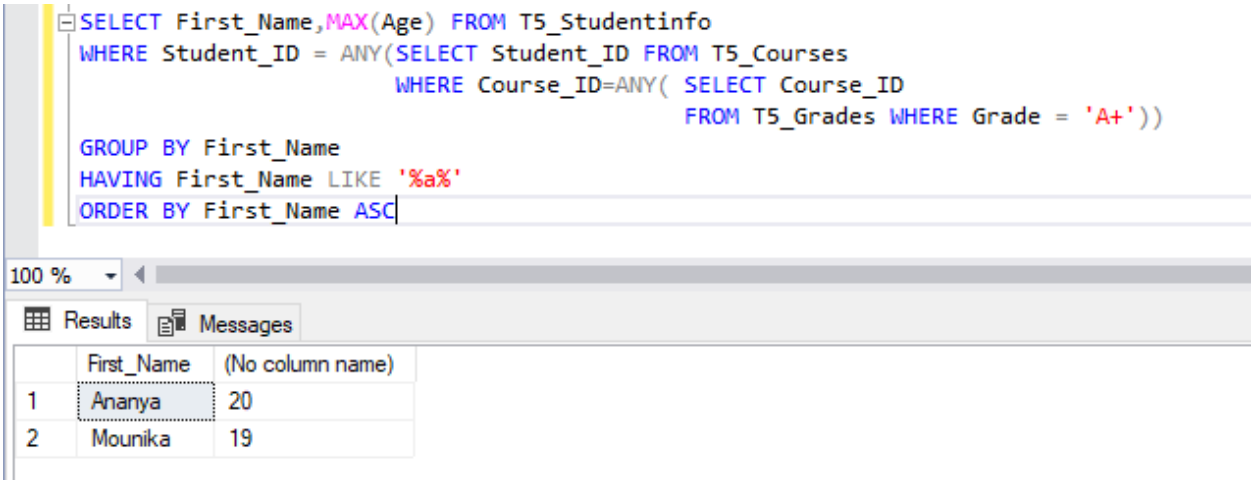


5) Write at least 3 nested queries using order by, group by and having clause.

Query-1:

```
SELECT First_Name,MAX(Age) FROM T5_Studentinfo
WHERE Student_ID = ANY(SELECT Student_ID FROM T5_Courses
                       WHERE Course_ID=ANY( SELECT Course_ID
                                            FROM T5_Grades WHERE Grade = 'A+'))
GROUP BY First_Name
HAVING First_Name LIKE '%a%'
ORDER BY First_Name ASC
```

Result:



Query-2:

```
SELECT First_Name,MIN(Age) FROM T5_Studentinfo
WHERE Student_ID = ANY(SELECT Student_ID FROM T5_Parentinfo
                       WHERE Address='AP')
GROUP BY First_Name
HAVING First_Name LIKE '%a%'
ORDER BY First_Name ASC
```

Result:

```
SELECT First_Name,MIN(Age) FROM T5_Studentinfo
WHERE Student_ID = ANY(SELECT Student_ID FROM T5_Parentinfo
                       WHERE Address='AP')
GROUP BY First_Name
HAVING First_Name LIKE '%a%'
ORDER BY First_Name ASC
```

100 %

Results | Messages

	First_Name	(No column name)
1	Bhavitha	19
2	Lalith	21
3	Mounika	19
4	Sai	21

Query-3:

```
SELECT First_Name,MIN(Age) FROM T5_Studentinfo
WHERE Student_ID = ANY(SELECT Student_ID FROM T5_Grades
                       WHERE Grade='A+')
GROUP BY First_Name
HAVING First_Name LIKE '%a%'
ORDER BY First_Name DESC;
```

Result:

```
SELECT First_Name,MIN(Age) FROM T5_Studentinfo
WHERE Student_ID = ANY(SELECT Student_ID FROM T5_Grades
                       WHERE Grade='A+')
GROUP BY First_Name
HAVING First_Name LIKE '%a%'
ORDER BY First_Name DESC;
```

