Indian Institute of Information Technology Dharwad, Karnataka

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Course: DBMS (CS310)

Task: Assignment-03 (Employees Database)

Aim:

This assignment is to create a database of employees for a company. This database stores the information of many employees, departments, and many projects associated with it. It stores all the useful information about business. It has been created (by taking care of all the constraints like **key constraint** and **integrity constraint**) in such a way that it is easy to modify, insert and delete in/from Database.

SQL Code Snippet :

use mysql;

create table employee   // creating ' employee' table (Some informative comments in Red mark)

(employeeID numeric(9), firstname varchar(10), lastname varchar(20), deptcode char(5), salary numeric(9,2));

describe employee;

create table department   // creating 'department' table

(deptcode char(5), deptname varchar(30), managerid numeric(9), subdeptof char(5));

describe department;

create table project   // creating 'project' table

(projectid char(8), deptcode char(5), projdescription varchar(200), startdate date, stopdate date,

revenue numeric(12,2));

describe project;

create table workson   // creating 'workson' table

(employeeID numeric(9), projectid char(8), assignedtime numeric(3,2));

describe workson;

alter table project   // alter ' project' table and adding 'projectid' as a primary key(PK) in it

add primary key (projectid);

```sql
alter table department                    // alter ' department' table and adding 'deptcode' as a primary key(PK) in it

add primary key(deptcode);

alter table employee          // alter ' employee' table and adding 'deptcode' as a foriegn key(FK) in it and referenced

add foreign key (deptcode) references department(deptcode);  // 'department' table

alter table employee         // alter ' employee' table and adding 'employeeID' as a primary key (PK) in it

add primary key (employeeID);

alter table workson        // alter ' workson' table and adding 'employeeID' as a foriegn key(FK) in it

add foreign key (employeeID) references employee(employeeID); //reference 'employee' table

alter table project       // alter ' project' table and adding 'deptcode' as a foriegn key(FK) in it

add foreign key (deptcode) references department(deptcode);//reference 'department' table

insert into department values('abcde','CSE', 000000001, 'abcde'); // inserting rows in 'department' table

insert into department values('CS210', 'CSE', 000000002, 'Jkhlp');

insert into department values('EC590','ECE', 000000003, 'EC100');

insert into department values('ME569', 'ME', 000000004, 'MechE');

insert into department values('ME356','ME', 000000005, 'MechE');

insert into department values('CV124', 'CV', 000000006, 'Civil');

insert into department values('EE444','Electical', 000000007, 'ElecE');

insert into department values('AE222', 'Aeronautical', 000000008, 'AeroE');

select * from department;

insert into employee values(000000001, 'Alex', 'pop', 'CS210', 0060000.00); // inserting rows in 'employee' table

insert into employee values(000000002, 'Bon', 'Thory', 'EC590', 0050000.00);

insert into employee values(000000003, 'Miler', 'Dec', 'ME569', 0070000.00);

insert into employee values(000000004, 'Zender', 'Mile', 'ME356', 0080000.00);

insert into employee values(000000005, 'Bel', 'ford', 'CV124', 0065000.00);

insert into employee values(000000006, 'Mac', 'Donald', 'EE444', 0068000.00);

insert into employee values(000000007, 'yerx', 'Deam', 'AE222', 0076000.00);

insert into employee values(000000008, 'John', 'Berman', 'abcde', 00780000.00);

select * from employee;

insert into workson values(000000001, 'wfm20134', 9.45); // inserting rows in 'workson' table
```

```sql
insert into workson values(000000002, 'abfgs534', 7.25);

insert into workson values(000000003, 'csebda24', 1.20);

insert into workson values(000000004, 'ybs34000', 2.50);

insert into workson values(000000005, 'absdesig', 4.40);

insert into workson values(000000006, 'electoni', 6.26);

insert into workson values(000000007, 'aurdinob', 8.30);

insert into workson values(000000008, 'amnsteel', 3.45);

select * from workson;

insert into project values('wfm20134', 'abcde', 'This Project is to develop Waste food management application

to feed the hungry', '2022-02-03', '2022-05-03', 2100000000.00); // inserting rows in 'project' table

insert into project values('abfgs534', 'CS210', 'It is developed for maximum utilization of CPU'

'2020-01-23', '2022-04-20' , 3000000000.00);

insert into project values('csebda24', 'EC590', 'This project is based on multicore processor'

'2021-01-23', '2022-06-2' , 1050000000.00);

insert into project values('ybs34000', 'ME569', 'it is to optimize OS'

'2019-05-1', '2021-06-2' , 3460000000.00);

insert into project values('absdesig', 'ME356', 'To  update in electric car'

'2019-05-1', '2023-03-20' , 4000000000.00);

insert into project values('electoni', 'CV124', 'Project on a bridge'

'2019-05-1', '2025-03-20' , 3800000000.00);

insert into project values('aurdinob', 'EE444', 'Project on a specific electrical task'

'2019-05-1', '2025-03-20' , 2900000000.00);

select * from project;

select firstname, lastname   // List of 'firstname' and 'lastname' from 'employee' table

from employee;

select * from project  // selecting all rows whose revenue more than $40000 ( 2800000 INR )

where revenue> 2800000;

select * from project  // selecting all rows whose revenue is in between 2000000000 INR and 3500000000 INR

where revenue>2000000000 and revenue<3500000000;
```

