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Department: CSE

Section:3

Semester: 4th

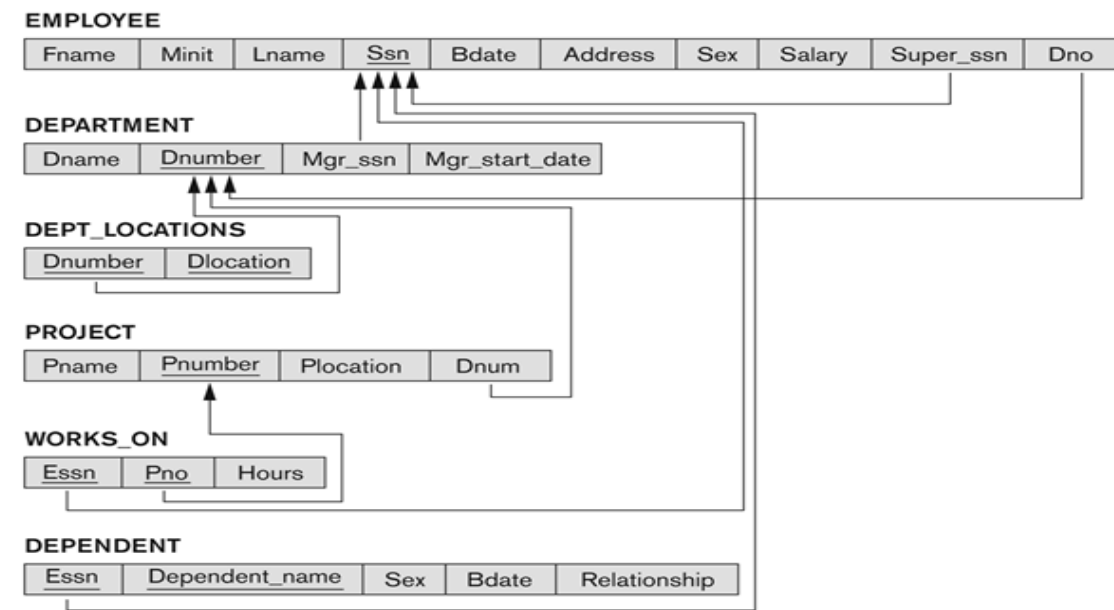
Subject: DBMS Lab

Date: 01/02/2021

Subject	DBMS LAB	Session: Jan- 2021
Sub. Code:	CSE-227	Semester: IV (CSE)
Name of Teacher	Dr. Sweta Jain, & Dr. Nikhil Kumar Singh	

DBMS: LAB-ASSIGNMENT 3

Prog7: Create Company data base and Table as follow



Insert following values in respective table.

EMPLOYEE

Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
John	B	Smith	123456789	1965-01-09	731 Fondren, Houston, TX	M	30000	333445555	5
Franklin	T	Wong	333445555	1955-12-08	638 Voss, Houston, TX	M	40000	888665555	5
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring, TX	F	25000	987654321	4
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire, TX	F	43000	888665555	4
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000	333445555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston, TX	F	25000	333445555	5
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston, TX	M	25000	987654321	4
James	E	Borg	888665555	1937-11-10	450 Stone, Houston, TX	M	55000	NULL	1

DEPARTMENT

Dname	Dnumber	Mgr_ssn	Mgr_start_date
Research	5	333445555	1988-05-22
Administration	4	987654321	1995-01-01
Headquarters	1	888665555	1981-06-19

DEPT_LOCATIONS

Dnumber	Dlocation
1	Houston
4	Stafford
5	Bellaire
5	Sugarland
5	Houston

WORKS_ON

Essn	Pno	Hours
123456789	1	32.5
123456789	2	7.5
666884444	3	40.0
453453453	1	20.0
453453453	2	20.0
333445555	2	10.0
333445555	3	10.0
333445555	10	10.0
333445555	20	10.0
999887777	30	30.0
999887777	10	10.0
987987987	10	35.0
987987987	30	5.0
987654321	30	20.0
987654321	20	15.0
888665555	20	NULL

PROJECT

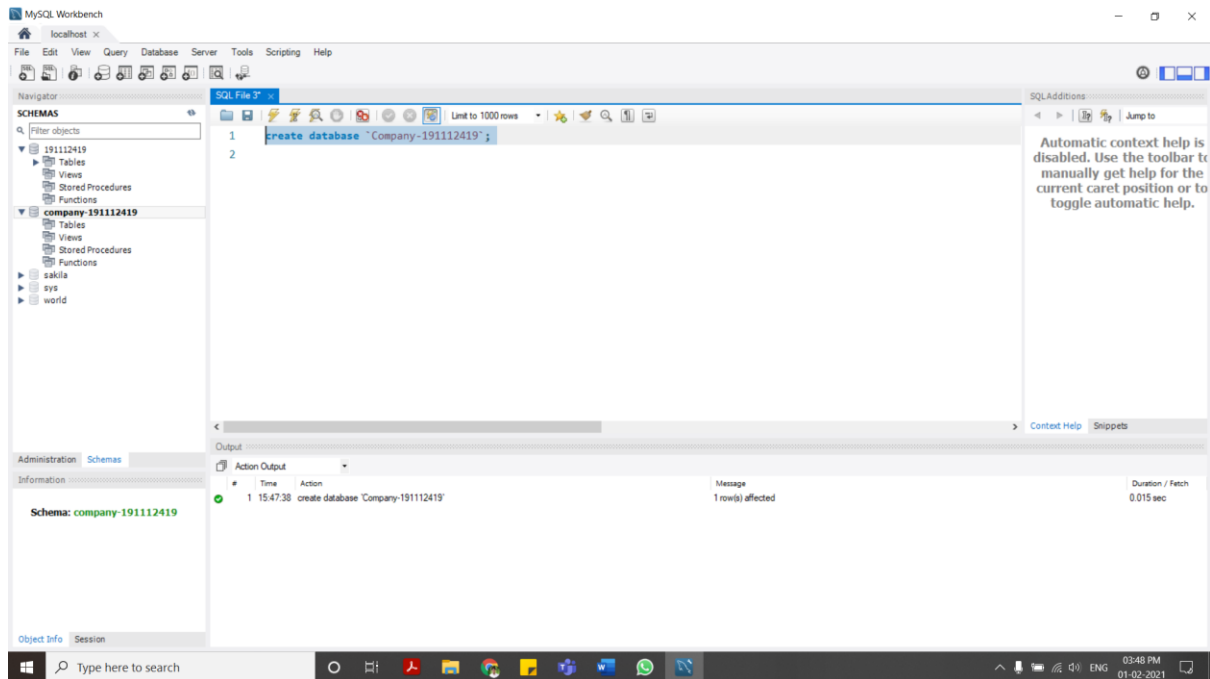
Pname	Pnumber	Plocation	Dnum
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenefits	30	Stafford	4

