

DBMS Lab

Assignment - 5

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Sub Code: CSE-227

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CSE - 3

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DBMS: LAB-ASSIGNMENT-5 22-02-2021

Query 1 Retrieve the birth date and address of the employee(s) whose name is 'John B. Smith'.

```
select Bdate, Address
from employee
where (Fname,Minit,Lname) = ('John','B','Smith');
```

The screenshot displays the MySQL Workbench interface. On the left, the 'SCHEMAS' pane shows a database named 'company-191112419' with tables like 'department', 'employee', and 'project'. The main editor shows a SQL query: `-- Query -1`, `select Bdate, Address`, `from employee`, `where (Fname,Minit,Lname) = ('John','B','Smith');`. Below the query, the 'Result Grid' shows a single row of results: Bdate: 1965-01-09, Address: 731 Fondren, Houston TX. At the bottom, the 'Output' pane shows a log of actions, including the execution of the query at 17:18:53, which returned 1 row(s).

Columns:	Value
Bdate	1965-01-09
Address	731 Fondren, Houston TX

Query 2 Retrieve the name and address of all employees who work for the 'Research' department.

```
select CONCAT(Fname, ' ', Minit, '. ', Lname) as Name, Address
from employee, department
where Dname='Research';
```

The screenshot displays the MySQL Workbench interface. The 'Query' tab is active, showing the following SQL query:

```
-- Query -2
select CONCAT(Fname, ' ', Minit, '. ', Lname) as Name, Address
from employee, department
where Dname='Research';
```

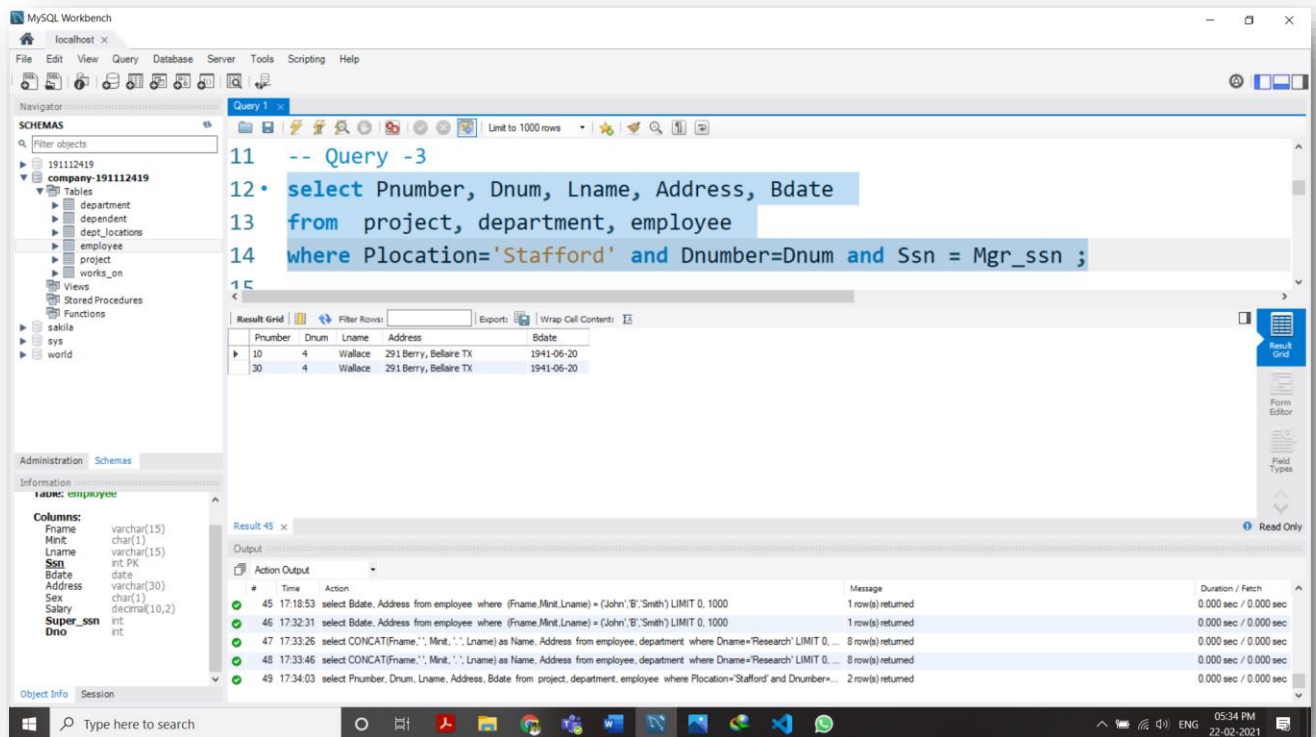
The 'Result Grid' shows the output of the query, displaying the Name and Address of employees in the Research department:

Name	Address
John B. Smith	731 Fondren, Houston TX
Franklin T. Wong	638 Voss, Houston TX
Joyce A. English	5631 Rice, Houston TX
Ramesh K. Narayan	975 Fire Oak, Humble TX
James E. Borg	450 Stone, Houston TX
Jennifer S. Wallace	291 Berry, Bellaire TX
Ahmad V. Jabbar	980 Dallas, Houston TX
Alicia J. Zelaya	3321 Castle, Spring TX

The 'Output' tab at the bottom shows the execution log, indicating that the query was executed successfully and returned 8 rows.

Query 3 For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.

```
select Pnumber, Dnum, Lname, Address, Bdate
from project, department, employee
where Plocation='Stafford' and Dnumber=Dnum and Ssn = Mgr_ssn ;
```



The screenshot displays the MySQL Workbench interface. The query editor shows the following SQL query:

```
-- Query -3
select Pnumber, Dnum, Lname, Address, Bdate
from project, department, employee
where Plocation='Stafford' and Dnumber=Dnum and Ssn = Mgr_ssn ;
```

The result grid shows the following data:

Pnumber	Dnum	Lname	Address	Bdate
10	4	Wallace	291 Berry, Bellaire TX	1941-06-20
30	4	Wallace	291 Berry, Bellaire TX	1941-06-20

The output pane shows the execution log with the following entries:

#	Time	Action	Message	Duration / Fetch
45	17:19:53	select Bdate, Address from employee where (Frame.Mnt.Lname) = (John,'B','Smith') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
46	17:32:31	select Bdate, Address from employee where (Frame.Mnt.Lname) = (John,'B','Smith') LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
47	17:33:26	select CONCAT(Frame.';', Mnt.';', Lname) as Name, Address from employee, department where Dname='Research' LIMIT 0, ...	8 row(s) returned	0.000 sec / 0.000 sec
48	17:33:46	select CONCAT(Frame.';', Mnt.';', Lname) as Name, Address from employee, department where Dname='Research' LIMIT 0, ...	8 row(s) returned	0.000 sec / 0.000 sec
49	17:34:03	select Pnumber, Dnum, Lname, Address, Bdate from project, department, employee where Plocation='Stafford' and Dnumber=...	2 row(s) returned	0.000 sec / 0.000 sec

Query 4 For each employee, retrieve the employee's first and last name and the first and last name of his or her immediate supervisor.

```
select E.Fname, E.Lname, S.Fname, S.Lname
from employee as E, employee as S
where S.Ssn = E.Super_ssn;
```

The screenshot shows the MySQL Workbench interface. The 'Query Editor' window displays the following SQL query:

```
-- Query -4
select E.Fname, E.Lname, S.Fname, S.Lname
from employee as E, employee as S
where S.Ssn = E.Super_ssn;
```

The 'Result Grid' window shows the results of the query, which are displayed in a table with 4 columns: Fname, Lname, Fname, and Lname. The results are as follows:

Fname	Lname	Fname	Lname
John	Smith	Franklin	Wong
Franklin	Wong	James	Borg
Joyce	English	Franklin	Wong
Ramesh	Narayan	Franklin	Wong
Jennifer	Wallace	James	Borg
Ahmad	Jabbar	Jennifer	Wallace
Alcia	Zelaya	Jennifer	Wallace

The 'Object Info' window shows the structure of the 'employee' table:

Columns:	Types:
Fname	varchar(15)
Minit	char(1)
Lname	varchar(15)
Ssn	int PK
Bdate	date
Address	varchar(30)
Sex	char(1)
Salary	decimal(10,2)
Super_ssn	int
Dno	int

The 'Output' window shows the execution progress of the query, including the time taken and the number of rows returned for each step.

