DBMS LAB ASSIGNMENT-5

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19bcs041   T12

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.
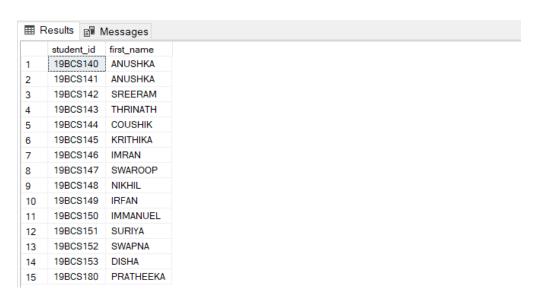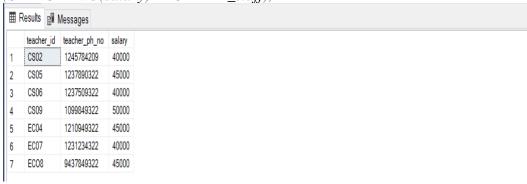
→ANY:

Queries:

1)

SELECT S.student_id,s.first_name
FROM T12_studentinfo s
WHERE S.student_id > ANY (SELECT S2.student_id FROM T12_studentinfo S2 WHERE S2.DOB='2001-10-08')

	student_id	first_name
1	19BCS140	ANUSHKA
2	19BCS141	ANUSHKA
3	19BCS142	SREERAM
4	19BCS143	THRINATH
5	19BCS144	COUSHIK
6	19BCS145	KRITHIKA
7	19BCS146	IMRAN
8	19BCS147	SWAROOP
9	19BCS148	NIKHIL
10	19BCS149	IRFAN
11	19BCS150	IMMANUEL
12	19BCS151	SURIYA
13	19BCS152	SWAPNA
14	19BCS153	DISHA
15	19BCS180	PRATHEEKA

2)
SELECT teacher_id,teacher_ph_no,salary FROM T12_staff WHERE salary >= ANY (SELECT AVG(salary) FROM T12_staff);

	teacher_id	teacher_ph_no	salary
1	CS02	1245784209	40000
2	CS05	1237890322	45000
3	CS06	1237509322	40000
4	CS09	1099849322	50000
5	EC04	1210949322	45000
6	EC07	1231234322	40000
7	ECO8	9437849322	45000

3)
select student_id,parent_mobile_no from T12_parentinfo where student_id =
ANY (select student_id from T12_grades where course_id <>
ANY (select course_id from T12_course_staff where grade='C'));

	student_id	parent_mobile_no
1	19BCS123	8899007766
2	19BCS133	8899007756
3	19BCS138	9086235637
4	19BCS140	9005678449
5	19BCS141	8899007235
6	19BCS142	8899007396
7	19BCS144	8899333766

→ALL:
Queries:
1)
select course_id,student_id from T12_courses where course_id = ALL (select course_id from
T12_course_staff where grade='B');

	course_id	student_id
1	CS210	19BCS123
2	CS210	19BCS130
3	CS210	19BCS132
4	CS210	19BCS134
5	CS210	19BCS135
6	CS210	19BCS139
7	CS210	19BCS140
8	CS210	19BCS142
9	CS210	19BCS143
10	CS210	19BCS144
11	CS210	19BCS145
12	CS210	19BCS149

2)
SELECT * FROM T12_staff
WHERE salary <= ALL (SELECT salary FROM T12_staff
WHERE teacher_id = ANY (select teacher_id from T12_staff))

	teacher_id	teacher_name	salary	teacher_email_id	teacher_ph_no
1	EC02	PREETHI RAJ	30000	preethiR@iiitdwd.ac.in	1249849322
2	ECO9	GEETHA	30000	geetha@iiitdwd.ac.in	1367849322

3)
select distinct student_id from T12_courses
where course_id<>All(select course_id from T12_course_staff where marks<'60')

→LIKE:

Queries:

1)

select * from T12_studentinfo where DOB like '%03___';

2)

select * from T12_parentinfo where [address] like 't[ea]%' ;

3)

select * from T12_staff where teacher_ph_no like '9[^6-9][0-8]%' ;
/* results the tuples where phn numbers starting with 9, not followed by 6-9 digits and followed by 0-8 digits,and last 7 digits can be any one in 0-9*/

Difference between 'ALL' and 'ANY':
Query:
select distinct course_id from T12_course_staff where grade='B-'/*sub query*/

select distinct course_id,student_id from T12_courses
where course_id <> ALL (select distinct course_id from T12_course_staff where grade='B-');

select course_id,student_id from T12_courses
where course_id <> ANY (select distinct course_id from T12_course_staff where grade='B-');

	course_id
1	CS210
2	CS211

	course_id	student_id
1	CS201	19BCS123
2	CS201	19BCS133
3	CS201	19BCS138
4	CS201	19BCS140
5	CS201	19BCS141
6	CS201	19BCS142
7	CS201	19BCS147

	course_id	student_id
1	CS201	19BCS123
2	CS210	19BCS123
3	CS211	19BCS123
4	CS210	19BCS130
5	CS210	19BCS132
6	CS201	19BCS133
7	CS210	19BCS134
8	CS210	19BCS135
9	CS201	19BCS138
10	CS210	19BCS139
11	CS201	19BCS140
12	CS210	19BCS140
13	CS201	19BCS141
14	CS201	19BCS142
15	CS210	19BCS142
16	CS210	19BCS143
17	CS210	19BCS144
18	CS211	19BCS144
19	CS210	19BCS145
20	CS211	19BCS145
21	CS201	19BCS147
22	CS210	19BCS149
23	CS211	19BCS150
24	CS211	19BCS151

2) One query for each Aggregate function.