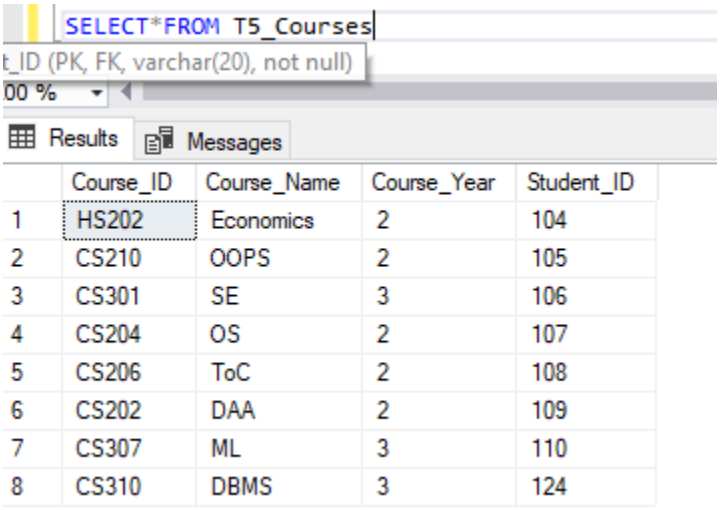
100 %

Results | Messages

	First_Name	(No column name)
1	Pragnya	21
2	Anu	19
3	Abhishek	20

6) Illustrate the Usage of Except, Exists, Not Exists, Union, Intersection

EXCEPT:

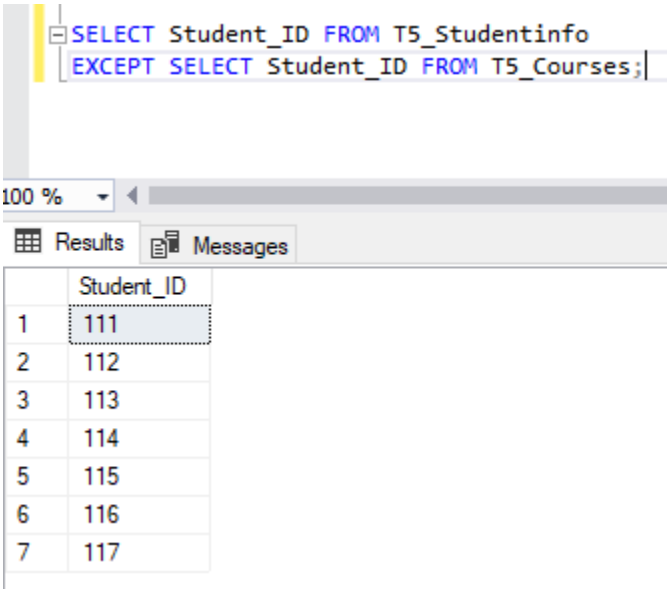


	Course_ID	Course_Name	Course_Year	Student_ID
1	HS202	Economics	2	104
2	CS210	OOPS	2	105
3	CS301	SE	3	106
4	CS204	OS	2	107
5	CS206	ToC	2	108
6	CS202	DAA	2	109
7	CS307	ML	3	110
8	CS310	DBMS	3	124

Query:

```
SELECT Student_ID FROM T5_Studentinfo
EXCEPT SELECT Student_ID FROM T5_Courses;
```

Result:



	Student_ID
1	111
2	112
3	113
4	114
5	115
6	116
7	117

EXISTS:

Query:

```
SELECT S.First_Name
FROM   T5_Studentinfo S
WHERE EXISTS ( SELECT*FROM  T5_Grades G WHERE G.Grade = 'A')
```

Result:

```
SELECT S.First_Name
FROM    T5_Studentinfo S
WHERE EXISTS ( SELECT*FROM  T5_Grades G WHERE G.Grade = 'A')
```

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Results | Messages

	First_Name
1	Bhavitha
2	Prasanna
3	Anu
4	Krithika
5	Sai
6	Ananya
7	Pragnya
8	Swetha
9	Swarna
10	Indu
11	Sonal
12	Abhishek
13	Lalith
14	Sanjay
15	Mounika

NOT EXISTS:

Query:

```
SELECT S.First_Name
FROM   T5_Studentinfo S
WHERE NOT EXISTS ( SELECT*FROM  T5_Grades G WHERE G.Grade = 'A')
```

Result:

```
SELECT S.First_Name
FROM    T5_Studentinfo S
WHERE NOT EXISTS ( SELECT*FROM  T5_Grades G WHERE G.Grade = 'A')
```