Query 5 Retrieve the salary of every employee and all distinct salary values

```
select all Salary from employee;  
select distinct Salary from employee;
```

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree with 'company-19112419' selected, showing tables like 'department', 'employee', and 'works_on'. The main editor shows the following SQL queries:

```
21 -- Query -5  
22 select all Salary from employee;  
23 select distinct Salary from employee;  
24  
25 -- Query -6
```

The 'Result Grid' shows the output of the first query, displaying a list of salary values:

Salary
30000.00
40000.00
25000.00
38000.00
55000.00
43000.00
25000.00
25000.00

The 'Action Output' pane at the bottom shows the execution details of the queries, including the time taken and the number of rows returned.

This screenshot is similar to the one above, showing the same MySQL Workbench interface. The SQL queries in the editor are identical. The 'Result Grid' displays the same salary values. The 'Action Output' pane shows the execution details for the queries, including the time taken and the number of rows returned.

Query 6 Make a list of all project numbers for projects that involve an employee whose last name is 'Smith', either as a worker or as a manager of the department that controls the project.

```
(select Pnumber from project, works_on, employee
where Lname = 'Smith' and (Pnumber,Essn)=(Pno,Ssn) )
union
(select Pnumber from project, department, employee
where Lname = 'Smith' and (Dnum,Mgr_ssn)=(Dnumber,Ssn) );
```

The screenshot shows the MySQL Workbench interface. The main editor displays the SQL query for Query 6, which is a UNION of two SELECT statements. The first SELECT statement joins the project, works_on, and employee tables to find project numbers where an employee with the last name 'Smith' is working on the project. The second SELECT statement joins the project, department, and employee tables to find project numbers where an employee with the last name 'Smith' is managing the department that controls the project. The results grid shows the output of the query, which is a list of project numbers. The output is displayed in a table with the following columns: Pnumber, Dnum, Lname, Address, Bdate, and Salary. The results are as follows:

Pnumber	Dnum	Lname	Address	Bdate	Salary
30000.00					
40000.00					
25000.00					
38000.00					
55000.00					
43000.00					

The bottom panel shows the 'Output' tab, which displays the execution log of the query. The log shows the following actions:

- 49 17:34:03 select Pnumber, Dnum, Lname, Address, Bdate from project, department, employee where Plocation='Stafford' and Dnumber=...
- 50 17:34:26 select E.Fname, E.Lname, S.Fname, S.Lname from employee as E, employee as S where S.Ssn = E.Super_ssn LIMIT 0, 1000
- 51 17:34:31 select E.Fname, E.Lname, S.Fname, S.Lname from employee as E, employee as S where S.Ssn = E.Super_ssn LIMIT 0, 1000
- 52 17:35:24 select all Salary from employee LIMIT 0, 1000
- 53 17:35:47 select distinct Salary from employee LIMIT 0, 1000

Query 7 Retrieve all employees whose address is in Houston, Texas.

```
select * from employee where Address like '%Houston TX%';
```

The screenshot displays the MySQL Workbench interface. The 'Query' tab is active, showing the following SQL queries:

```
32 -- Query -7
33 * select * from employee where Address like '%Houston TX%';
34
35 -- Query -8
36 * select * from employee where Bdate like '%1965%';
```

The 'Result Grid' shows the results of Query 7, displaying 5 rows of employee data:

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1965-12-08	638 Woss, Houston TX	M	40000.00	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston TX	F	25000.00	333445555	5
James	E	Borg	888665555	1937-11-10	450 Stone, Houston TX	M	55000.00	NULL	1
Ahmad	V	Jabbar	987654321	1969-03-29	980 Dallas, Houston TX	M	25000.00	987654321	4

The 'Object Info' panel on the left shows the structure of the 'employee' table:

- Fname: varchar(15)
- Minit: char(1)
- Lname: varchar(15)
- Ssn: int PK
- Bdate: date
- Address: varchar(30)
- Sex: char(1)
- Salary: decimal(10,2)
- Super_ssn: int
- Dno: int

The 'Action Output' panel at the bottom shows the execution details of the queries:

#	Time	Action	Message	Duration / Fetch
50	17:34:26	select E.Fname, E.Lname, S.Fname, S.Lname from employee as E, employee as S where S.Ssn = E.Super_ssn LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
51	17:34:31	select E.Fname, E.Lname, S.Fname, S.Lname from employee as E, employee as S where S.Ssn = E.Super_ssn LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
52	17:35:24	select all Salary from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
53	17:35:47	select distinct Salary from employee LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
54	17:37:03	select * from employee where Address like "%Houston TX%" LIMIT 0, 1000	5 row(s) returned	0.015 sec / 0.000 sec