DEPENDENT

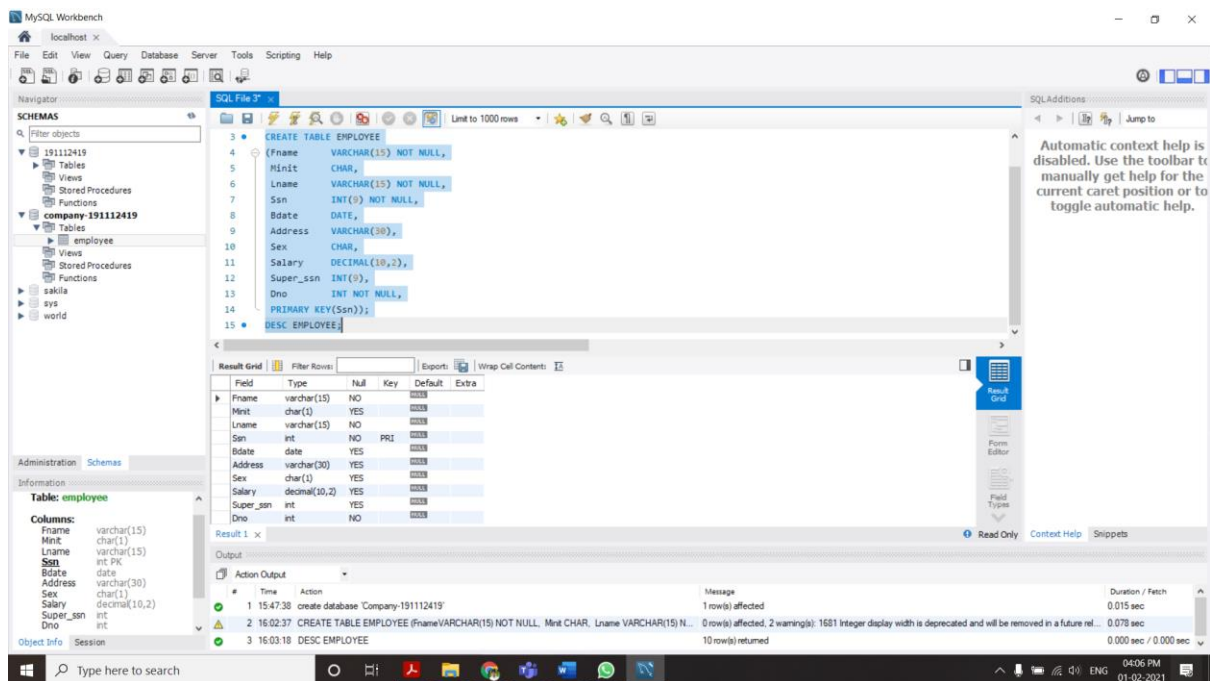
Essn	Dependent_name	Sex	Bdate	Relationship
333445555	Alice	F	1986-04-05	Daughter
333445555	Theodore	M	1983-10-25	Son
333445555	Joy	F	1958-05-03	Spouse
987654321	Abner	M	1942-02-28	Spouse
123456789	Michael	M	1988-01-04	Son
123456789	Alice	F	1988-12-30	Daughter
123456789	Elizabeth	F	1967-05-05	Spouse

Solution:

Created database Company-191112419 :-



EMPLOYEE TABLE:



DEPARTMENT TABLE:

The screenshot shows the MySQL Workbench interface with the SQL File editor open. The SQL script contains the following code:

```
15 DESC EMPLOYEE;
16
17 CREATE TABLE DEPARTMENT
18 (Dname VARCHAR(15) NOT NULL,
19 Dnumber INT NOT NULL,
20 Mgr_ssn INT(9) NOT NULL,
21 Mgr_start_date DATE,
22 PRIMARY KEY(Dnumber),
23 UNIQUE(Dname),
24 FOREIGN KEY(Mgr_ssn) REFERENCES EMPLOYEE(ssn));
25 DESC DEPARTMENT;
```

The Result Grid shows the structure of the DEPARTMENT table:

Field	Type	Null	Key	Default	Extra
Dname	varchar(15)	NO	UNI		
Dnumber	int	NO	PRI		
Mgr_ssn	int	NO	FK		
Mgr_start_date	date	YES			

The Output pane shows the execution results:

#	Time	Action	Message	Duration / Fetch
1	15:47:38	create database 'Company-191112419'	1 row(s) affected	0.015 sec
2	16:02:37	CREATE TABLE EMPLOYEE (Fname VARCHAR(15) NOT NULL, Minit CHAR, Lname VARCHAR(15) NOT NULL, Ssn INT(9) NOT NULL, Birthdate DATE, Sex CHAR(1), Title VARCHAR(15), Salary DEC(7,2), Superior_ssn INT(9) NOT NULL, Superior_start_date DATE, PRIMARY KEY(Ssn), FOREIGN KEY(Superior_ssn) REFERENCES EMPLOYEE(ssn));	0 row(s) affected, 2 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.078 sec
3	16:03:18	DESC EMPLOYEE	10 row(s) returned	0.000 sec / 0.000 sec
4	16:13:26	CREATE TABLE DEPARTMENT (Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr_ssn INT(9) NOT NULL, Mgr_start_date DATE, PRIMARY KEY(Dnumber), UNIQUE(Dname), FOREIGN KEY(Mgr_ssn) REFERENCES EMPLOYEE(ssn));	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.047 sec
5	16:13:51	DESC DEPARTMENT	4 row(s) returned	0.016 sec / 0.000 sec

TABLE DEPT_LOCATIONS

The screenshot shows the MySQL Workbench interface with the SQL File editor open. The SQL script contains the following code:

```
26
27 CREATE TABLE DEPT_LOCATIONS
28 (Dnumber INT NOT NULL,
29 Dlocation VARCHAR(15) NOT NULL,
30 PRIMARY KEY(Dnumber,Dlocation),
31 FOREIGN KEY(Dnumber) REFERENCES DEPARTMENT(Dnumber));
32 DESC DEPT_LOCATIONS;
```

The Result Grid shows the structure of the DEPT_LOCATIONS table:

Field	Type	Null	Key	Default	Extra
Dnumber	int	NO	PRI		
Dlocation	varchar(15)	NO	PRI		

The Output pane shows the execution results:

#	Time	Action	Message	Duration / Fetch
2	16:02:37	CREATE TABLE EMPLOYEE (Fname VARCHAR(15) NOT NULL, Minit CHAR, Lname VARCHAR(15) NOT NULL, Ssn INT(9) NOT NULL, Birthdate DATE, Sex CHAR(1), Title VARCHAR(15), Salary DEC(7,2), Superior_ssn INT(9) NOT NULL, Superior_start_date DATE, PRIMARY KEY(Ssn), FOREIGN KEY(Superior_ssn) REFERENCES EMPLOYEE(ssn));	0 row(s) affected, 2 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.078 sec
3	16:03:18	DESC EMPLOYEE	10 row(s) returned	0.000 sec / 0.000 sec
4	16:13:26	CREATE TABLE DEPARTMENT (Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr_ssn INT(9) NOT NULL, Mgr_start_date DATE, PRIMARY KEY(Dnumber), UNIQUE(Dname), FOREIGN KEY(Mgr_ssn) REFERENCES EMPLOYEE(ssn));	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.047 sec
5	16:13:51	DESC DEPARTMENT	4 row(s) returned	0.016 sec / 0.000 sec
6	16:28:18	CREATE TABLE DEPT_LOCATIONS (Dnumber INT NOT NULL, Dlocation VARCHAR(15) NOT NULL, PRIMARY KEY(Dnumber,Dlocation), FOREIGN KEY(Dnumber) REFERENCES DEPARTMENT(Dnumber));	0 row(s) affected	0.031 sec
7	16:28:48	DESC DEPT_LOCATIONS	2 row(s) returned	0.016 sec / 0.000 sec

TABLE PROJECT

The screenshot shows the MySQL Workbench interface with the SQL Editor open. The SQL script defines the PROJECT table with the following structure:

```
CREATE TABLE PROJECT (  
  Pname VARCHAR(15) NOT NULL,  
  Pnumber INT NOT NULL,  
  Plocation VARCHAR(15),  
  Dnum INT NOT NULL,  
  PRIMARY KEY (Pnumber),  
  UNIQUE (Pname),  
  FOREIGN KEY (Dnum) REFERENCES DEPARTMENT(Dnumber)),  
DESC PROJECT;
```

The Result Grid shows the table structure:

Field	Type	Null	Key	Default	Extra
Pname	varchar(15)	NO	UNI		
Pnumber	int	NO	PRI		
Plocation	varchar(15)	YES			
Dnum	int	NO	FK		

The Action Output shows the execution of the SQL script:

#	Time	Action	Message	Duration / Fetch
4	16:13:26	CREATE TABLE DEPARTMENT (Dname VARCHAR(15) NOT NULL, Dnumber INT NOT NULL, Mgr VARCHAR(15) NOT NULL)	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release	0.047 sec
5	16:13:51	DESC DEPARTMENT	4 row(s) returned	0.016 sec / 0.000 sec
6	16:28:18	CREATE TABLE DEPT_LOCATIONS (Dnumber INT NOT NULL, Dlocation VARCHAR(15) NOT NULL)	0 row(s) affected	0.031 sec
7	16:28:48	DESC DEPT_LOCATIONS	2 row(s) returned	0.016 sec / 0.000 sec
8	16:39:42	CREATE TABLE PROJECT (Pname VARCHAR(15) NOT NULL, Pnumber INT NOT NULL, Plocation VARCHAR(15), Dnum INT NOT NULL)	0 row(s) affected	0.032 sec
9	16:39:57	DESC PROJECT	4 row(s) returned	0.000 sec / 0.000 sec