00 %

Results | Messages

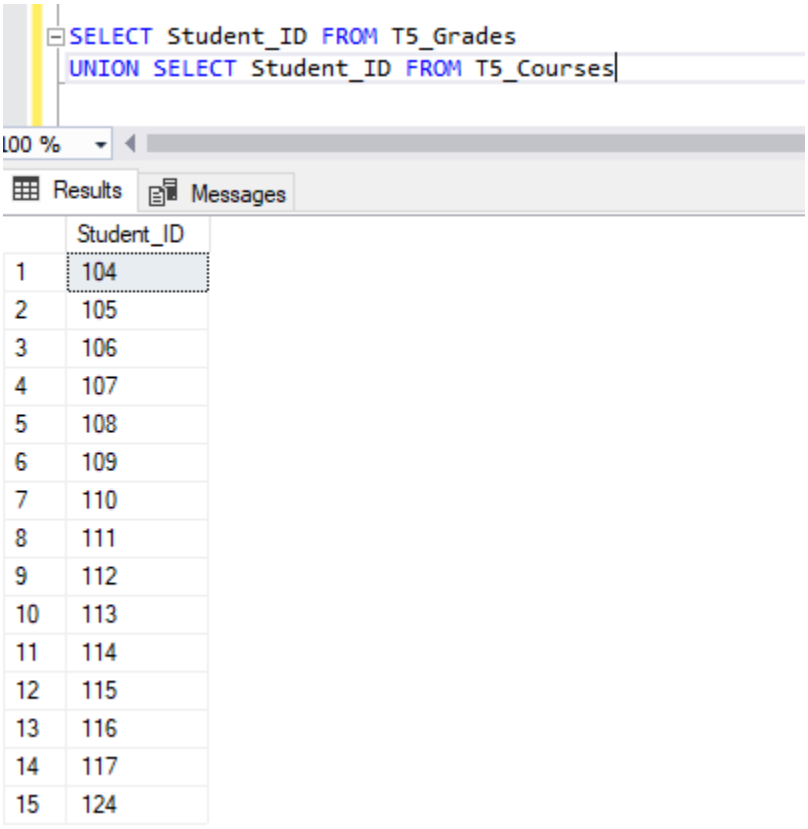
First_Name

UNION:

Query:

```
SELECT Student_ID FROM T5_Grades
UNION SELECT Student_ID FROM T5_Courses
```

Result:



	Student_ID
1	104
2	105
3	106
4	107
5	108
6	109
7	110
8	111
9	112
10	113
11	114
12	115
13	116
14	117
15	124

INTERSECT:

Query:

```
SELECT Student_ID FROM T5_Studentinfo
INTERSECT SELECT Student_ID FROM T5_Courses
```

Result:

```
SELECT Student_ID FROM T5_Studentinfo
INTERSECT SELECT Student_ID FROM T5_Courses
```

00 % Results Messages

	Student_ID
1	104
2	105
3	106
4	107
5	108
6	109
7	110
8	124

7) INNER JOIN, LEFT OUTER JOIN, RIGHT OUTER JOIN- 3 queries for each instance

INNER JOIN:

Query-1:

```
SELECT T5_Studentinfo.Student_ID, T5_Grades.Course_ID
FROM T5_Studentinfo
INNER JOIN T5_Grades  ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID;
```

Result:

```
SELECT T5_Studentinfo.Student_ID, T5_Grades.Course_ID
FROM T5_Studentinfo
INNER JOIN T5_Grades  ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID;
```

