

SQL –ASSIGNMENT (25/02/2025) (Pranjali Sharma)

1. Creation of two tables

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

```
1 • create database newdatas;
2 • use newdatas;
3
4 • create table departments(
5   dept_id int primary key,
6   dept_name varchar(10),
7   dept_member varchar(10)
8 );
9 • create table Employees(
10  emp_id int PRIMARY KEY,
11  ename varchar(10),
12  salary int,
13  dept_id int,
14  foreign key(dept_id) references departments(dept_id)
15 );
16
17 • insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10);
18 • select * from departments;
19
```

Result Grid

dept_id	dept_name	dept_member
1	Computer	20
2	Civil	10
3	Mechanical	5
4	Software	25
5	Hardware	10

departments 1 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	15:48:30	create database newdatas	1 row(s) affected	0.141 sec
2	15:48:35	use newdatas	0 row(s) affected	0.000 sec
3	15:48:40	create table departments(dept_id int primary key, dept_name varchar(10), dept_member varchar(10))	0 row(s) affected	0.422 sec
4	15:48:53	create table Employees(emp_id int PRIMARY KEY, ename varchar(10), salary int, dept_id int, foreign key(dept_id) references departments(dept_id))	0 row(s) affected	0.781 sec
5	15:51:56	insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.078 sec
6	15:52:05	select * from departments LIMIT 0, 1000	5 row(s) returned	0.015 sec / 0.000 sec

```
17 • insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10);
18 • select * from departments;
19 • INSERT into Employees values(101,'Ram', 10000, 2), (102,'Shyam', 2000, 1), (103,'Diya', 5000, 3), (104,'Shiya', 9000, 4), (105,'Rama', 4000, 5);
20 • select * from Employees;
21
```

Result Grid

emp_id	ename	salary	dept_id
101	Ram	10000	2
102	Shyam	2000	1
103	Diya	5000	3
104	Shiya	9000	4
105	Rama	4000	5

Employees 2 x

Output

Action Output

#	Time	Action	Message
2	15:48:35	use newdatas	0 row(s) affected
3	15:48:40	create table departments(dept_id int primary key, dept_name varchar(10), dept_member varchar(10))	0 row(s) affected
4	15:48:53	create table Employees(emp_id int PRIMARY KEY, ename varchar(10), salary int, dept_id int, foreign key(dept_id) references departments(dept_id))	0 row(s) affected
5	15:51:56	insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0
6	15:52:05	select * from departments LIMIT 0, 1000	5 row(s) returned
7	15:56:03	INSERT into Employees values(101,'Ram', 10000, 2), (102,'Shyam', 2000, 1), (103,'Diya', 5000, 3), (104,'Shiya', 9000, 4), (105,'Rama', 4000, 5)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0
8	15:56:14	select * from Employees LIMIT 0, 1000	5 row(s) returned

RESULT : showing two tables' Departments and Employees with 5 values in both of them.

2(a) finding maximum and minimum salary

SQL Editor:

```
22 • select max(salary) as max_salary from Employees;
```

Result 3

max_salary
10000

Output:

#	Time	Action	Message
3	15:48:46	create table departments(dept_id int primary key, dept_name varchar(10), dept_member varchar(10))	0 row(s) affected
4	15:48:53	create table Employees(emp_id int PRIMARY KEY, ename varchar(10), salary int, dept_id int, foreign key(dept_id) references departments(dept_id))	0 row(s) affected
5	15:51:56	insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0
6	15:52:05	select * from departments LIMIT 0, 1000	5 row(s) returned
7	15:56:03	INSERT into Employees values(101, 'Ram', 10000, 2), (102, 'Shyam', 2000, 1), (103, 'Diya', 5000, 3), (104, 'Shiya', 9000, 4), (105, 'Rama', 4000, 5)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0
8	15:56:14	select * from Employees LIMIT 0, 1000	5 row(s) returned
9	16:02:06	select max(salary) as max_salary from Employees LIMIT 0, 1000	1 row(s) returned