TABLE WORKS_ON

The screenshot shows the MySQL Workbench interface with the SQL Editor open. The SQL script defines the WORKS_ON table with the following structure:

```
CREATE TABLE WORKS_ON (  
  Essn INT(9) NOT NULL,  
  Pno INT NOT NULL,  
  Hours DECIMAL(3,1) NOT NULL,  
  PRIMARY KEY (Essn, Pno),  
  FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn),  
  FOREIGN KEY (Pno) REFERENCES PROJECT(Pnumber)),  
DESC WORKS_ON;
```

The Result Grid shows the table structure:

Field	Type	Null	Key	Default	Extra
Essn	int	NO	PRI		
Pno	int	NO	PRI		
Hours	decimal(3,1)	NO			

The Action Output shows the execution of the SQL script:

#	Time	Action	Message	Duration / Fetch
6	16:28:18	CREATE TABLE DEPT_LOCATIONS (Dnumber INT NOT NULL, Dlocation VARCHAR(15) NOT NULL)	0 row(s) affected	0.031 sec
7	16:28:48	DESC DEPT_LOCATIONS	2 row(s) returned	0.016 sec / 0.000 sec
8	16:39:42	CREATE TABLE PROJECT (Pname VARCHAR(15) NOT NULL, Pnumber INT NOT NULL, Plocation VARCHAR(15), Dnum INT NOT NULL)	0 row(s) affected	0.032 sec
9	16:39:57	DESC PROJECT	4 row(s) returned	0.000 sec / 0.000 sec
10	16:43:11	CREATE TABLE WORKS_ON (Essn INT(9) NOT NULL, Pno INT NOT NULL, Hours DECIMAL(3,1) NOT NULL)	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release	0.031 sec
11	16:43:11	DESC WORKS_ON	3 row(s) returned	0.000 sec / 0.000 sec

TABLE DEPENDENT

The screenshot shows the MySQL Workbench interface. The SQL Editor contains the following SQL code:

```
CREATE TABLE DEPENDENT
(
  Essn INT(9) NOT NULL,
  Dependent_name VARCHAR(15) NOT NULL,
  Sex CHAR,
  Bdate DATE,
  Relationship VARCHAR(8),
  PRIMARY KEY (Essn, Dependent_name),
  FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Essn)
) DESC DEPENDENT;
```

The Result Grid shows the table structure:

Field	Type	Null	Key	Default	Extra
Essn	int	NO	PRI		
Dependent_name	varchar(15)	NO	PRI		
Sex	char(1)	YES			
Bdate	date	YES			
Relationship	varchar(8)	YES			

The Output window shows the execution results:

#	Time	Action	Message	Duration / Fetch
8	16:39:42	CREATE TABLE PROJECT (Pname VARCHAR(15) NOT NULL, Pnumber INT NOT NULL ...	0 row(s) affected	0.032 sec
9	16:39:57	DESC PROJECT	4 row(s) returned	0.000 sec / 0.000 sec
10	16:43:11	CREATE TABLE WORKS_ON (Essn INT(9) NOT NULL, Pno INT NOT NULL, Hours ...	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.031 sec
11	16:43:11	DESC WORKS_ON	3 row(s) returned	0.000 sec / 0.000 sec
12	16:45:00	CREATE TABLE DEPENDENT (Essn INT(9) NOT NULL, Dependent_name VARCHAR(15) NO...	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.032 sec
13	16:45:13	DESC DEPENDENT	5 row(s) returned	0.000 sec / 0.000 sec

Inserting data in tables:-

Inserting employee table data

The screenshot shows the MySQL Workbench interface. The SQL Editor contains the following SQL code:

```
INSERT INTO EMPLOYEE VALUES
('John', 'B', 'Smith', 123456789, '1965-01-09', '731 Fondren, Houston TX', 'M', 30000.00, 333445555, 5),
('Franklin', 'T', 'Wong', 333445555, '1965-12-08', '638 Voss, Houston TX', 'M', 40000.00, 888665555, 5),
('Alicia', 'J', 'Zelaya', 999887777, '1968-01-19', '3321 Castle, Spring TX', 'F', 25000.00, 987654321, 4),
('Jennifer', 'S', 'Wallace', 987654321, '1941-06-20', '291 Berry, Bellaire TX', 'F', 43000.00, 888665555, 4),
('Ramesh', 'K', 'Narayan', 666884444, '1962-09-15', '975 Fire Oak, Humble TX', 'M', 38000.00, 333445555, 5),
('Joyce', 'A', 'English', 453453453, '1972-07-31', '5631 Rice, Houston TX', 'F', 25000.00, 333445555, 5),
('Ahmad', 'V', 'Jabbar', 987987987, '1969-03-29', '980 Dallas, Houston TX', 'M', 25000.00, 987654321, 4),
('James', 'E', 'Borg', 888665555, '1937-11-18', '450 Stone, Houston TX', 'M', 55000.00, null, 1);
```

The Result Grid shows the data inserted into the EMPLOYEE table:

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 Voss, Houston TX	M	40000.00	888665555	5
Joyce	A	English	453453453	1972-07-31	5631 Rice, Houston TX	F	25000.00	333445555	5
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble TX	M	38000.00	333445555	5
James	E	Borg	888665555	1937-11-18	450 Stone, Houston TX	M	55000.00		1
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston TX	M	25000.00	987654321	4
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring TX	F	25000.00	987654321	4

The Output window shows the execution results:

#	Time	Action	Message	Duration / Fetch
10	17:20:47	CREATE TABLE WORKS_ON (Essn INT(9) NOT NULL, Pno INT NOT NULL, Hours ...	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.032 sec
11	17:20:47	DESC WORKS_ON	3 row(s) returned	0.000 sec / 0.000 sec
12	17:20:55	CREATE TABLE DEPENDENT (Essn INT(9) NOT NULL, Dependent_name VARCHAR(15) NO...	0 row(s) affected, 1 warning(s): 1681 Integer display width is deprecated and will be removed in a future release.	0.015 sec
13	17:20:55	DESC DEPENDENT	5 row(s) returned	0.000 sec / 0.000 sec
14	17:22:02	INSERT INTO EMPLOYEE VALUES ('John', 'B', 'Smith', ...	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.016 sec
15	17:22:51	SELECT * FROM EMPLOYEE LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec