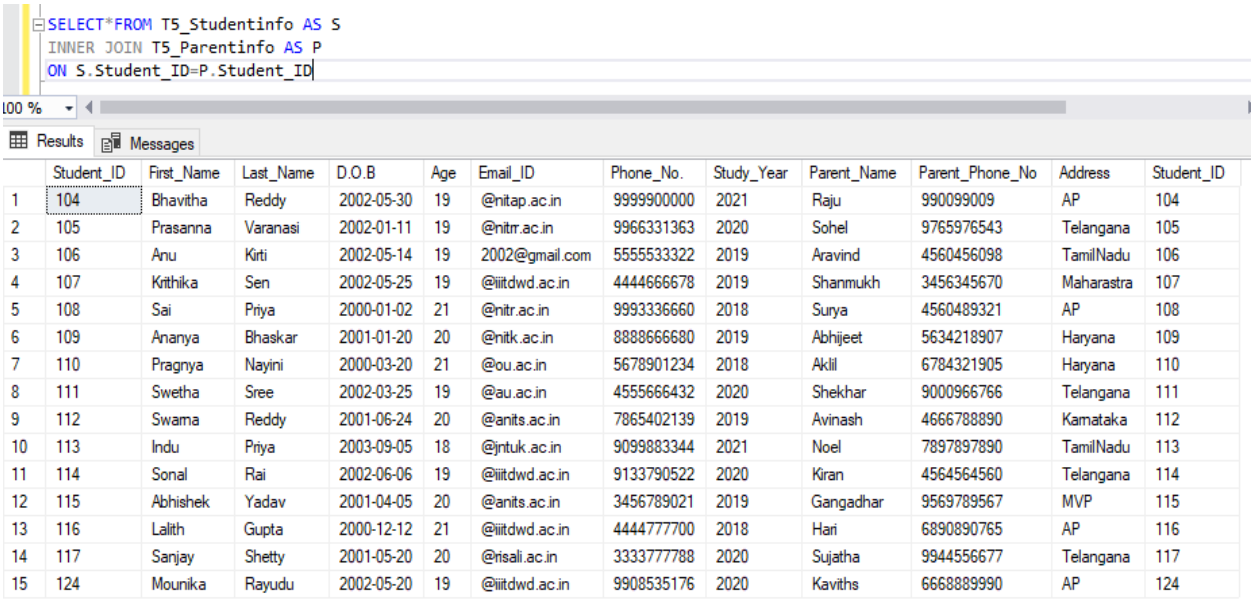
.00 % Results Messages

	Student_ID	Course_ID
1	110	CS202
2	108	CS204
3	109	CS206
4	104	CS210
5	107	CS301
6	111	CS307
7	106	CS310
8	112	CS360
9	124	EC201
10	113	EC204
11	116	EC307
12	117	EC352
13	105	HS202
14	114	HS205
15	115	MA202

Query-2:

```
SELECT*FROM T5_Studentinfo AS S
INNER JOIN T5_Parentinfo AS P
ON S.Student_ID=P.Student_ID
```

Result:



```
SELECT*FROM T5_Studentinfo AS S
INNER JOIN T5_Parentinfo AS P
ON S.Student_ID=P.Student_ID
```

100 %

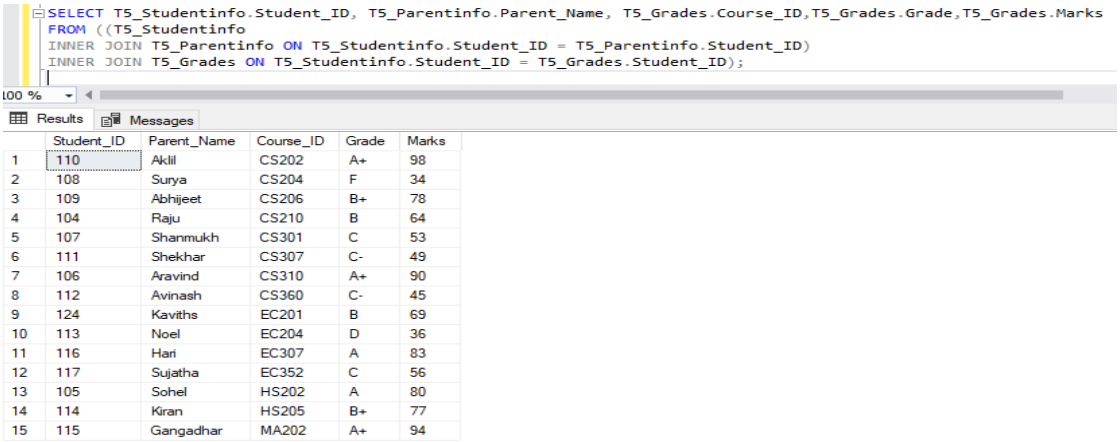
Results | Messages

	Student_ID	First_Name	Last_Name	D.O.B	Age	Email_ID	Phone_No.	Study_Year	Parent_Name	Parent_Phone_No	Address	Student_ID
1	104	Bhavitha	Reddy	2002-05-30	19	@nitap.ac.in	9999900000	2021	Raju	990099009	AP	104
2	105	Prasanna	Varanasi	2002-01-11	19	@nitrr.ac.in	9966331363	2020	Sohel	9765976543	Telangana	105
3	106	Anu	Kirti	2002-05-14	19	2002@gmail.com	5555533322	2019	Aravind	4560456098	TamilNadu	106
4	107	Krithika	Sen	2002-05-25	19	@iiitdwd.ac.in	4444666678	2019	Shanmukh	3456345670	Maharastra	107
5	108	Sai	Priya	2000-01-02	21	@nitr.ac.in	9993336660	2018	Surya	4560489321	AP	108
6	109	Ananya	Bhaskar	2001-01-20	20	@nitk.ac.in	8888666680	2019	Abhijeet	5634218907	Haryana	109
7	110	Pragnya	Nayini	2000-03-20	21	@ou.ac.in	5678901234	2018	Aklil	6784321905	Haryana	110
8	111	Swetha	Sree	2002-03-25	19	@au.ac.in	4555666432	2020	Shekhar	9000966766	Telangana	111
9	112	Swarna	Reddy	2001-06-24	20	@anits.ac.in	7865402139	2019	Avinash	4666788890	Kamataka	112
10	113	Indu	Priya	2003-09-05	18	@jntuk.ac.in	9099883344	2021	Noel	7897897890	TamilNadu	113
11	114	Sonal	Rai	2002-06-06	19	@iiitdwd.ac.in	9133790522	2020	Kiran	4564564560	Telangana	114
12	115	Abhishek	Yadav	2001-04-05	20	@anits.ac.in	3456789021	2019	Gangadhar	9569789567	MVP	115
13	116	Lalith	Gupta	2000-12-12	21	@iiitdwd.ac.in	4444777700	2018	Hari	6890890765	AP	116
14	117	Sanjay	Shetty	2001-05-20	20	@risali.ac.in	3333777788	2020	Sujatha	9944556677	Telangana	117
15	124	Mounika	Rayudu	2002-05-20	19	@iiitdwd.ac.in	9908535176	2020	Kaviths	6668889990	AP	124