SQL Editor:

```
22 • select max(salary) as max_salary from Employees;
```

```
23 • select min(salary) as min_salary from Employees;
```

Result 4

min_salary
2000

Output:

#	Time	Action	Message
4	15:48:53	create table Employees(emp_id int PRIMARY KEY, ename varchar(10), salary int, dept_id int, foreign key(dept_id) references departments(dept_id))	0 row(s) affected
5	15:51:56	insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10)	5 row(s) affected Rec
6	15:52:05	select * from departments LIMIT 0, 1000	5 row(s) returned
7	15:56:03	INSERT into Employees values(101, 'Ram', 10000, 2), (102, 'Shyam', 2000, 1), (103, 'Diya', 5000, 3), (104, 'Shiya', 9000, 4), (105, 'Rama', 4000, 5)	5 row(s) affected Rec
8	15:56:14	select * from Employees LIMIT 0, 1000	5 row(s) returned
9	16:02:06	select max(salary) as max_salary from Employees LIMIT 0, 1000	1 row(s) returned
10	16:03:37	select min(salary) as min_salary from Employees LIMIT 0, 1000	1 row(s) returned

Result: Min and Max Salary

2(b) Second Highest/Lowest by Subquery method

25 • `select max(salary) as second_largest from Employees where salary < (select max(salary) from Employees);`

Result Grid

	second_largest
▶	9000

Result 5 x

Output

#	Time	Action	Message
5	15:51:56	insert into departments values(1,'Computer',20),(2,'Civil',10),(3,'Mechanical',5),(4,'Software',25),(5,'Hardware',10)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0
6	15:52:05	select * from departments LIMIT 0, 1000	5 row(s) returned
7	15:56:03	INSERT INTO Employees values(101, 'Rani', 10000, 2), (102, 'Shyam', 2000, 1), (103, 'Diya', 5000, 3), (104, 'Shya', 9000, 4), (105, 'Rama', 4000, 5)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0
8	15:56:14	select * from Employees LIMIT 0, 1000	5 row(s) returned
9	16:02:06	select max(salary) as max_salary from Employees LIMIT 0, 1000	1 row(s) returned
10	16:03:37	select min(salary) as min_salary from Employees LIMIT 0, 1000	1 row(s) returned
11	16:06:46	select max(salary) as second_largest from Employees where salary < (select max(salary) from Employees) LIMIT 0, 1000	1 row(s) returned

28 • `select salary as second_lowest from Employees order by salary asc limit 1;`

Result Grid

	second_lowest
▶	2000

Employees 7 x

Output

#	Time	Action	Message
8	15:56:14	select * from Employees LIMIT 0, 1000	5 row(s) returned
9	16:02:06	select max(salary) as max_salary from Employees LIMIT 0, 1000	1 row(s) returned
10	16:03:37	select min(salary) as min_salary from Employees LIMIT 0, 1000	1 row(s) returned
11	16:06:46	select max(salary) as second_largest from Employees where salary < (select max(salary) from Employees) LIMIT 0, 1000	1 row(s) returned
12	16:08:58	select min(salary) as second_lowest from Employees where salary < (select min(salary) from Employees) LIMIT 0, 1000	1 row(s) returned
13	16:09:44	select salary as second_lowest from Employee order by salary asc limit 1	Error Code: 1146. Table 'newdatas.employee' doesn't exist
14	16:09:55	select salary as second_lowest from Employees order by salary asc limit 1	1 row(s) returned

29 • `select salary as second_largest from Employees order by salary desc limit 1,1;`