Queries:

select *count*(student_id) *as* Total_students,age *from* T12_studentinfo *group by* age;

	Total_students	age
1	13	19
2	14	20

select *avg*(marks) *as* avg_marks,student_id *from* T12_grades *group by* student_id;

	avg_marks	student_id
1	89	19BCS123
2	69	19BCS130
3	59	19BCS132
4	86	19BCS133
5	93	19BCS134
6	78	19BCS135
7	85	19BCS138
8	88	19BCS139
9	90	19BCS140
10	91	19BCS141
11	69	19BCS142
12	67	19BCS143
13	77	19BCS144
14	65	19BCS145

select *var*(salary) *as* Income_variance *from* T12_staff;

	Income_variance
1	27631578.9473684

select *varp*(salary) *as* Income_variance_forPopulation *from* T12_staff;

	Income_variance_forPopulation
1	26250000

select *stdev*(age) *as* age_deviation *from* T12_studentinfo;

	age_deviation
1	0.509175077217321

select *stdevp*(age) *as* age_deviation_for_population *from* T12_studentinfo;

	age_deviation_for_population
1	0.4996569946786377

select sum(fee_paid) as total_fee_received from T12_parentinfo;

	total_fee_received
1	1040000

select min(marks) as minimum_marks,course_id from T12_grades group by course_id;

	minimum_marks	course_id
1	84	CS201
2	55	CS210
3	77	CS211

select max(s.salary) as max_staff_salary,c.course_id from T12_staff s,T12_course_staff c where c.teacher_id=s.teacher_id group by c.course_id;

	max_staff_salary	course_id
1	45000	CS201
2	45000	CS210
3	40000	CS211

select count_big(teacher_id) as bigint_no_staff from T12_staff;

	bigint_no_staff
1	20

3)
→ORDER BY:

Queries:
1)
*select * from T12_studentinfo order by student_id desc;*

Results / Messages

	student_id	first_name	last_name	email_id	ph_no	study_year	DOB	age
1	19BCS190	THRINAYAN	VISWAH	19bcs190@iiitdwd.ac.in	5638291043	2	2001-07-24	20
2	19BCS180	PRATHEEKA	SINGH	19bcs180@iiitdwd.ac.in	9024538589	3	2002-03-21	19
3	19BCS153	DISHA	TARA	19bcs153@iiitdwd.ac.in	8899225078	2	2002-10-10	19
4	19BCS152	SWAPNA	RAJ	19bcs152@iiitdwd.ac.in	8992458870	2	2001-09-07	20
5	19BCS151	SURIYA	KHILLADI	19bcs151@iiitdwd.ac.in	9075428944	2	2002-07-25	19
6	19BCS150	IMMANUEL	ST	19bcs150@iiitdwd.ac.in	8859034218	2	2001-07-27	20
7	19BCS149	IRFAN	SHIEK	19bcs149@iiitdwd.ac.in	7789054678	2	2002-12-04	19
8	19BCS148	NIKHIL	KUMAR	19bcs148@iiitdwd.ac.in	9778054398	2	2001-11-12	20
9	19BCS147	SWAROOP	GHATTAMANENI	19bcs147@iiitdwd.ac.in	9008796654	2	2001-02-23	20
10	19BCS146	IMRAN	KHAN	19bcs146@iiitdwd.ac.in	7906695449	2	2001-12-20	20
11	19BCS145	KRITHIKA	KUMAR	19bcs145@iiitdwd.ac.in	9079054670	2	2002-10-27	19
12	19BCS144	COUSHIK	SAI	19bcs144@iiitdwd.ac.in	9440996234	2	2001-09-19	20
13	19BCS143	THRINATH	KUMAR	19bcs143@iiitdwd.ac.in	8076995430	2	2001-04-18	20
14	19BCS142	SREERAM	KESHVA	19bcs142@iiitdwd.ac.in	9507763210	2	2001-11-08	20
15	19BCS141	ANUSHKA	SHETTY	19bcs141@iiitdwd.ac.in	9887065432	2	2002-10-06	19
16	19BCS140	ANUSHKA	SHARMA	19bcs140@iiitdwd.ac.in	9665894362	2	2001-10-08	20
17	19BCS139	KRITHI	SHETTY	19bcs139@iiitdwd.ac.in	9077654892	2	2001-10-08	20
18	19BCS138	SHYAM	MUNGALA	19bcs138@iiitdwd.ac.in	8923556123	2	2002-03-20	19
19	19BCS137	KARTHIK	KUMAR	19bcs137@iiitdwd.ac.in	8076654987	2	2002-05-19	19
20	19BCS136	RANI	MUKHERJEE	19bcs136@iiitdwd.ac.in	9776055943	2	2001-08-17	20
21	19BCS135	SHILPA	SHETTY	19bcs135@iiitdwd.ac.in	9908766548	2	2002-06-16	19
22	19BCS134	SHAHRUKH	KHAN	19bcs134@iiitdwd.ac.in	9054321998	2	2002-11-01	19
23	19BCS133	AKSHAY	KHANNA	19bcs133@iiitdwd.ac.in	9887604321	2	2001-03-03	20
24	19BCS132	JOHN	ST	19bcs132@iiitdwd.ac.in	9987654033	2	2002-06-16	19