Query-3:

```
SELECT T5_Studentinfo.Student_ID, T5_Parentinfo.Parent_Name,
T5_Grades.Course_ID,T5_Grades.Grade,T5_Grades.Marks
FROM ((T5_Studentinfo
INNER JOIN T5_Parentinfo ON T5_Studentinfo.Student_ID = T5_Parentinfo.Student_ID)
INNER JOIN T5_Grades ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID);
```

Result:



```
SELECT T5_Studentinfo.Student_ID, T5_Parentinfo.Parent_Name, T5_Grades.Course_ID,T5_Grades.Grade,T5_Grades.Marks
FROM ((T5_Studentinfo
INNER JOIN T5_Parentinfo ON T5_Studentinfo.Student_ID = T5_Parentinfo.Student_ID)
INNER JOIN T5_Grades ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID);
```

100 %

Results | Messages

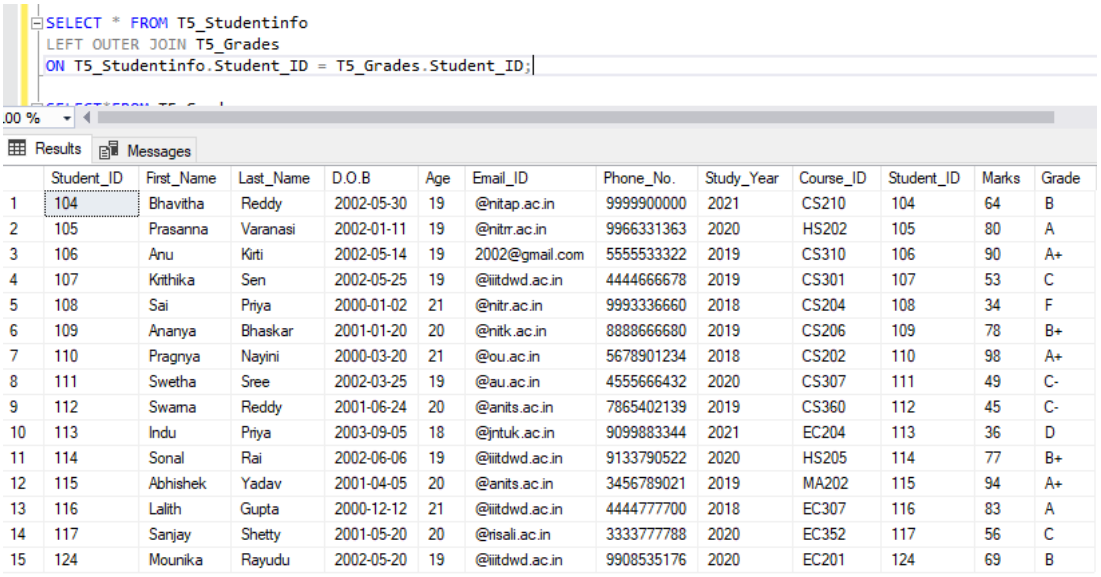
	Student_ID	Parent_Name	Course_ID	Grade	Marks
1	110	Aklil	CS202	A+	98
2	108	Surya	CS204	F	34
3	109	Abhijeet	CS206	B+	78
4	104	Raju	CS210	B	64
5	107	Shanmukh	CS301	C	53
6	111	Shekhar	CS307	C-	49
7	106	Aravind	CS310	A+	90
8	112	Avinash	CS360	C-	45
9	124	Kaviths	EC201	B	69
10	113	Noel	EC204	D	36
11	116	Hari	EC307	A	83
12	117	Sujatha	EC352	C	56
13	105	Sohel	HS202	A	80
14	114	Kiran	HS205	B+	77
15	115	Gangadhar	MA202	A+	94