select projectid from project   // selecting 'projectid' from 'project' table whose startdate is less than '2004-07-01'

where startdate<'2004-07-01';

select distinct deptcode // selecting 'deptcode' from 'project' table removing all duplicate rows

from project;

Screenshots of SQL Codes and Tables :

login by Dhanisht ×

File Edit View Query Database Server Tools Scripting Help

Navigator:
SCHEMAS
Filter objects
▶ hospitaldb
▶ railway
▶ sys

Assignment-02   SQL File 3* ×

Limit to 1000 rows

```
51 •  insert into workson values(000000004, 'ybs34000', 2.50);
52 •  insert into workson values(000000005, 'absdesig', 4.40);
53 •  insert into workson values(000000006, 'electoni', 6.26);
54 •  insert into workson values(000000007, 'aurdinob', 8.30);
55 •  insert into workson values(000000008, 'amnsteel', 3.45);
56 •  select * from workson;
57 •  insert into project values('wfm20134', 'abcde', 'This Project is to develop Waste food management application
```

SQLAdditions

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

Result Grid   Filter Rows: Export: Wrap Cell Content: IA

	employeeID	projectid	assignedtime
▶	1	wfm20134	9.45
	2	abfgs534	7.25
	3	csebda24	1.20
	4	ybs34000	2.50
	5	absdesig	4.40
	6	electoni	6.26
	7	aurdinob	8.30
	8	amnsteel	3.45

Result Grid

Form Editor

workson 27 ×   ❶ Read Only   Context Help Snippets

Administration Schemas

Information

No object selected

Output
Action Output

	#	Time	Action	Message	Duration / Fetch
✓	70	21:30:24	select * from department LIMIT 0, 1000	8 row(s) returned	0.016 sec / 0.000 sec
✓	71	21:36:43	select firstname, lastname from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	72	21:37:16	select * from department LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	73	21:37:29	select * from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	74	21:40:13	select * from workson LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec

Object Info   Session

Activate Windows
Go to Settings to activate

Assignment-02   SQL File 3* ×

Limit to 1000 rows

```
67 •  insert into project values('electoni', 'CV124', 'Project on a bridge'
68       '2019-05-1', '2025-03-20', 3800000000.00);
69 •  insert into project values('aurdinob', 'EE444', 'Project on a specific electrical task'
70       '2019-05-1', '2025-03-20', 2900000000.00);
71
72 •  select * from project;
```

SQLAdditions

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

Result Grid   Filter Rows: Edit: Export/Import: Wrap Cell Content: IA

	projectid	deptcode	projdescription	startdate	stopdate	revenue
▶	abfgs534	CS210	It is developed for maximum utilization of CPU	2020-01-23	2022-04-20	3000000000.00
	absdesig	ME356	To update in electric car	2019-05-01	2023-03-20	4000000000.00
	amnsteel	AE222	Project to make a steelth fighter aircraft	2019-05-01	2029-10-15	2900000000.00
	aurdinob	EE444	Project on a specific electrical task	2019-05-01	2025-03-20	2900000000.00
	csebda24	EC590	This project is based on multicore processor	2021-01-23	2022-06-02	1050000000.00
	electoni	CV124	Project on a bridge	2019-05-01	2025-03-20	3800000000.00
	wfm20134	abcde	This Project is to develop Waste food managem...	2022-02-03	2022-05-03	2100000000.00
	ybs34000	ME569	it is to optimize OS	2019-05-01	2021-06-02	3460000000.00
*	NULL	NULL	NULL	NULL	NULL	NULL

Result Grid

Form Editor

project 28 ×   Apply   Context Help Snippets

Administration Schemas

Information

No object selected

Output
Action Output

	#	Time	Action	Message	Duration / Fetch
✓	71	21:36:43	select firstname, lastname from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	72	21:37:16	select * from department LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	73	21:37:29	select * from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	74	21:40:13	select * from workson LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	75	21:40:26	select * from project LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec

Object Info   Session

Activate Windows
Go to Settings to activate

Window 1 (top) — MySQL Workbench

login by Dhanisht

File Edit View Query Database Server Tools Scripting Help

Navigator — SCHEMAS

Filter objects
- hospitaldb
- railway
- sys

Assignment-02 | SQL File 3*

```
68      '2019-05-1', '2025-03-20' , 3800000000.00);
69   insert into project values('aurdinob', 'EE444', 'Project on a specific electrical task'
70      '2019-05-1', '2025-03-20' , 2900000000.00);
71   select * from project;
72
73   select firstname, lastname
74   from employee;
```

Limit to 1000 rows

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

firstname	lastname
Alex	pop
Bon	Thory
Miler	Dec
Zender	Mile
Bel	ford
Mac	Donald
yerx	Deam
John	Berman

Deam

employee 29

Read Only

SQLAdditions

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

Context Help   Snippets

Administration Schemas

Information

No object selected

Output — Action Output

#	Time	Action	Message	Duration / Fetch
72	21:37:16	select * from department LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
73	21:37:29	select * from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
74	21:40:13	select * from workson LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
75	21:40:26	select * from project LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
76	21:41:13	select firstname, lastname from employee LIMIT 0, 1000	8 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

Window 2 (bottom) — MySQL Workbench

login by Dhanisht

File Edit View Query Database Server Tools Scripting Help

Navigator — SCHEMAS

Filter objects
- hospitaldb
- railway
- sys

Assignment-02 | SQL File 3*

```
69   insert into project values('aurdinob', 'EE444', 'Project on a specific electrical task'
70      '2019-05-1', '2025-03-20' , 2900000000.00);
71   select * from project;
72   select firstname, lastname
73   from employee;
74   select * from project
75   where revenue> 3000000000
```

Limit to 1000 rows

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

projectid	deptcode	projdescription	startdate	stopdate	revenue
absdesig	ME356	To update in electric car	2019-05-01	2023-03-20	4000000000.00
electoni	CV124	Project on a bridge	2019-05-01	2025-03-20	3800000000.00
ybs34000	ME569	it is to optimize OS	2019-05-01	2021-06-02	3460000000.00
* NULL	NULL	NULL	NULL	NULL	NULL

project 30

Apply

SQLAdditions

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

Context Help   Snippets

Administration Schemas

Information

No object selected

Output — Action Output

#	Time	Action	Message	Duration / Fetch
73	21:37:29	select * from employee LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
74	21:40:13	select * from workson LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
75	21:40:26	select * from project LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
76	21:41:13	select firstname, lastname from employee LIMIT 0, 1000	8 row(s) returned	0.016 sec / 0.000 sec
77	21:45:51	select * from project where revenue> 3000000000 LIMIT 0, 1000	3 row(s) returned	0.046 sec / 0.000 sec

Object Info Session

Window 1 — MySQL Workbench

SQL Editor (SQL File 3*):

```
69  • insert into project values('aurdinob', 'EE444', 'Project on a specific electrical task'
70    '2019-05-1', '2025-03-20' , 2900000000.00);
71  • select * from project;
72  • select firstname, lastname
73    from employee;
74  • select * from project
75    where revenue> 2800000
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	projectid	deptcode	projdescription	startdate	stopdate	revenue
▶	abfgs534	CS210	It is developed for maximum utilization of CPU	2020-01-23	2022-04-20	3000000000.00
	absdesig	ME356	To update in electric car	2019-05-01	2023-03-20	4000000000.00
	amnsteel	AE222	Project to make a steelth fighter aircraft	2019-05-01	2029-10-15	2900000000.00
	aurdinob	EE444	Project on a specific electrical task	2019-05-01	2025-03-20	2900000000.00
	csebda24	EC590	This project is based on multicore processor	2021-01-23	2022-06-02	1050000000.00
	electoni	CV124	Project on a bridge	2019-05-01	2025-03-20	3800000000.00
	wfm20134	abcde	This Project is to develop Waste food managem...	2022-02-03	2022-05-03	2100000000.00
	ybs34000	ME569	it is to optimize OS	2019-05-01	2021-06-02	3460000000.00
*	NULL	NULL	NULL	NULL	NULL	NULL

project 31

Output — Action Output

	#	Time	Action	Message	Duration / Fetch
✓	74	21:40:13	select * from workson LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	75	21:40:26	select * from project LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	76	21:41:13	select firstname, lastname from employee LIMIT 0, 1000	8 row(s) returned	0.016 sec / 0.000 sec
✓	77	21:45:51	select * from project where revenue> 3000000000 LIMIT 0, 1000	3 row(s) returned	0.046 sec / 0.000 sec
✓	78	21:46:20	select * from project where revenue> 2800000 LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec

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

Window 2 — MySQL Workbench

SQL Editor (SQL File 3*):