2)
select * *from* T12_parentinfo *order by* parent_name *asc*,parent_mobile_no *desc;*

Results / Messages

	parent_name	parent_mobile_no	address	student_id	fee_paid
1	ABHIRAM	9870932235	AP	19BCS137	40000
2	ALI	8899080766	KOLKATA	19BCS146	40000
3	ARJITH	8892207766	MUMBAI	19BCS149	40000
4	GOVINDH	8899000751	AP	19BCS145	40000
5	JAI	9086235637	TELANGANA	19BCS138	40000
6	JENNIFER	8811117766	AP	19BCS150	40000
7	JYOTHI MOHAN	9950453218	CHENNAI	19BCS152	40000
8	KALYANI	9103748310	TAMIL NADU	19BCS190	40000
9	KARTHIK RAM	8899007235	AP	19BCS141	40000
10	KARTHIKEYA	8796530021	GUJARAT	19BCS153	40000
11	LALITH KUMAR	8899010366	TELANGANA	19BCS151	40000
12	PAUL	8899007763	AP	19BCS132	40000
13	RAAVAN	2509875466	TELANGANA	19BCS147	40000
14	RAGHUNATH	8899007710	TELANGANA	19BCS135	40000
15	RAJ GOPAL	9005678449	KOLKATA	19BCS140	40000
16	RAJ KUMAR	8899333766	AP	19BCS144	40000
17	RAKESH	8899007762	MUMBAI	19BCS131	40000
18	RAM	8899007758	KOLKATA	19BCS136	40000
19	RAMANUJAN	8891107766	TELANGANA	19BCS148	40000
20	RAMESH	8899007756	MUMBAI	19BCS133	40000
21	RANGNATH	8899007396	CHENNAI	19BCS142	40000
22	SAMEER	5690231667	CHENNAI	19BCS139	40000
23	SHAHEEDH	8899007761	GUJARAT	19BCS130	40000
24	SRIRAM	8899348866	AP	19BCS143	40000
25	TAJ MOHHAMMED	8898007766	DELHI	19BCS134	40000
26	VENKATESWARLU	8899007766	AP	19BCS123	40000

➔GROUP BY:

Queries:

1)

select max(marks) as maximum_marks,course_id from T12_course_staff group by course_id;

	maximum_marks	course_id
1	93	CS201
2	93	CS210
3	87	CS211

2)

SELECT distinct COUNT(teacher_id) as No_of_teachers, course_id FROM T12_course_staff GROUP BY course_id ORDER BY COUNT(teacher_id) DESC;

	No_of_teachers	course_id
1	10	CS210
2	5	CS201
3	2	CS211

→HAVING CLAUSE:

Queries:

1)

select min(marks) as min_marks,course_id from T12_grades group by course_id having min(marks)>60;

	min_marks	course_id
1	84	CS201
2	77	CS211

2)

select max(s.salary) as max_staff_salary,c.course_id from T12_staff s,T12_course_staff c where c.teacher_id=s.teacher_id group by c.course_id having max(s.salary)>=40000 order by max(s.salary);

	max_staff_salary	course_id
1	40000	CS211
2	45000	CS201
3	45000	CS210

4) Use Aggregate function with group by and having.

select avg(g.marks) as max_marks,g.course_id from T12_grades g,T12_courses c where c.course_id=g.course_id group by g.course_id having avg(marks)>80

	max_marks	course_id
1	87	CS201
2	83	CS211

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

Queries:

1)
select avg(avg_salary) from (select avg(s.salary) as avg_salary,c.teacher_id from T12_staff s,T12_course_staff c where c.teacher_id=s.teacher_id group by c.teacher_id having avg(s.salary)>=35000) as institute_avg_package

	(No column name)
1	37500

2)
select salary,teacher_id from T12_staff
where teacher_id =Any (select teacher_id from T12_course_staff
where course_id =any (select course_id from T12_grades
where grade like '[AB]%')) group by teacher_id,salary order by salary desc

	salary	teacher_id
1	45000	CS05
2	40000	CS02
3	35000	CS01
4	35000	CS03
5	35000	CS04
6	35000	CS10