LEFT OUTER JOIN:

Query-1:

```
SELECT * FROM T5_Studentinfo
LEFT OUTER JOIN T5_Grades
ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID;
```

Result:



```
SELECT * FROM T5_Studentinfo
LEFT OUTER JOIN T5_Grades
ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID;
```

100 %

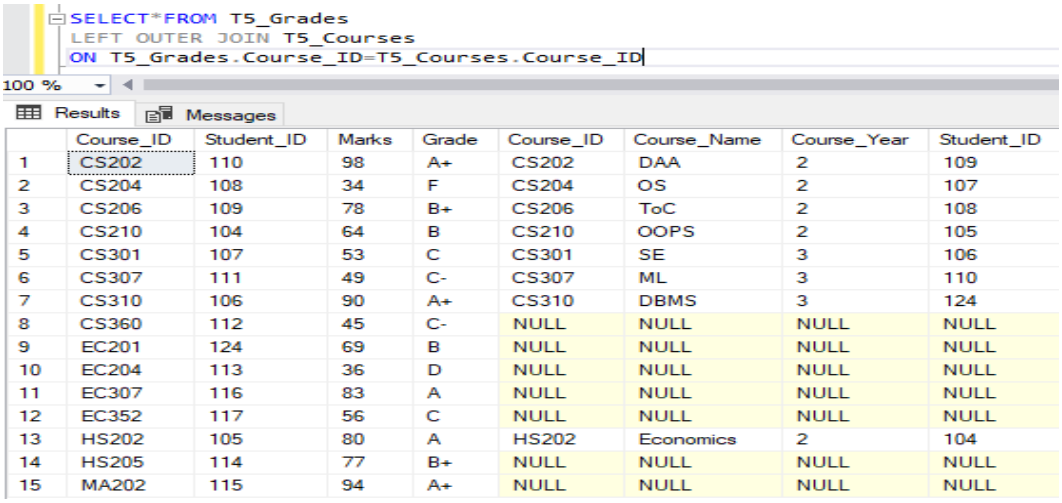
Results | Messages

	Student_ID	First_Name	Last_Name	D.O.B	Age	Email_ID	Phone_No.	Study_Year	Course_ID	Student_ID	Marks	Grade
1	104	Bhavitha	Reddy	2002-05-30	19	@nitap.ac.in	9999900000	2021	CS210	104	64	B
2	105	Prasanna	Varanasi	2002-01-11	19	@nitrr.ac.in	9966331363	2020	HS202	105	80	A
3	106	Anu	Kirti	2002-05-14	19	2002@gmail.com	5555533322	2019	CS310	106	90	A+
4	107	Krithika	Sen	2002-05-25	19	@iiitdwd.ac.in	4444666678	2019	CS301	107	53	C
5	108	Sai	Priya	2000-01-02	21	@nitr.ac.in	9993336660	2018	CS204	108	34	F
6	109	Ananya	Bhaskar	2001-01-20	20	@nitk.ac.in	8888666680	2019	CS206	109	78	B+
7	110	Pragnya	Nayini	2000-03-20	21	@ou.ac.in	5678901234	2018	CS202	110	98	A+
8	111	Swetha	Sree	2002-03-25	19	@au.ac.in	4555666432	2020	CS307	111	49	C-
9	112	Swarna	Reddy	2001-06-24	20	@anits.ac.in	7865402139	2019	CS360	112	45	C-
10	113	Indu	Priya	2003-09-05	18	@jntuk.ac.in	9099883344	2021	EC204	113	36	D
11	114	Sonal	Rai	2002-06-06	19	@iiitdwd.ac.in	9133790522	2020	HS205	114	77	B+
12	115	Abhishek	Yadav	2001-04-05	20	@anits.ac.in	3456789021	2019	MA202	115	94	A+
13	116	Lalith	Gupta	2000-12-12	21	@iiitdwd.ac.in	4444777700	2018	EC307	116	83	A
14	117	Sanjay	Shetty	2001-05-20	20	@risali.ac.in	3333777788	2020	EC352	117	56	C
15	124	Mounika	Rayudu	2002-05-20	19	@iiitdwd.ac.in	9908535176	2020	EC201	124	69	B