Inserting Department table data

The screenshot shows the MySQL Workbench interface. The SQL Editor contains the following SQL script:

```
78
79 * INSERT INTO DEPARTMENT VALUES
80 ('Research',5,333445555,'1988-05-22'),
81 ('Administration',4,987654321,'1995-01-01'),
82 ('Headquarters',1,888665555,'1981-06-19');
83
84 SELECT * FROM DEPARTMENT;
```

The Result Grid displays the data inserted into the DEPARTMENT table:

Dname	Dnumber	Mgr_ssn	Mgr_start_date
Headquarters	1	888665555	1981-06-19
Administration	4	987654321	1995-01-01
Research	5	333445555	1988-05-22

The Information tab shows the structure of the DEPARTMENT table:

Column	DataType
Dname	varchar(15)
Dnumber	int(4)
Mgr_ssn	int(9)
Mgr_start_date	date

The Output tab shows the execution results:

#	Time	Action	Message	Duration / Fetch
13	17:20:55	DESC DEPARTMENT	5 row(s) returned	0.000 sec / 0.000 sec
14	17:22:02	INSERT INTO DEPARTMENT VALUES ('Research',5,333445555,'1988-05-22')	8 row(s) affected Records: 8 Duplicates: 0 Warnings: 0	0.016 sec
15	17:22:51	SELECT * FROM DEPARTMENT LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
16	17:30:07	INSERT INTO DEPARTMENT VALUES ('Administration',4,987654321,'1995-01-01')	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
17	17:30:07	SELECT * FROM DEPARTMENT LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec

Inserting Project table data

The screenshot shows the MySQL Workbench interface. The SQL Editor contains the following SQL script:

```
87 * INSERT INTO PROJECT VALUES
88 ('ProductX',1,'Bellaire',5),
89 ('ProductY',2,'Sugarland',5),
90 ('ProductZ',3,'Houston',5),
91 ('Computerization',10,'Stafford',4),
92 ('Reorganization',20,'Houston',1),
93 ('Newbenefits',30,'Stafford',4);
94 SELECT * FROM PROJECT;
```

The Result Grid displays the data inserted into the PROJECT table:

Pname	Pnumber	Plocation	Dnum
ProductX	1	Bellaire	5
ProductY	2	Sugarland	5
ProductZ	3	Houston	5
Computerization	10	Stafford	4
Reorganization	20	Houston	1
Newbenefits	30	Stafford	4

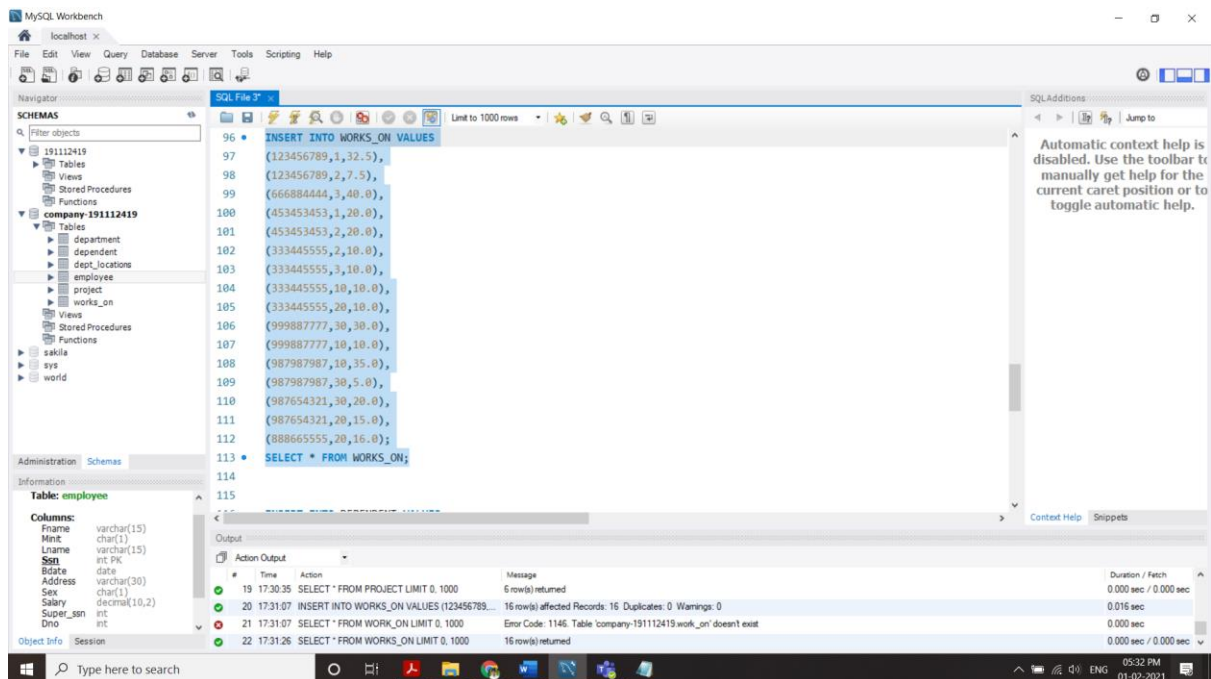
The Information tab shows the structure of the PROJECT table:

Column	DataType
Pname	varchar(15)
Pnumber	int(4)
Plocation	varchar(15)
Dnum	int(4)