3)
select min(s.salary) as min_staff_salary,s.teacher_id from T12_staff s,T12_course_staff c
where c.teacher_id=s.teacher_id group by s.teacher_id
having min(s.salary)<=(select avg(s1.salary) from T12_staff s1);

	min_staff_salary	teacher_id
1	35000	CS01
2	35000	CS03
3	35000	CS04
4	35000	CS10

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

→EXCEPT:
SELECT * FROM T12_studentinfo where Age='19'
EXCEPT
SELECT * FROM T12_studentinfo where ph_no like '9%'

	student_id	first_name	last_name	email_id	ph_no	study_year	DOB	age
1	19BCS123	ANUPAMA	MUNAGAPATI	19bcs123@iiitdwd.ac.in	1234568907	2	2002-03-21	19
2	19BCS130	SANJAY	KHAN	19bcs130@iiitdwd.ac.in	1245757843	2	2002-04-28	19
3	19BCS137	KARTHIK	KUMAR	19bcs137@iiitdwd.ac.in	8076654987	2	2002-05-19	19
4	19BCS138	SHYAM	MUNGALA	19bcs138@iiitdwd.ac.in	8923556123	2	2002-03-20	19
5	19BCS149	IRFAN	SHIEK	19bcs149@iiitdwd.ac.in	7789054678	2	2002-12-04	19
6	19BCS153	DISHA	TARA	19bcs153@iiitdwd.ac.in	8899225078	2	2002-10-10	19

→EXISTS:
select * from T12_parentinfo p where exists (select * from T12_courses c where c.student_id=p.student_id)

	parent_name	parent_mobile_no	address	student_id	fee_paid
1	VENKATESWARLU	8899007766	AP	19BCS123	40000
2	SHAHEEDH	8899007761	GUJARAT	19BCS130	40000
3	PAUL	8899007763	AP	19BCS132	40000
4	RAMESH	8899007756	MUMBAI	19BCS133	40000
5	TAJ MOHHAMMED	8898007766	DELHI	19BCS134	40000
6	RAGHUNATH	8899007710	TELANGANA	19BCS135	40000
7	JAI	9086235637	TELANGANA	19BCS138	40000
8	SAMEER	5690231667	CHENNAI	19BCS139	40000
9	RAJ GOPAL	9005678449	KOLKATA	19BCS140	40000
10	KARTHIK RAM	8899007235	AP	19BCS141	40000
11	RANGNATH	8899007396	CHENNAI	19BCS142	40000
12	SRIRAM	8899348866	AP	19BCS143	40000
13	RAJ KUMAR	8899333766	AP	19BCS144	40000
14	GOVINDH	8899000751	AP	19BCS145	40000
15	RAAVAN	2509875466	TELANGANA	19BCS147	40000
16	ARJITH	8892207766	MUMBAI	19BCS149	40000
17	JENNIFER	8811117766	AP	19BCS150	40000
18	LALITH KUMAR	8899010366	TELANGANA	19BCS151	40000

→NOT EXISTS:
select distinct s1.student_id,s1.first_name+' '+s1.last_name as full_name from T12_studentinfo as s1
where not exists(select * from T12_grades as g where g.student_id=s1.student_id)

	student_id	full_name
1	19BCS131	HRITHIK ROSHAN
2	19BCS136	RANI MUKHERJEE
3	19BCS137	KARTHIK KUMAR
4	19BCS146	IMRAN KHAN
5	19BCS147	SWAROOP GHATTAMANENI
6	19BCS148	NIKHIL KUMAR
7	19BCS149	IRFAN SHIEK
8	19BCS150	IMMANUEL ST
9	19BCS151	SURIYA KHILLADI
10	19BCS152	SWAPNA RAJ
11	19BCS153	DISHA TARA
12	19BCS180	PRATHEEKA SINGH
13	19BCS190	THRINAYAN VISWAH

→UNION:
use school
(select course_id,student_id from T12_courses
where course_id like 'cs21[10]'
union
select course_id,student_id from T12_course_staff
where course_id like 'cs2[10]1') order by student_id

	course_id	student_id
1	CS210	19BCS123
2	CS211	19BCS123
3	CS210	19BCS130
4	CS210	19BCS132
5	CS201	19BCS133
6	CS210	19BCS134
7	CS210	19BCS135
8	CS201	19BCS138
9	CS210	19BCS139
10	CS201	19BCS140
11	CS210	19BCS140
12	CS201	19BCS141
13	CS201	19BCS142
14	CS210	19BCS142
15	CS210	19BCS143
16	CS210	19BCS144
17	CS211	19BCS144
18	CS210	19BCS145
19	CS211	19BCS145
20	CS210	19BCS149
21	CS211	19BCS150
22	CS211	19BCS151