Query-2:

```
SELECT*FROM T5_Grades
LEFT OUTER JOIN T5_Courses
ON T5_Grades.Course_ID=T5_Courses.Course_ID
```

Result:



```
SELECT*FROM T5_Grades
LEFT OUTER JOIN T5_Courses
ON T5_Grades.Course_ID=T5_Courses.Course_ID
```

100 %

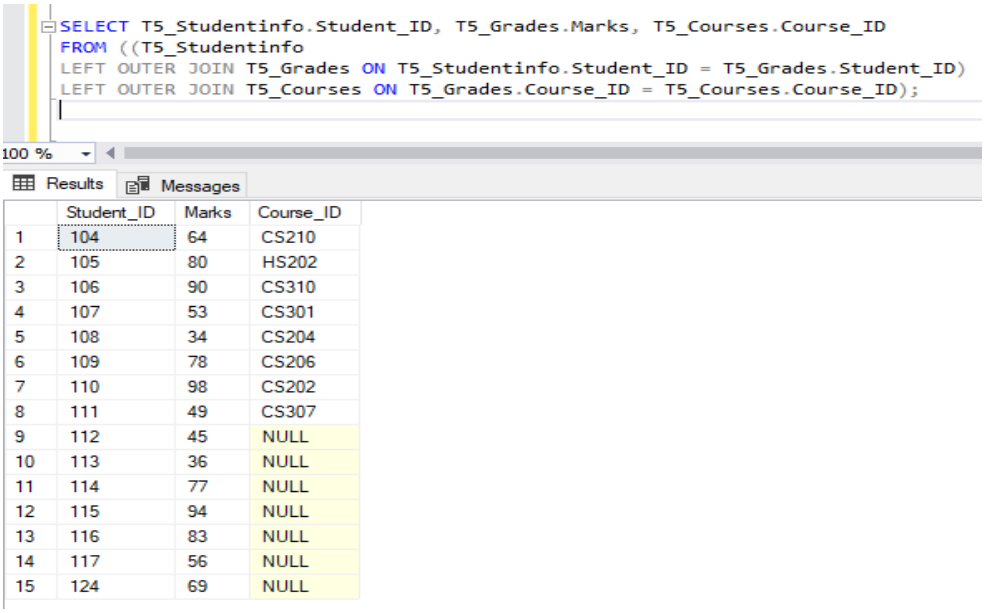
Results | Messages

	Course_ID	Student_ID	Marks	Grade	Course_ID	Course_Name	Course_Year	Student_ID
1	CS202	110	98	A+	CS202	DAA	2	109
2	CS204	108	34	F	CS204	OS	2	107
3	CS206	109	78	B+	CS206	ToC	2	108
4	CS210	104	64	B	CS210	OOPS	2	105
5	CS301	107	53	C	CS301	SE	3	106
6	CS307	111	49	C-	CS307	ML	3	110
7	CS310	106	90	A+	CS310	DBMS	3	124
8	CS360	112	45	C-	NULL	NULL	NULL	NULL
9	EC201	124	69	B	NULL	NULL	NULL	NULL
10	EC204	113	36	D	NULL	NULL	NULL	NULL
11	EC307	116	83	A	NULL	NULL	NULL	NULL
12	EC352	117	56	C	NULL	NULL	NULL	NULL
13	HS202	105	80	A	HS202	Economics	2	104
14	HS205	114	77	B+	NULL	NULL	NULL	NULL
15	MA202	115	94	A+	NULL	NULL	NULL	NULL

Query-3:

```
SELECT T5_Studentinfo.Student_ID, T5_Grades.Marks, T5_Courses.Course_ID
FROM ((T5_Studentinfo
LEFT OUTER JOIN T5_Grades ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID)
LEFT OUTER JOIN T5_Courses ON T5_Grades.Course_ID = T5_Courses.Course_ID);
```

Result:



```
SELECT T5_Studentinfo.Student_ID, T5_Grades.Marks, T5_Courses.Course_ID
FROM ((T5_Studentinfo
LEFT OUTER JOIN T5_Grades ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID)
LEFT OUTER JOIN T5_Courses ON T5_Grades.Course_ID = T5_Courses.Course_ID);
```

100 %

Results | Messages

	Student_ID	Marks	Course_ID
1	104	64	CS210
2	105	80	HS202
3	106	90	CS310
4	107	53	CS301
5	108	34	CS204
6	109	78	CS206
7	110	98	CS202
8	111	49	CS307
9	112	45	NULL
10	113	36	NULL
11	114	77	NULL
12	115	94	NULL
13	116	83	NULL
14	117	56	NULL
15	124	69	NULL