Result Grid

	second_largest
▶	9000

Employees 9 x

Output

#	Time	Action	Message
10	16:03:37	select min(salary) as min_salary from Employees LIMIT 0, 1000	1 row(s) returned
11	16:06:46	select max(salary) as second_largest from Employees where salary < (select max(salary) from Employees) LIMIT 0, 1000	1 row(s) returned
12	16:08:58	select min(salary) as second_lowest from Employees where salary < (select min(salary) from Employees) LIMIT 0, 1000	1 row(s) returned
13	16:09:44	select salary as second_lowest from Employee order by salary asc limit 1	Error Code: 1146. Table 'ne
14	16:09:55	select salary as second_lowest from Employees order by salary asc limit 1	1 row(s) returned
15	16:11:01	select salary as second_largest from Employees order by salary desc limit 1	1 row(s) returned
16	16:11:32	select salary as second_largest from Employees order by salary desc limit 1,1	1 row(s) returned

Result: Showing second largest(subquery+limit) and second lowest(limit)

3 Joins with Order by and Group by Clause

Left Join:

31 • `select e.ename, e.salary, d.dept_name, d.dept_id from Employees e LEFT JOIN departments d ON e.dept_id=d.dept_id order by dept_id asc;`

Result Grid

ename	salary	dept_name	dept_id
Shyam	2000	Computer	1
Ram	10000	Civil	2
Diya	5000	Mechanical	3
Shiya	9000	Software	4
Rama	4000	Hardware	5

Result 11

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	16:17:34	select e.ename, e.salary, d.dept_name, d.dept_id from Employees e LEFT JOIN departments d ON e.dept_id=d.dept_id order by dept_id asc LIMIT 0, 10...	5 row(s) returned	0.000 sec / 0.000 sec

Right Join: (additional row is added with dept_name testing)

33 • `select e.ename, e.salary, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc;`

34

Result Grid

ename	salary	dept_name
Ram	10000	Civil
Shiya	9000	Software
Diya	5000	Mechanical
Rama	4000	Hardware
Shyam	2000	Computer
Testing		Testing

Result 13

Output

Action Output

#	Time	Action	Message
1	16:21:43	select e.ename, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000	6 row(s) returned
2	16:21:55	select e.ename, e.salary, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000	select e.ename, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000

Inner Join:

34 • `select e.ename, e.salary, d.dept_name from Employees e INNER JOIN departments d on e.dept_id=d.dept_id order by e.salary asc;`

Result Grid

ename	salary	dept_name
Shyam	2000	Computer
Rama	4000	Hardware
Diya	5000	Mechanical
Shiya	9000	Software
Ram	10000	Civil

Result 14

Output

Action Output

#	Time	Action	Message
1	16:21:43	select e.ename, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000	6 row(s) returned
2	16:21:55	select e.ename, e.salary, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000	6 row(s) returned
3	16:23:09	select e.ename, e.salary, d.dept_name from Employees e INNER JOIN departments d on e.dept_id=d.dept_id order by e.salary asc LIMIT 0, 1000	5 row(s) returned

Union:

```

34 • select e.ename, e.salary, d.dept_name from Employees e INNER JOIN departments d on e.dept_id=d.dept_id order by e.salary asc;
35 • select ename from Employees
36 UNION
37 select dept_name from departments;
38

```

Result Grid

ename
Ram
Shyam
Diya
Shiya
Rama
Computer
Civil
Mechanical
Software
Hardware
Testing

Result 15 x

Output

#	Time	Action	Message
1	16:21:43	select e.ename, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000	6 row(s) returned
2	16:21:55	select e.ename, e.salary, d.dept_name from Employees e RIGHT JOIN departments d on e.dept_id=d.dept_id order by e.salary desc LIMIT 0, 1000	6 row(s) returned
3	16:23:09	select e.ename, e.salary, d.dept_name from Employees e INNER JOIN departments d on e.dept_id=d.dept_id order by e.salary asc LIMIT 0, 1000	5 row(s) returned
4	16:25:53	select ename from Employees UNION select dept_name from departments	11 row(s) returned

Self-Join:

```

39 • select distinct e.ename from Employees e , departments d where e.salary>5000 ;

```

Result Grid

ename
Shiya
Ram

Result: Left, Right, Inner, Self, Union Joins.