→INTERSECT:
use school
(select distinct teacher_id from T12_course_staff
intersect
select teacher_id from T12_staff) order by teacher_id desc

	teacher_id
1	CS10
2	CS05
3	CS04
4	CS03
5	CS02
6	CS01

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

Queries:

→INNER JOIN:
1)
select s.*,c.course_id
from T12_studentinfo s
inner join T12_courses c on s.student_id=c.student_id order by student_id desc;

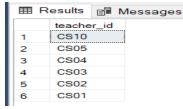|	student_id	first_name	last_name	email_id	ph_no	study_year	DOB	age	course_id
1	19BCS151	SURIYA	KHILLADI	19bcs151@iiitdwd.ac.in	9075428944	2	2002-07-25	19	CS211
2	19BCS150	IMMANUEL	ST	19bcs150@iiitdwd.ac.in	8859034218	2	2001-07-27	20	CS211
3	19BCS149	IRFAN	SHIEK	19bcs149@iiitdwd.ac.in	7789054678	2	2002-12-04	19	CS210
4	19BCS147	SWAROOP	GHATTAMANENI	19bcs147@iiitdwd.ac.in	9008796654	2	2001-02-23	20	CS201
5	19BCS145	KRITHIKA	KUMAR	19bcs145@iiitdwd.ac.in	9079054670	2	2002-10-27	19	CS211
6	19BCS145	KRITHIKA	KUMAR	19bcs145@iiitdwd.ac.in	9079054670	2	2002-10-27	19	CS210
7	19BCS144	COUSHIK	SAI	19bcs144@iiitdwd.ac.in	9440996234	2	2001-09-19	20	CS211
8	19BCS144	COUSHIK	SAI	19bcs144@iiitdwd.ac.in	9440996234	2	2001-09-19	20	CS210
9	19BCS143	THRINATH	KUMAR	19bcs143@iiitdwd.ac.in	8076995430	2	2001-04-18	20	CS210
10	19BCS142	SREERAM	KESHVA	19bcs142@iiitdwd.ac.in	9507763210	2	2001-11-08	20	CS210
11	19BCS142	SREERAM	KESHVA	19bcs142@iiitdwd.ac.in	9507763210	2	2001-11-08	20	CS201
12	19BCS141	ANUSHKA	SHETTY	19bcs141@iiitdwd.ac.in	9887065432	2	2002-10-06	19	CS201
13	19BCS140	ANUSHKA	SHARMA	19bcs140@iiitdwd.ac.in	9665894362	2	2001-10-08	20	CS210
14	19BCS140	ANUSHKA	SHARMA	19bcs140@iiitdwd.ac.in	9665894362	2	2001-10-08	20	CS201
15	19BCS139	KRITHI	SHETTY	19bcs139@iiitdwd.ac.in	9077654892	2	2001-10-08	20	CS210
16	19BCS138	SHYAM	MUNGALA	19bcs138@iiitdwd.ac.in	8923556123	2	2002-03-20	19	CS201
17	19BCS135	SHILPA	SHETTY	19bcs135@iiitdwd.ac.in	9908766548	2	2002-06-16	19	CS210
18	19BCS134	SHAHRUKH	KHAN	19bcs134@iiitdwd.ac.in	9054321998	2	2002-11-01	19	CS210
19	19BCS133	AKSHAY	KHANNA	19bcs133@iiitdwd.ac.in	9887604321	2	2001-03-03	20	CS201
20	19BCS132	JOHN	ST	19bcs132@iiitdwd.ac.in	9987654033	2	2002-06-16	19	CS210
21	19BCS130	SANJAY	KHAN	19bcs130@iiitdwd.ac.in	1245757843	2	2002-04-28	19	CS210
22	19BCS123	ANUPAMA	MUNAGAPATI	19bcs123@iiitdwd.ac.in	1234568907	2	2002-03-21	19	CS211
23	19BCS123	ANUPAMA	MUNAGAPATI	19bcs123@iiitdwd.ac.in	1234568907	2	2002-03-21	19	CS210
24	19BCS123	ANUPAMA	MUNAGAPATI	19bcs123@iiitdwd.ac.in	1234568907	2	2002-03-21	19	CS201

2)
select p.parent_name,p.parent_mobile_no,s.first_name+'   '+s.last_name as
student_full_name,g.course_id,g.grade,g.marks
from ((T12_parentinfo p
inner join T12_studentinfo s ON p.student_id=s.student_id)
inner join T12_grades g ON p.student_id=g.student_id) order by g.marks desc;