RIGHT OUTER JOIN:

Query-1:

```
SELECT T5_Studentinfo.Student_ID, T5_Studentinfo.First_Name,
T5_Parentinfo.Parent_Name
FROM T5_Studentinfo
RIGHT OUTER JOIN T5_Parentinfo ON T5_Studentinfo.Student_ID =
T5_Parentinfo.Student_ID
ORDER BY T5_Parentinfo.Address;
```

Result:

```
SELECT T5_Studentinfo.Student_ID, T5_Studentinfo.First_Name, T5_Parentinfo.Parent_Name
FROM T5_Studentinfo
RIGHT OUTER JOIN T5_Parentinfo ON T5_Studentinfo.Student_ID = T5_Parentinfo.Student_ID
ORDER BY T5_Parentinfo.Address;
```

100 %

Results | Messages

	Student_ID	First_Name	Parent_Name
1	104	Bhavitha	Raju
2	108	Sai	Surya
3	116	Lalith	Hari
4	124	Mounika	Kaviths
5	109	Ananya	Abhijeet
6	110	Pragnya	Aklil
7	112	Swarna	Avinash
8	107	Krithika	Shanmukh
9	115	Abhishek	Gangadhar
10	113	Indu	Noel
11	106	Anu	Aravind
12	105	Prasanna	Sohel
13	111	Swetha	Shekhar
14	114	Sonal	Kiran
15	117	Sanjay	Sujatha

Query-2:

```
SELECT*FROM T5_Grades
RIGHT OUTER JOIN T5_Courses
ON T5_Grades.Course_ID=T5_Courses.Course_ID
```

Result:

```
SELECT*FROM T5_Grades
RIGHT OUTER JOIN T5_Courses
ON T5_Grades.Course_ID=T5_Courses.Course_ID
```

.00 %

Results | Messages

	Course_ID	Student_ID	Marks	Grade	Course_ID	Course_Name	Course_Year	Student_ID
1	HS202	105	80	A	HS202	Economics	2	104
2	CS210	104	64	B	CS210	OOPS	2	105
3	CS301	107	53	C	CS301	SE	3	106
4	CS204	108	34	F	CS204	OS	2	107
5	CS206	109	78	B+	CS206	ToC	2	108
6	CS202	110	98	A+	CS202	DAA	2	109
7	CS307	111	49	C-	CS307	ML	3	110
8	CS310	106	90	A+	CS310	DBMS	3	124

Query-3:

```
SELECT T5_Studentinfo.Student_ID, T5_Grades.Marks, T5_Courses.Course_ID
FROM ((T5_Studentinfo
RIGHT OUTER JOIN T5_Grades ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID)
RIGHT OUTER JOIN T5_Courses ON T5_Grades.Course_ID = T5_Courses.Course_ID);
```

Result:

```
SELECT T5_Studentinfo.Student_ID, T5_Grades.Marks, T5_Courses.Course_ID
FROM ((T5_Studentinfo
RIGHT OUTER JOIN T5_Grades ON T5_Studentinfo.Student_ID = T5_Grades.Student_ID)
RIGHT OUTER JOIN T5_Courses ON T5_Grades.Course_ID = T5_Courses.Course_ID);
```

.00 %

Results | Messages

	Student_ID	Marks	Course_ID
1	110	98	CS202
2	108	34	CS204
3	109	78	CS206
4	104	64	CS210
5	107	53	CS301
6	111	49	CS307
7	106	90	CS310
8	105	80	HS202

8) Use all the above condition in JOIN as well.

Query:

```
SELECT First_Name,MAX(Age) AS Age,MIN(Study_Year) AS Study_Year
FROM T5_Studentinfo
JOIN T5_Grades ON T5_Studentinfo.Student_ID=T5_Grades.Student_ID
GROUP BY First_Name
HAVING First_Name LIKE '%i%'
ORDER BY Age DESC
```

Result:

```
SELECT First_Name,MAX(Age) AS Age,MIN(Study_Year) AS Study_Year
FROM T5_Studentinfo
JOIN T5_Grades ON T5_Studentinfo.Student_ID=T5_Grades.Student_ID
GROUP BY First_Name
HAVING First_Name LIKE '%i%'
ORDER BY Age DESC
```

100 %

Results | Messages

	First_Name	Age	Study_Year
1	Lalith	21	2018
2	Sai	21	2018
3	Abhishek	20	2019
4	Bhavitha	19	2021
5	Mounika	19	2020
6	Krithika	19	2019
7	Indu	18	2021