Query 8 Find all employees who were born in 1958s.

```
select * from employee where Bdate like '%1965%';
```

The screenshot shows the MySQL Workbench interface. The 'Query' tab is active, displaying the following SQL code:

```
35 -- Query -8
36 select * from employee where Bdate like '%1965%';
37
38 -- Query -9
```

The 'Result Grid' shows the results of the query. It contains two rows of data:

Id	First Name	Last Name	Address	City	State	Zip	Phone Number	Extension	Department	
1	John	B	Smith	123456789	1965-01-09	731 Fondren, Houston TX	M	30000.00	333445555	5
2	Franklin	T	Wong	333445555	1965-12-08	638 Voss, Houston TX	M	40000.00	888665555	5

The 'Information' tab is also visible, showing the columns of the 'employee' table:

Column	Data Type
First Name	varchar(15)
Last Name	varchar(15)
Address	varchar(30)
City	varchar(15)
State	varchar(15)
Zip	int(10)
Phone Number	int(10)
Extension	int(10)
Department	int(10)

The 'Output' tab shows the execution log, including the query and its results:

Time	Action	Message	Duration / Fetch
17:34:31	select E.First Name, E.Last Name, S.First Name, S.Last Name from employee as E, employee as S where S.Zip = E.Zip LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
17:35:24	select all Salary from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
17:35:47	select distinct Salary from employee LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
17:37:03	select * from employee where Address like '%Houston TX%': LIMIT 0, 1000	5 row(s) returned	0.015 sec / 0.000 sec
17:37:21	select * from employee where Bdate like '%1965%': LIMIT 0, 1000	2 row(s) returned	0.000 sec / 0.000 sec

Query 9 Show the resulting salaries if every employee working on the 'ProductX' project is given a 10% raise.

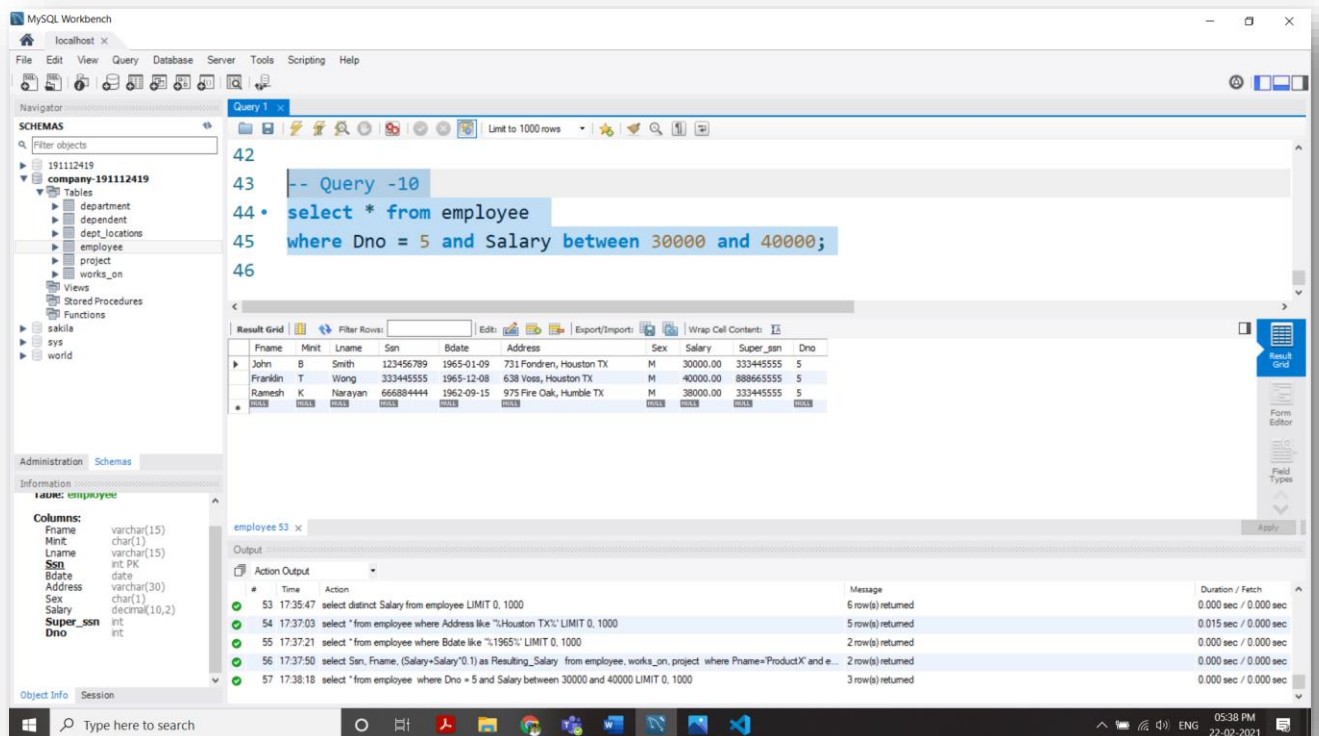
```
select Ssn, Fname, (Salary+Salary*0.1) as Resulting_Salary
from employee, works_on, project
where Pname='ProductX' and employee.Ssn = works_on.Essn and works_on.Pno = project.Pnumber;
```