	parent_name	parent_mobile_no	student_full_name	course_id	grade	marks
1	TAJ MOHHAMMED	8898007766	SHAHRUKH KHAN	CS210	A	93
2	RAJ GOPAL	9005678449	ANUSHKA SHARMA	CS210	A	92
3	KARTHIK RAM	8899007235	ANUSHKA SHETTY	CS201	A	91
4	VENKATESWARLU	8899007766	ANUPAMA MUNAGAPATI	CS210	A	90
5	RAJ GOPAL	9005678449	ANUSHKA SHARMA	CS201	A-	89
6	VENKATESWARLU	8899007766	ANUPAMA MUNAGAPATI	CS211	A-	89
7	SAMEER	5690231667	KRITHI SHETTY	CS210	A-	88
8	RAMESH	8899007756	AKSHAY KHANNA	CS201	A-	86
9	JAI	9086235637	SHYAM MUNGALA	CS201	A-	85
10	RANGNATH	8899007396	SREERAM KESHVA	CS201	A-	84
11	RAGHUNATH	8899007710	SHILPA SHETTY	CS210	B-	78
12	RAJ KUMAR	8899333766	COUSHIK SAI	CS211	B-	77
13	SHAHEEDH	8899007761	SANJAY KHAN	CS210	B	69
14	SRIRAM	8899348866	THRINATH KUMAR	CS210	B	67
15	GOVINDH	8899000751	KRITHIKA KUMAR	CS210	B	65
16	PAUL	8899007763	JOHN ST	CS210	C	59
17	RANGNATH	8899007396	SREERAM KESHVA	CS210	C	55

3)
select p.student_id,p.parent_mobile_no,c.course_id,g.marks,c1.course_name
from (((T12_parentinfo p
inner join T12_course_staff c on p.student_id=c.student_id)
inner join T12_grades g on p.student_id=g.student_id)
inner join T12_courses c1 on p.student_id=c1.student_id)order by c1.course_name;

	student_id	parent_mobile_no	course_id	marks	course_name
1	19BCS145	8899000751	CS210	65	DBMS
2	19BCS123	8899007766	CS210	89	DBMS
3	19BCS123	8899007766	CS210	90	DBMS
4	19BCS123	8899007766	CS211	89	DBMS
5	19BCS123	8899007766	CS211	90	DBMS
6	19BCS144	8899333766	CS211	77	DBMS
7	19BCS141	8899007235	CS201	91	MATHS
8	19BCS142	8899007396	CS201	55	MATHS
9	19BCS142	8899007396	CS201	84	MATHS
10	19BCS142	8899007396	CS210	55	MATHS
11	19BCS142	8899007396	CS210	84	MATHS
12	19BCS133	8899007756	CS201	86	MATHS
13	19BCS123	8899007766	CS210	89	MATHS
14	19BCS123	8899007766	CS210	90	MATHS
15	19BCS123	8899007766	CS211	89	MATHS
16	19BCS123	8899007766	CS211	90	MATHS
17	19BCS140	9005678449	CS201	89	MATHS
18	19BCS140	9005678449	CS201	92	MATHS
19	19BCS140	9005678449	CS210	89	MATHS
20	19BCS140	9005678449	CS210	92	MATHS
21	19BCS138	9086235637	CS201	85	MATHS
22	19BCS139	5690231667	CS210	88	TOC
23	19BCS134	8898007766	CS210	93	TOC
24	19BCS145	8899000751	CS210	65	TOC
25	19BCS142	8899007396	CS201	55	TOC
26	19BCS142	8899007396	CS201	84	TOC
27	19BCS142	8899007396	CS210	55	TOC
28	19BCS142	8899007396	CS210	84	TOC
29	19BCS135	8899007710	CS210	78	TOC
30	19BCS130	8899007761	CS210	69	TOC
31	19BCS132	8899007763	CS210	59	TOC
32	19BCS123	8899007766	CS210	89	TOC
33	19BCS123	8899007766	CS210	90	TOC

→LEFT OUTER JOIN:
1)
select s.student_id,s.first_name+' '+s.last_name as student_fullname,s.ph_no,c.course_id
from T12_studentinfo s
left outer join T12_courses c on s.student_id=c.student_id

order by student_id *desc;*

	student_id	student_fullname	ph_no	course_id
1	19BCS190	THRINAYAN VISWAH	5638291043	NULL
2	19BCS180	PRATHEEKA SINGH	9024538589	NULL
3	19BCS153	DISHA TARA	8899225078	NULL
4	19BCS152	SWAPNA RAJ	8992458870	NULL
5	19BCS151	SURIYA KHILLADI	9075428944	CS211
6	19BCS150	IMMANUEL ST	8859034218	CS211
7	19BCS149	IRFAN SHIEK	7789054678	CS210
8	19BCS148	NIKHIL KUMAR	9778054398	NULL
9	19BCS147	SWAROOP GHATTAMANENI	9008796654	CS201
10	19BCS146	IMRAN KHAN	7906695449	NULL
11	19BCS145	KRITHIKA KUMAR	9079054670	CS210
12	19BCS145	KRITHIKA KUMAR	9079054670	CS211
13	19BCS144	COUSHIK SAI	9440996234	CS210
14	19BCS144	COUSHIK SAI	9440996234	CS211
15	19BCS143	THRINATH KUMAR	8076995430	CS210
16	19BCS142	SREERAM KESHVA	9507763210	CS201
17	19BCS142	SREERAM KESHVA	9507763210	CS210
18	19BCS141	ANUSHKA SHETTY	9887065432	CS201
19	19BCS140	ANUSHKA SHARMA	9665894362	CS201
20	19BCS140	ANUSHKA SHARMA	9665894362	CS210
21	19BCS139	KRITHI SHETTY	9077654892	CS210
22	19BCS138	SHYAM MUNGALA	8923556123	CS201
23	19BCS137	KARTHIK KUMAR	8076654987	NULL