The Output tab shows the execution results:

#	Time	Action	Message	Duration / Fetch
15	17:22:51	SELECT * FROM DEPARTMENT LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
16	17:30:07	INSERT INTO DEPARTMENT VALUES ('Research',5,333445555,'1988-05-22')	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
17	17:30:07	SELECT * FROM DEPARTMENT LIMIT 0, 1000	3 row(s) returned	0.000 sec / 0.000 sec
18	17:30:07	INSERT INTO PROJECT VALUES ('ProductX',1,'Bellaire',5)	6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0	0.000 sec
19	17:30:35	SELECT * FROM PROJECT LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec

Inserting Works_on table data

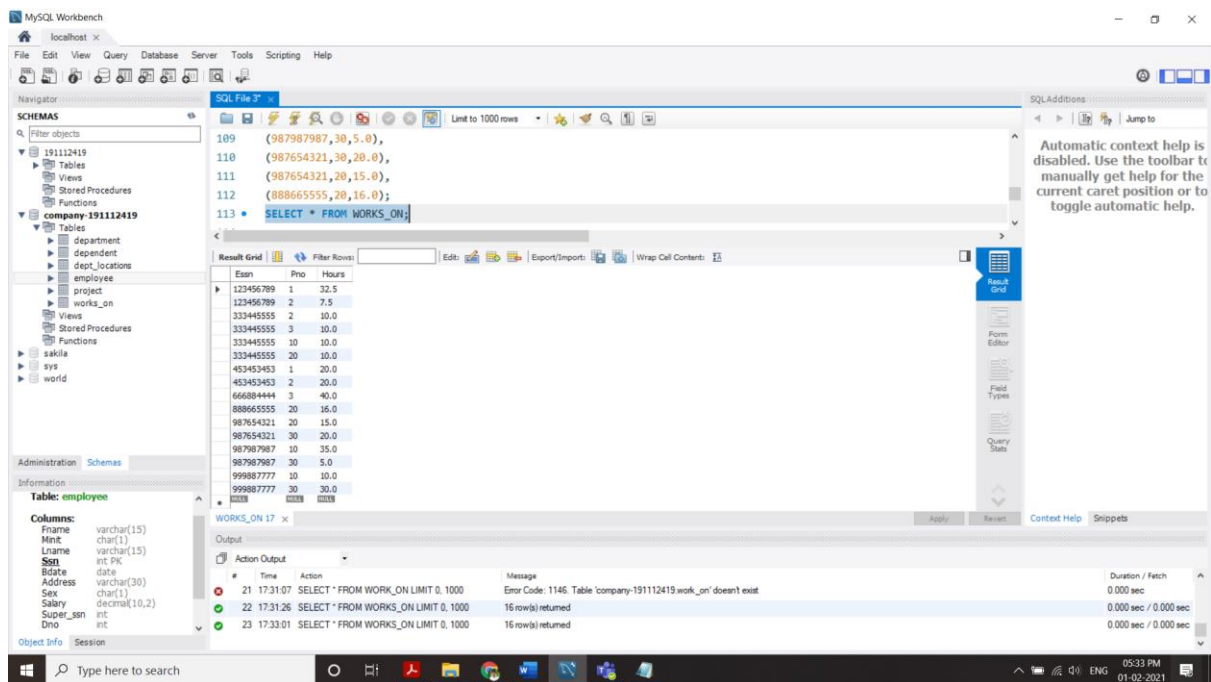


MySQL Workbench interface showing the SQL File 3 editor. The editor contains the following SQL code:

```
96 INSERT INTO WORKS_ON VALUES
97 (123456789,1,32.5),
98 (123456789,2,7.5),
99 (666884444,3,40.0),
100 (453453453,1,20.0),
101 (453453453,2,20.0),
102 (333445555,2,10.0),
103 (333445555,3,10.0),
104 (333445555,10,10.0),
105 (333445555,20,10.0),
106 (999887777,30,30.0),
107 (999887777,10,10.0),
108 (987987987,10,35.0),
109 (987987987,30,5.0),
110 (987654321,30,20.0),
111 (987654321,20,15.0),
112 (888665555,20,16.0);
113 SELECT * FROM WORKS_ON;
```

The output window shows the following results:

#	Time	Action	Message	Duration / Fetch
19	17:20:35	SELECT * FROM PROJECT LIMIT 0. 1000	6 row(s) returned	0.000 sec / 0.000 sec
20	17:31:07	INSERT INTO WORKS_ON VALUES (123456789,1,32.5), (123456789,2,7.5), (666884444,3,40.0), (453453453,1,20.0), (453453453,2,20.0), (333445555,2,10.0), (333445555,3,10.0), (333445555,10,10.0), (333445555,20,10.0), (999887777,30,30.0), (999887777,10,10.0), (987987987,10,35.0), (987987987,30,5.0), (987654321,30,20.0), (987654321,20,15.0), (888665555,20,16.0);	16 row(s) affected Records: 16 Duplicates: 0 Warnings: 0	0.016 sec
21	17:31:07	SELECT * FROM WORKS_ON LIMIT 0. 1000	Error Code: 1146 Table 'company-191112419.work_on' doesn't exist	0.000 sec
22	17:31:26	SELECT * FROM WORKS_ON LIMIT 0. 1000	16 row(s) returned	0.000 sec / 0.000 sec



MySQL Workbench interface showing the SQL File 3 editor. The editor contains the following SQL code:

```
109 (987987987,30,5.0),
110 (987654321,30,20.0),
111 (987654321,20,15.0),
112 (888665555,20,16.0);
113 SELECT * FROM WORKS_ON;
```

The output window shows the following results:

#	Time	Action	Message	Duration / Fetch
21	17:31:07	SELECT * FROM WORKS_ON LIMIT 0. 1000	Error Code: 1146 Table 'company-191112419.work_on' doesn't exist	0.000 sec
22	17:31:26	SELECT * FROM WORKS_ON LIMIT 0. 1000	16 row(s) returned	0.000 sec / 0.000 sec
23	17:33:01	SELECT * FROM WORKS_ON LIMIT 0. 1000	16 row(s) returned	0.000 sec / 0.000 sec

Inserting Dependent table data

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following SQL script:

```
116 INSERT INTO DEPENDENT VALUES
117 (333445555,'Alice','F','1986-04-04','Daughter'),
118 (333445555,'Theodore','M','1983-10-25','Son'),
119 (333445555,'Joy','F','1958-05-03','Spouse'),
120 (987654321,'Abner','M','1942-02-28','Spouse'),
121 (123456789,'Michael','M','1988-01-04','Son'),
122 (123456789,'Alice','F','1988-12-30','Daughter'),
123 (123456789,'Elizabeth','F','1967-05-05','Spouse');
124 SELECT * FROM DEPENDENT;
```

The Result Grid shows the data inserted into the DEPENDENT table:

Id	Esan	Dependent_name	Sex	Bdate	Relationship
1	123456789	Alice	F	1988-12-30	Daughter
2	123456789	Elizabeth	F	1967-05-05	Spouse
3	123456789	Michael	M	1988-01-04	Son
4	333445555	Alice	F	1986-04-04	Daughter
5	333445555	Joy	F	1958-05-03	Spouse
6	333445555	Theodore	M	1983-10-25	Son
7	987654321	Abner	M	1942-02-28	Spouse

The Action Output shows the execution results:

#	Time	Action	Message	Duration / Fetch
23	17:33:01	SELECT * FROM WORKS_ON LIMIT 0, 1000	16 row(s) returned	0.000 sec / 0.000 sec
24	17:33:24	INSERT INTO DEPENDENT VALUES (333445555...	7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0	0.000 sec
25	17:33:24	SELECT * FROM DEPENDENT LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

Inserting Dept_locations table data

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following SQL script:

```
125
126 INSERT INTO DEPT_LOCATIONS VALUES
127 (1,'Houston'),
128 (4,'Stafford'),
129 (5,'Bellair'),
130 (5,'Sugarland'),
131 (5,'Houston');
132 SELECT * FROM DEPT_LOCATIONS;
```

The Result Grid shows the data inserted into the DEPT_LOCATIONS table:

Dnumber	Dlocation
1	Houston
4	Stafford
5	Bellair
5	Houston
5	Sugarland

The Action Output shows the execution results:

#	Time	Action	Message	Duration / Fetch
25	17:33:24	SELECT * FROM DEPENDENT LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
26	17:33:59	INSERT INTO DEPT_LOCATIONS VALUES (1...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.016 sec
27	17:33:59	SELECT * FROM DEPT_LOCATIONS LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Adding foreign key in employee table

The screenshot shows the MySQL Workbench interface with the following components:

- Navigator:** Displays the database schema for 'company-191112419', including tables like 'department', 'dept_locations', 'employee', and 'works_on'.
- SQL Editor:** Contains the following SQL queries:

```
SELECT * FROM DEPT_LOCATIONS;  
  
ALTER TABLE EMPLOYEE  
ADD CONSTRAINT Emp_super FOREIGN KEY (Super_ssn) REFERENCES EMPLOYEE(Ssn);  
  
ALTER TABLE EMPLOYEE  
ADD CONSTRAINT Emp_emp FOREIGN KEY (Super_ssn) REFERENCES EMPLOYEE(Ssn);  
  
ALTER TABLE DEPARTMENT  
ADD CONSTRAINT Dep_emp FOREIGN KEY (Mgr_ssn) REFERENCES EMPLOYEE(Ssn);  
  
ALTER TABLE EMPLOYEE  
ADD CONSTRAINT Emp_dno FOREIGN KEY (Dno) REFERENCES DEPARTMENT(Dnumber);
```
- Output:** Shows the execution results of the queries, including the time taken and the number of rows affected.
- Foreign Key: department_ibfk_1:** Provides details about the foreign key, including its definition, target table, and on-update/on-delete actions.

The screenshot shows the MySQL Workbench interface with the following components:

- SQL Editor:** Contains the query `SHOW TABLES;`.
- Result Grid:** Displays the tables in the database schema:

Tables_in_company-191112419
department
dept_locations
employee
project
works_on
- Output:** Shows the execution results of the query, including the time taken and the number of rows returned.

All MySQL commands:

```
create database `Company-191112419`;
```

```
CREATE TABLE EMPLOYEE
```

```
(Fname          VARCHAR(15) NOT NULL,  
  Minit         CHAR,  
  Lname         VARCHAR(15) NOT NULL,  
  Ssn           INT(9) NOT NULL,  
  Bdate         DATE,  
  Address       VARCHAR(30),  
  Sex           CHAR,  
  Salary        DECIMAL(10,2),  
  Super_ssn     INT(9),  
  Dno           INT NOT NULL,  
  PRIMARY KEY(Ssn));
```

```
DESC EMPLOYEE;
```

```
CREATE TABLE DEPARTMENT
```

```
(Dname          VARCHAR(15) NOT NULL,  
  Dnumber       INT NOT NULL,  
  Mgr_ssn       INT(9) NOT NULL,  
  Mgr_start_date DATE,  
  PRIMARY KEY(Dnumber),  
  UNIQUE(Dname),  
  FOREIGN KEY(Mgr_ssn) REFERENCES EMPLOYEE(Ssn));  
DESC DEPARTMENT;
```

```
CREATE TABLE DEPT_LOCATIONS
```

```
(Dnumber  INT NOT NULL,  
  Dlocation VARCHAR(15) NOT NULL,  
  PRIMARY KEY(Dnumber,Dlocation),  
  FOREIGN KEY(Dnumber) REFERENCES DEPARTMENT(Dnumber));  
DESC DEPT_LOCATIONS;
```

```
CREATE TABLE PROJECT
```

```
(Pname          VARCHAR(15) NOT NULL,
```

```

Pnumber          INT NOT NULL,
Plocation        VARCHAR(15),
Dnum             INT NOT NULL,
PRIMARY KEY (Pnumber),
UNIQUE (Pname),
FOREIGN KEY (Dnum) REFERENCES DEPARTMENT(Dnumber));
DESC PROJECT;

