

GROUP 3 CO-1

AIM:

Consider the database for a college and design an ER diagram. Write the query for the following.

Create the tables:

Student (sid, sname, sex, dob, dno)

Department (dno, dname)

Faculty (F_id, fname, designation, salary, dno)

Course (cid, cname, credits, dno)

Register(sid, cid, sem)

Teaching(f_id, cid, sem)

Hostel(hid, hname, seats,)

Include the necessary constraints NOT NULL, DEFAULT, CHECK, and PRIMARY KEY, UNIQUE.

- (i) Create a database college
- (ii) Use college as the currentdatabase
- (iii) Display all the tables in college database
- (iv) Describe the structure of alltables
- (v) Modify the student table to add a new field 'grade'

Consider the database for a college. Write the query for the following.

- a. Insert at least 5 tuples into each table.
- b. List the details of students in the ascending order of date of birth
- c. Display the details of students from computer department
- d. List the faculties in the descending order of salary
- e. Display the total number of students in each department

f. Display the total number of faculties in each department with salary greater than 25000

CODE:

```
create database college;
use college;

create table department(dno varchar(20) not null,dname varchar(20) not null,primary key(dno));
create table student( sid varchar(20) not null,sname varchar(20) not null,sex varchar(10) not null,dob date not null,dno varchar(20) not null,primary key(sid),foreign key(dno) references department(dno) on delete cascade);
create table faculty(fid varchar(20) not null,fname varchar(30) not null,designation varchar(20) not null,salary integer(10) check (salary>5000 and salary <=150000),dno varchar(20) not null,primary key(fid),foreign key(dno) references department(dno) on delete cascade);
create table course(cid varchar(20) not null,cname varchar(20) not null,credits integer(10) not null,dno varchar(20) not null,primary key(cid),foreign key(dno) references department(dno) on delete cascade);
create table register(sid varchar(20) not null,cid varchar(20) not null,sem varchar(10) not null,foreign key(sid) references student(sid) on delete cascade,foreign key(cid) references course(cid) on delete cascade);
create table teaching(fid varchar(20) not null,cid varchar(20) not null,sem varchar(10) not null,foreign key(fid) references faculty(fid) on delete cascade,foreign key(cid) references course(cid) on delete cascade);
create table hostel(hid varchar(20) not null,hname varchar(20) not null default "modern hostel",seats integer(20) not null,unique(hid));

insert into department values("d001","computer");
insert into department values("d002","maths");
insert into department values("d003","english");
insert into department values("d004","science");
insert into department values("d005","humanities");
insert into student values("s001","sharanya","f","1998-12-26","d001");
insert into student values("s002","sham","m","1997-01-16","d002");
insert into student values("s003","jacob","m","1998-12-06","d001");
insert into student values("s004","cathy","f","1998-11-23","d003");
insert into student values("s005","ajay","m","1998-03-03","d004");
insert into faculty values("f001","manav","associate professor",50000,"d001");
insert into faculty values("f002","asha","associate professor",40000,"d002");
insert into faculty values("f003","sree","assistant professor",100000,"d003");
insert into faculty values("f004","akash","associate professor",50000,"d004");
insert into faculty values("f005","lena","associate professor",50000,"d005");
insert into course values("c001","differentiation",10,"d002");
insert into course values("c002","java",10,"d001");
insert into course values("c003","anatomy",10,"d004");
insert into course values("c004","grammar",5,"d003");
```

```

insert into course values("c005","networks",10,"d001");
insert into course values("c006","basics humanities",10,"d005");
insert into register values("s001","c002","1");
insert into register values("s001","c005","1");
insert into register values("s002","c001","2");
insert into register values("s005","c003","1");
insert into register values("s004","c004","2");
insert into register values("s003","c002","1");
insert into register values("s006","c006","1");
insert into teaching values("f001","c002","1");
insert into teaching values("f002","c001","2");
insert into teaching values("f003","c004","2");
insert into teaching values("f004","c003","1");
insert into teaching values("f005","c006","1");
insert into hostel values("h001","rose hostel",20);
insert into hostel values("h002","general hostel",20);
insert into hostel values("h003","boys hostel",20);
insert into hostel values("h004","working hostel",20);
insert into hostel values("h005","mixed hostel",25);

select * from department;
select * from student;
select * from faculty;
select * from course;
select * from teaching;
select * from register;

alter table student add grade varchar(5) not null;
insert into student values("s006","lalitha","f","1998-04-08","d005","A");
update student set grade="A" where sid="s001";
update student set grade="A" where sid="s002";
update student set grade="B" where sid="s003";
update student set grade="B+" where sid="s004";
update student set grade="A+" where sid="s005";

select * from student order by dob;

select * from student where dno="d001";

select * from faculty order by salary desc;

select count(sid) as "no of student",dno from student group by dno;

select count(fid) as "no of faculty",dno from faculty group by dno having
salary>=25000;