2)
select p.student_id,p.parent_mobile_no,g.course_id,g.grade,g.marks
from ((T12_parentinfo p
left outer join T12_studentinfo s *ON* p.student_id=s.student_id)
left outer join T12_grades g *ON* p.student_id=g.student_id) *order by* s.student_id;

	student_id	parent_mobile_no	course_id	grade	marks
1	19BCS123	8899007766	CS210	A	90
2	19BCS123	8899007766	CS211	A-	89
3	19BCS130	8899007761	CS210	B	69
4	19BCS131	8899007762	NULL	NULL	NULL
5	19BCS132	8899007763	CS210	C	59
6	19BCS133	8899007756	CS201	A-	86
7	19BCS134	8898007766	CS210	A	93
8	19BCS135	8899007710	CS210	B-	78
9	19BCS136	8899007758	NULL	NULL	NULL
10	19BCS137	9870932235	NULL	NULL	NULL
11	19BCS138	9086235637	CS201	A-	85
12	19BCS139	5690231667	CS210	A-	88
13	19BCS140	9005678449	CS201	A-	89
14	19BCS140	9005678449	CS210	A	92
15	19BCS141	8899007235	CS201	A	91
16	19BCS142	8899007396	CS201	A-	84
17	19BCS142	8899007396	CS210	C	55
18	19BCS143	8899348866	CS210	B	67
19	19BCS144	8899333766	CS211	B-	77
20	19BCS145	8899000751	CS210	B	65
21	19BCS146	8899080766	NULL	NULL	NULL
22	19BCS147	2509875466	NULL	NULL	NULL
23	19BCS148	8891107766	NULL	NULL	NULL
24	19BCS149	8892207766	NULL	NULL	NULL

3)
select p.student_id,p.parent_mobile_no,c.course_id,g.marks,c1.course_name
from (((T12_parentinfo p *left outer join* T12_course_staff c *on* p.student_id=c.student_id)
left outer join T12_grades g *on* p.student_id=g.student_id)
left outer join T12_courses c1 *on* p.student_id=c1.student_id)
order by c1.course_name;

	student_id	parent_mobile_no	course_id	marks	course_name
1	19BCS131	8899007762	NULL	NULL	NULL
2	19BCS136	8899007758	NULL	NULL	NULL
3	19BCS137	9870932235	NULL	NULL	NULL
4	19BCS146	8899080766	NULL	NULL	NULL
5	19BCS148	8891107766	NULL	NULL	NULL
6	19BCS152	9950453218	NULL	NULL	NULL
7	19BCS153	8796530021	NULL	NULL	NULL
8	19BCS190	9103748310	NULL	NULL	NULL
9	19BCS145	8899000751	CS210	65	DBMS
10	19BCS150	8811117766	NULL	NULL	DBMS
11	19BCS151	8899010366	NULL	NULL	DBMS
12	19BCS144	8899333766	CS211	77	DBMS
13	19BCS123	8899007766	CS211	89	DBMS
14	19BCS123	8899007766	CS210	90	DBMS
15	19BCS123	8899007766	CS210	89	DBMS
16	19BCS123	8899007766	CS211	90	DBMS
17	19BCS123	8899007766	CS211	89	MATHS
18	19BCS123	8899007766	CS211	90	MATHS
19	19BCS123	8899007766	CS210	89	MATHS
20	19BCS123	8899007766	CS210	90	MATHS

→RIGHT OUTER JOIN:
1)
use school
select c.course_id,s.student_id,s.first_name+' '+s.last_name *as* student_fullname,s.ph_no
from T12_studentinfo s
right outer join T12_courses c *on* s.student_id=c.student_id
order by course_id *desc*;

	course_id	student_id	student_fullname	ph_no
1	CS211	19BCS123	ANUPAMA MUNAGAPATI	1234568907
2	CS211	19BCS144	COUSHIK SAI	9440996234
3	CS211	19BCS145	KRITHIKA KUMAR	9079054670
4	CS211	19BCS150	IMMANUEL ST	8859034218
5	CS211	19BCS151	SURIYA KHILLADI	9075428944
6	CS210	19BCS149	IRFAN SHIEK	7789054678
7	CS210	19BCS145	KRITHIKA KUMAR	9079054670
8	CS210	19BCS142	SREERAM KESHVA	9507763210
9	CS210	19BCS143	THRINATH KUMAR	8076995430
10	CS210	19BCS144	COUSHIK SAI	9440996234
11	CS210	19BCS139	KRITHI SHETTY	9077654892
12	CS210	19BCS140	ANUSHKA SHARMA	9665894362
13	CS210	19BCS130	SANJAY KHAN	1245757843
14	CS210	19BCS132	JOHN ST	9987654033
15	CS210	19BCS123	ANUPAMA MUNAGAPATI	1234568907
16	CS210	19BCS134	SHAHRUKH KHAN	9054321998
17	CS210	19BCS135	SHILPA SHETTY	9908766548
18	CS201	19BCS138	SHYAM MUNGALA	8923556123
19	CS201	19BCS123	ANUPAMA MUNAGAPATI	1234568907
20	CS201	19BCS133	AKSHAY KHANNA	9887604321