```
71  • select * from project;
72  • select firstname, lastname
73    from employee;
74  • select * from project
75    where revenue> 2800000;
76  • select * from project
77    where revenue>2000000000 and revenue<3500000000;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

	projectid	deptcode	projdescription	startdate	stopdate	revenue
▶	abfgs534	CS210	It is developed for maximum utilization of CPU	2020-01-23	2022-04-20	3000000000.00
	amnsteel	AE222	Project to make a steelth fighter aircraft	2019-05-01	2029-10-15	2900000000.00
	aurdinob	EE444	Project on a specific electrical task	2019-05-01	2025-03-20	2900000000.00
	wfm20134	abcde	This Project is to develop Waste food managem...	2022-02-03	2022-05-03	2100000000.00
	ybs34000	ME569	it is to optimize OS	2019-05-01	2021-06-02	3460000000.00
*	NULL	NULL	NULL	NULL	NULL	NULL

it is to optimize OS

project 37

Output — Action Output

	#	Time	Action	Message	Duration / Fetch
✓	80	21:51:27	select * from project where 2000000000<revenue<3500000000 LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	81	21:51:35	select * from project where 2000000000<revenue<3500000000 LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	82	21:51:36	select * from project where 2000000000<revenue<3500000000 LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
✓	83	21:52:08	select * from project where revenue>2000000000 and revenue<3500000000 LIMIT 0, 1000	5 row(s) returned	0.016 sec / 0.000 sec
✓	84	21:52:29	select * from project where revenue>2000000000 and revenue<3500000000 LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

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

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File   Edit   View   Query   Database   Server   Tools   Scripting   Help

Navigator:
SCHEMAS
Filter objects
- hospitaldb
- railway
- sys

Administration   Schemas
Information
No object selected

Object Info   Session

Assignment-02   SQL File 3*

Limit to 1000 rows

```
73      from employee;
74  •   select * from project
75      where revenue> 2800000;
76  •   select * from project
77      where revenue>2000000000 and revenue<3500000000;
78      select projectid from project
79      where startdate<'2020-07-01';
```

Result Grid   Filter Rows: Edits: Export/Import: Wrap Cell Content: ‍IA

projectid
abfgs534
absdesig
amnsteel
aurdinob
electoni
ybs34000
NULL

project 39   Apply

Output
Action Output

#	Time	Action	Message	Duration / Fetch
●	82	21:51:36	select * from project where 2000000000<revenue<3500000000 LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
●	83	21:52:08	select * from project where revenue>2000000000 and revenue<3500000000 LIMIT 0, 1000	5 row(s) returned	0.016 sec / 0.000 sec
●	84	21:52:29	select * from project where revenue>2000000000 and revenue<3500000000 LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
●	85	21:55:14	select projectid from project where startdate<'2020-07-01' LIMIT 0, 1000	6 row(s) returned	0.032 sec / 0.000 sec
●	86	21:56:25	select projectid from project where startdate<'2020-07-01' LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec

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

Context Help   Snippets

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login by Dhanisht

File   Edit   View   Query   Database   Server   Tools   Scripting   Help

Navigator:
SCHEMAS
Filter objects
- hospitaldb
- railway
- sys

Administration   Schemas
Information
No object selected

Object Info   Session

Assignment-02   SQL File 3*

Limit to 1000 rows

```
75      where revenue> 2800000;
76  •   select * from project
77      where revenue>2000000000 and revenue<3500000000;
78  •   select projectid from project
79      where startdate<'2004-07-01';
80  •   select distinct deptcode
81      from project;
```

Result Grid   Filter Rows: Export: Wrap Cell Content: ‍IA

deptcode
abcde
AE222
CS210
CV124
EC590
EE444
ME356
ME569

project 41   ⓘ Read Only

Output
Action Output

| #	Time	Action	Message	Duration / Fetch
●	84	21:52:29	select * from project where revenue>2000000000 and revenue<3500000000 LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
●	85	21:55:14	select projectid from project where startdate<'2020-07-01' LIMIT 0, 1000	6 row(s) returned	0.032 sec / 0.000 sec
●	86	21:56:25	select projectid from project where startdate<'2020-07-01' LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
●	87	21:57:09	select projectid from project where startdate<'2004-07-01' LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
●	88	21:59:58	select distinct deptcode from project LIMIT 0, 1000	8 row(s) returned	0.015 sec / 0.000 sec