4 Query with Aggregate Functions:

```

39 • select distinct e.ename from Employees e , departments d where e.salary>5000 ;
40 • select sum(salary) as total_salary_sum from Employees;

```

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
	total_salary_sum			
▶	30000			

```

41 • select avg(salary) as avg_salary from Employees;

```

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
	avg_salary			
▶	6000.0000			

Result 20 x

Output			
#	Time	Action	Message
4	16:25:53	select ename from Employees UNION select dept_name from departments	11 row(s) returned
5	16:29:48	select e.ename from Employees , departments d where e.salary>5000 LIMIT 0, 1000	Error Code: 1054. Unknown column 'e.ename' in 'field list'
6	16:30:09	select e.ename from Employees e , departments d where e.salary>5000 LIMIT 0, 1000	12 row(s) returned
7	16:30:24	select distinct e.ename from Employees e , departments d where e.salary>5000 LIMIT 0, 1000	2 row(s) returned
8	16:33:59	select sum(salary) as total_salary_sum from Employees LIMIT 0, 1000	1 row(s) returned
9	16:34:36	select avg(salary) as avg_salary from Employees LIMIT 0, 1000	1 row(s) returned
10	16:34:49	select avg(salary) as avg_salary from Employees LIMIT 0, 1000	1 row(s) returned

```

39 • select distinct e.ename from Employees e , departments d where e.salary>5000 ;
40 • select sum(salary) as total_salary_sum from Employees;
41 • select avg(salary) as avg_salary from Employees;
42 • select count(dept_member) as number_memb from departments;
43

```

Result Grid		Filter Rows:	Export:	Wrap Cell Content:
	number_memb			
▶	6			

```

41 • select avg(salary) as avg_salary from Employees;
42 • select count(dept_member) as number_memb from departments;
43 • select max(salary) as max_salary , min(salary) as min_salary from Employees;

```

Result Grid

max_salary	min_salary
10000	2000

Result: Sum, Avg, Count, Max , Min applied to get outputs.

5. Queries with String functions:

Concat, lower, upper:

```

44 • select concat(emp_id , ',' ,ename) as combination , lower(ename) as l_ename , upper(ename) as u_ename from Employees;

```

Result Grid

combination	l_ename	u_ename
101 Ram	ram	RAM
102 Shyam	shyam	SHYAM
103 Diya	diya	DIYA
104 Shiya	shiya	SHIYA
105 Rama	rama	RAMA




Result 23 x

Output

#	Time	Action	Message
7	16:30:24	select distinct e.ename from Employees e , departments d where e.salary>5000 LIMIT 0, 1000	2 row(s) returned
8	16:33:59	select sum(salary) as total_salary_sum from Employees LIMIT 0, 1000	1 row(s) returned
9	16:34:36	select avg(salary) as avg_salary from Employees LIMIT 0, 1000	1 row(s) returned
10	16:34:49	select avg(salary) as avg_salary from Employees LIMIT 0, 1000	1 row(s) returned
11	16:35:44	select count(dept_member) as number_memb from departments LIMIT 0, 1000	1 row(s) returned
12	16:42:19	select max(salary) as max_salary , min(salary) as min_salary from Employees LIMIT 0, 1000	1 row(s) returned
13	16:45:50	select concat(emp_id , ',' ,ename) as combination , lower(ename) as l_ename , upper(ename) as u_ename from Employees LIMIT 0, 1000	5 row(s) returned

Replace:

```
45 • select replace (ename , 'Shiya', 'Mansi') from Employees;
```

<	
Result Grid  Filter Rows: <input type="text"/> Export:  Wrap Cell Content: 	
	replace (ename , 'Shiya', 'Mansi')
▶	Ram
	Shyam
	Diya
	Mansi
	Rama

Trim, Substring, instr;

```
47 • select trim(ename) as trimmed_name , substring(ename, 1,3) as half_name , instr(ename, 'm') as position_word from Employees;
```

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	trimmed_name	half_name	position_word
▶	Ram	Ram	3
	Shyam	Shy	5
	Diya	Diy	0
	Shiya	Shi	0
	Rama	Ram	3