2)

select g.grade,p.student_id,g.course_id,g.marks,p.parent_mobile_no
from ((T12_parentinfo p
right outer join T12_studentinfo s *on* p.student_id=s.student_id)
right outer join T12_grades g *on* p.student_id=g.student_id) *order by* g.grade;

▦ Results 📄 Messages

	grade	student_id	course_id	marks	parent_mobile_no
1	A	19BCS141	CS201	91	8899007235
2	A	19BCS123	CS210	90	8899007766
3	A	19BCS134	CS210	93	8898007766
4	A	19BCS140	CS210	92	9005678449
5	A-	19BCS123	CS211	89	8899007766
6	A-	19BCS139	CS210	88	5690231667
7	A-	19BCS142	CS201	84	8899007396
8	A-	19BCS133	CS201	86	8899007756
9	A-	19BCS138	CS201	85	9086235637
10	A-	19BCS140	CS201	89	9005678449
11	B	19BCS130	CS210	69	8899007761
12	B	19BCS143	CS210	67	8899348866
13	B	19BCS145	CS210	65	8899000751
14	B-	19BCS144	CS211	77	8899333766
15	B-	19BCS135	CS210	78	8899007710

3)

select distinct p.student_id,p.parent_mobile_no,c1.course_name
from (((T12_course_staff c
right outer join T12_courses c1 *on* c.student_id=c1.student_id)
right outer join T12_grades g *on* c.student_id=g.student_id)
right outer join T12_parentinfo p *on* c.student_id=p.student_id)
order by p.student_id;

▦ Results 📄 Messages

	student_id	parent_mobile_no	course_name
1	19BCS123	8899007766	DBMS
2	19BCS123	8899007766	MATHS
3	19BCS123	8899007766	TOC
4	19BCS130	8899007761	TOC
5	19BCS131	8899007762	NULL
6	19BCS132	8899007763	TOC
7	19BCS133	8899007756	MATHS
8	19BCS134	8898007766	TOC
9	19BCS135	8899007710	TOC
10	19BCS136	8899007758	NULL
11	19BCS137	9870932235	NULL
12	19BCS138	9086235637	MATHS
13	19BCS139	5690231667	TOC
14	19BCS140	9005678449	MATHS
15	19BCS140	9005678449	TOC
16	19BCS141	8899007235	MATHS
17	19BCS142	8899007396	MATHS
18	19BCS142	8899007396	TOC
19	19BCS143	8899348866	TOC
20	19BCS144	8899333766	DBMS
21	19BCS144	8899333766	TOC
22	19BCS145	8899000751	DBMS
23	19BCS145	8899000751	TOC
24	19BCS146	8899080766	NULL
25	19BCS147	2509875466	NULL
26	19BCS148	8891107766	NULL

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

Query:
select s.student_id,min(s.first_name+' '+s.last_name) as student_fullname,c.course_id
from T12_studentinfo s
inner join T12_courses c on s.student_id=c.student_id
group by c.course_id,s.student_id having s.student_id < '19bcs180'
order by student_id desc;

100 % ▼ ◄

Results Messages

	student_id	student_fullname	course_id
1	19BCS151	SURIYA KHILLADI	CS211
2	19BCS150	IMMANUEL ST	CS211
3	19BCS149	IRFAN SHIEK	CS210
4	19BCS147	SWAROOP GHATTAMANENI	CS201
5	19BCS145	KRITHIKA KUMAR	CS211
6	19BCS145	KRITHIKA KUMAR	CS210
7	19BCS144	COUSHIK SAI	CS211
8	19BCS144	COUSHIK SAI	CS210
9	19BCS143	THRINATH KUMAR	CS210
10	19BCS142	SREERAM KESHVA	CS210
11	19BCS142	SREERAM KESHVA	CS201
12	19BCS141	ANUSHKA SHETTY	CS201
13	19BCS140	ANUSHKA SHARMA	CS210
14	19BCS140	ANUSHKA SHARMA	CS201
15	19BCS139	KRITHI SHETTY	CS210
16	19BCS138	SHYAM MUNGALA	CS201
17	19BCS135	SHILPA SHETTY	CS210
18	19BCS134	SHAHRUKH KHAN	CS210
19	19BCS133	AKSHAY KHANNA	CS201
20	19BCS132	JOHN ST	CS210