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

Context Help   Snippets

ERD Snapshot :
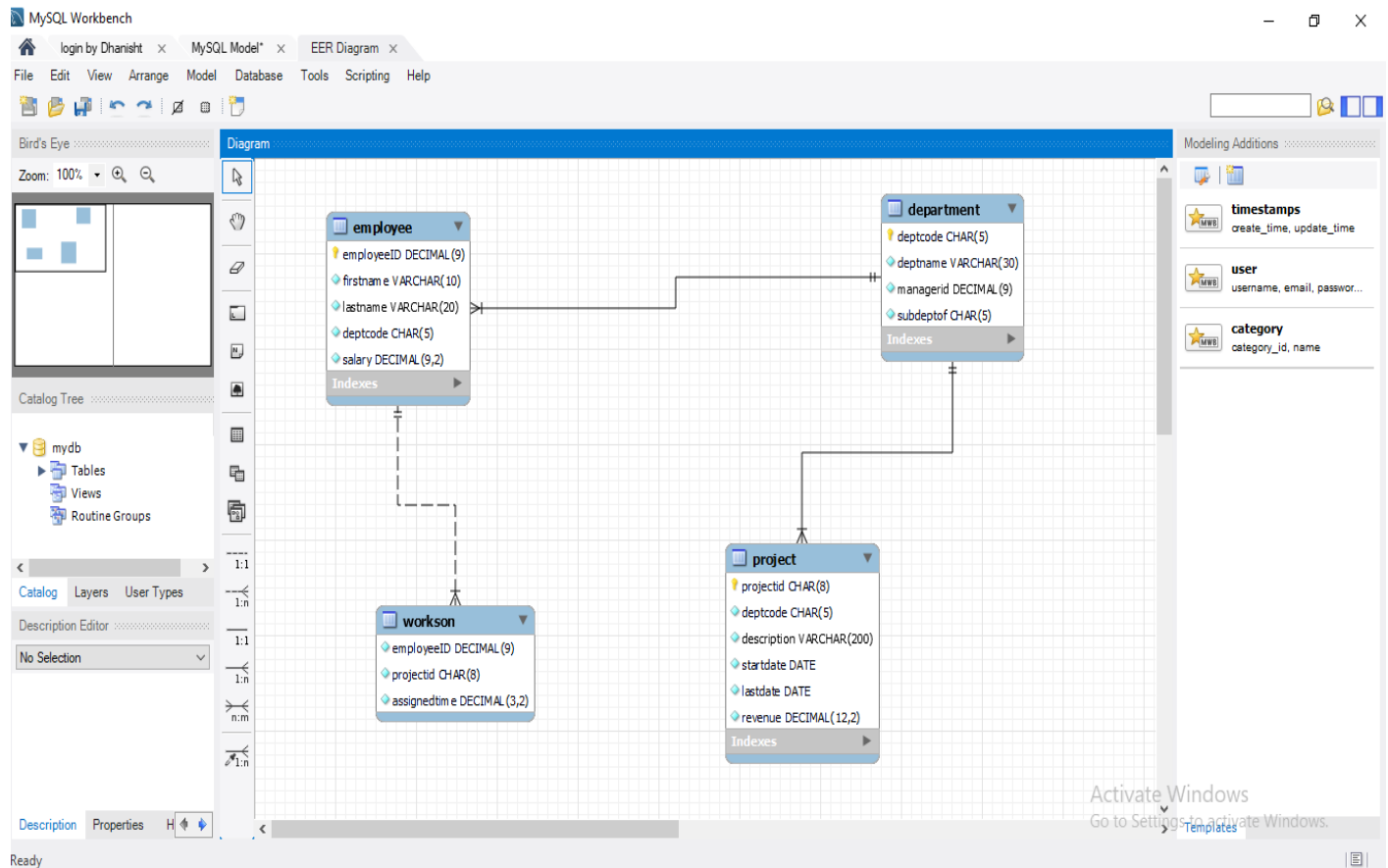
Description :

- There is "one to many" relation between **department** and **employee**, So each employee works in one department.
- There is "one to many" relationship in between **department** and **project**, So many projects can be assigned in one department.
- **Workson** is a **weak entity** as it has no **primary key**. That's why there is **weak relationship** in between the **employee** and **workson**.