The screenshot displays the MySQL Workbench interface. The left sidebar shows the 'SCHEMAS' panel with a tree view of the database structure, including tables like 'employee', 'works_on', and 'project'. The main editor window shows the SQL query for Query 9, which calculates a 10% raise for employees working on 'ProductX'. Below the query editor, the 'Result Grid' shows the output of the query, displaying columns 'Ssn', 'Fname', and 'Resulting_Salary' for two employees: John (Ssn: 123456789, Resulting_Salary: 33000.000) and Joyce (Ssn: 453453453, Resulting_Salary: 27500.000). The bottom panel shows the 'Output' tab with a log of database actions and their durations.

Ssn	Fname	Resulting_Salary
123456789	John	33000.000
453453453	Joyce	27500.000

Query 10 Retrieve all employees in department 5 whose salary is between \$30,000 and \$40,000.

```
select * from employee
where Dno = 5 and Salary between 30000 and 40000;
```



MySQL Workbench interface showing the execution of Query 10. The query is:

```
-- Query -10
select * from employee
where Dno = 5 and Salary between 30000 and 40000;
```

The result grid displays the following data:

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1965-12-08	638 Voiss, Houston TX	M	40000.00	888665555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble TX	M	38000.00	333445555	5

The bottom panel shows the action output for the query:

#	Time	Action	Message	Duration / Fetch
53	17:35:47	select distinct Salary from employee LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
54	17:37:03	select * from employee where Address like "LHouston TX"; LIMIT 0, 1000	5 row(s) returned	0.015 sec / 0.000 sec
55	17:37:21	select * from employee where Bdate like "%1965%"; LIMIT 0, 1000	2 row(s) returned	0.000 sec / 0.000 sec
56	17:37:50	select Ssn, Fname, (Salary+Salary*0.1) as Resulting_Salary from employee, works_on, project where Fname=ProductX and e...	2 row(s) returned	0.000 sec / 0.000 sec
57	17:38:18	select * from employee where Dno = 5 and Salary between 30000 and 40000 LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec

All SQL Queries:

```
-- Query -1
select Bdate, Address
from employee
where (Fname,Minit,Lname) = ('John','B','Smith');

-- Query -2
select CONCAT(Fname,' ', Minit, '. ', Lname) as Name, Address
from employee, department
where Dname='Research';

-- Query -3
select Pnumber, Dnum, Lname, Address, Bdate
from project, department, employee
where Plocation='Stafford' and Dnumber=Dnum and Ssn = Mgr_ssn ;

-- Query -4
select E.Fname, E.Lname, S.Fname, S.Lname
from employee as E, employee as S
where S.Ssn = E.Super_ssn;

-- Query -5
select all Salary from employee;
select distinct Salary from employee;

-- Query -6
(select Pnumber from project, works_on, employee
where Lname ='Smith' and (Pnumber,Essn)=(Pno,Ssn) )
union
(select Pnumber from project, department, employee
where Lname ='Smith' and (Dnum,Mgr_ssn)=(Dnumber,Ssn) );

-- Query -7
select * from employee where Address like '%Houston TX%';

-- Query -8
select * from employee where Bdate like '%1965%';

-- Query -9
select Ssn, Fname, (Salary+Salary*0.1) as Resulting_Salary
from employee, works_on, project
where Pname='ProductX' and employee.Ssn = works_on.Essn and works_on
.Pno = project.Pnumber;

-- Query -10
select * from employee
where Dno = 5 and Salary between 30000 and 40000;
```