```

```

CREATE TABLE WORKS_ON
( Essn          INT(9) NOT NULL,
  Pno           INT NOT NULL,
  Hours        DECIMAL(3,1) NOT NULL,
PRIMARY KEY (Essn, Pno),
FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn),
FOREIGN KEY (Pno) REFERENCES PROJECT(Pnumber) );
DESC WORKS_ON;

```

```

CREATE TABLE DEPENDENT
( Essn          INT(9) NOT NULL,
  Dependent_name VARCHAR(15) NOT NULL,
  Sex           CHAR,
  Bdate        DATE,
  Relationship   VARCHAR(8),
PRIMARY KEY (Essn, Dependent_name),
FOREIGN KEY (Essn) REFERENCES EMPLOYEE(Ssn) );
DESC DEPENDENT;

```

```

INSERT INTO EMPLOYEE VALUES

```

```

('John','B','Smith',123456789,'1965-01-09','731      Fondren,      Houston
TX','M',30000,333445555,5),

('Franklin','T','Wong',333445555,'1965-12-08','638      Voss,        Houston
TX','M',40000,888665555,5),

('Alicia','J','Zelaya',999887777,'1968-01-19','3321      Castle,      Spring
TX','F',25000,987654321,4),

('Jennifer','S','Wallace',987654321,'1941-06-20','291      Berry,       Bellaire
TX','F',43000,888665555,4),

('Ramesh','K','Narayan',666884444,'1962-09-15','975      Fire   Oak,    Humble
TX','M',38000,333445555,5),

```

```

('Joyce','A','English',453453453,'1972-07-31','5631
TX','F',25000,333445555,5),      Rice,      Houston

('Ahmad','V','Jabbar',987987987,'1969-03-29','980
TX','M',25000,987654321,4),      Dallas,    Houston

('James','E','Borg',888665555,'1937-11-10','450
TX','M',55000,null,1);          Stone,     Houston

SELECT * FROM EMPLOYEE;

```

```

INSERT INTO DEPARTMENT VALUES

('Research',5,333445555,'1988-05-22'),

('Administration',4,987654321,'1995-01-01'),

('Headquarters',1,888665555,'1981-06-19');

SELECT * FROM DEPARTMENT;

```

```

INSERT INTO PROJECT VALUES

('ProductX',1,'Bellaire',5),

('ProductY',2,'Sugarland',5),

('ProductZ',3,'Houston',5),

('Computerization',10,'Stafford',4),

('Reorganization',20,'Houston',1),

('Newbenefits',30,'Stafford',4);

SELECT * FROM PROJECT;

```

```

INSERT INTO WORKS_ON VALUES

(123456789,1,32.5),

(123456789,2,7.5),

(666884444,3,40.0),

(453453453,1,20.0),

(453453453,2,20.0),

(333445555,2,10.0),

(333445555,3,10.0),

(333445555,10,10.0),

(333445555,20,10.0),

(999887777,30,30.0),

(999887777,10,10.0),

(987987987,10,35.0),

(987987987,30,5.0),

(987654321,30,20.0),

```

```
(987654321,20,15.0),  
(888665555,20,16.0);  
SELECT * FROM WORKS_ON;
```

```
INSERT INTO DEPENDENT VALUES  
(333445555,'Alice','F','1986-04-04','Daughter'),  
(333445555,'Theodore','M','1983-10-25','Son'),  
(333445555,'Joy','F','1958-05-03','Spouse'),  
(987654321,'Abner','M','1942-02-28','Spouse'),  
(123456789,'Michael','M','1988-01-04','Son'),  
(123456789,'Alice','F','1988-12-30','Daughter'),  
(123456789,'Elizabeth','F','1967-05-05','Spouse');  
SELECT * FROM DEPENDENT;
```

```
INSERT INTO DEPT_LOCATIONS VALUES  
(1,'Houston'),  
(4,'Stafford'),  
(5,'Bellaire'),  
(5,'Sugarland'),  
(5,'Houston');  
SELECT * FROM DEPT_LOCATIONS;
```

```
ALTER TABLE EMPLOYEE  
ADD CONSTRAINT Emp_super FOREIGN KEY (Super_ssn) REFERENCES EMPLOYEE(Ssn);
```

```
ALTER TABLE EMPLOYEE  
ADD CONSTRAINT Emp_emp FOREIGN KEY (Super_ssn) REFERENCES EMPLOYEE(Ssn);
```

```
ALTER TABLE DEPARTMENT  
ADD CONSTRAINT Dep_emp FOREIGN KEY (Mgr_ssn) REFERENCES EMPLOYEE(Ssn);
```

```
ALTER TABLE EMPLOYEE  
ADD CONSTRAINT Emp_dno FOREIGN KEY (Dno) REFERENCES DEPARTMENT(Dnumber);
```

```
SHOW TABLES;
```