```

OUTPUT:

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

- Navigator:** MANAGEMENT, INSTANCE, PERFORMANCE, Administration.
- Query Editor:** Query 1 contains the following SQL code:

```
49 • select * from student;
50 • select * from faculty;
51 • select * from course;
52 • select * from teaching;
53 • select * from register;
54 • alter table student add grade varchar(5) not null;
55 • insert into student values("s006","talitha","F","1998-04-08","d005","A");
```
- Result Grid:** Shows the data for the student table.

sid	sname	sex	dob	dno	grade
s001	sharanya	f	1998-12-26	d001	A
s002	sham	m	1997-01-16	d002	A
s003	jacob	m	1998-12-06	d001	B
s004	cathy	f	1998-11-23	d003	B+
s005	ajay	m	1998-03-03	d004	A+
- Action Output:** Displays the execution log for the query.

Time	Action	Message	Duration / Fetch
75 08:41:11	insert into student values("s006","talitha","F","1998-04-08","d005","A")	1 row(s) affected	0.016 sec
76 08:41:37	insert into course values("c006","basics humanities",10,"d005")	1 row(s) affected	0.016 sec
77 08:41:46	insert into register values("s006","c006","1")	1 row(s) affected	0.000 sec
78 08:41:56	insert into teaching values("T005","c006","1")	1 row(s) affected	0.016 sec
79 08:42:02	insert into hostel values("h005","mixed hostel",25)	1 row(s) affected	0.000 sec
80 08:42:31	select * from student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
81 08:43:11	select * from student LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

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

- Navigator:** MANAGEMENT, INSTANCE, PERFORMANCE, Administration.
- Query Editor:** Query 1 contains the following SQL code:

```
49 • select * from student;
50 • select * from faculty;
51 • select * from course;
52 • select * from teaching;
53 • select * from register;
54 • alter table student add grade varchar(5) not null;
55 • insert into student values("s006","talitha","F","1998-04-08","d005","A");
```
- Result Grid:** Shows the data for the faculty table.

fid	fname	designation	salary	dno
f001	manav	associate professor	50000	d001
f002	adha	associate professor	40000	d002
f003	sree	assistant professor	100000	d003
f004	akash	associate professor	50000	d004
f005	lena	associate professor	50000	d005
- Action Output:** Displays the execution log for the query.

Time	Action	Message	Duration / Fetch
76 08:41:37	insert into course values("c006","basics humanities",10,"d005")	1 row(s) affected	0.016 sec
77 08:41:46	insert into register values("s006","c006","1")	1 row(s) affected	0.000 sec
78 08:41:56	insert into teaching values("T005","c006","1")	1 row(s) affected	0.016 sec
79 08:42:02	insert into hostel values("h005","mixed hostel",25)	1 row(s) affected	0.000 sec
80 08:42:31	select * from student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
81 08:43:11	select * from faculty LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

MySQL Workbench

adms - Warning - not supported

File Edit View Query Database Server Tools Scripting Help

Navigator

MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

INSTANCE

- Startup / Shutdown
- Server Logs
- Options File

PERFORMANCE

- Dashboard
- Performance Reports
- Performance Schema Setup

Administration Schemas

Information

No object selected

Action Output

Time	Action	Message	Duration / Fetch
77 08:41:46	insert into register values("s006","c006","1")	1 row(s) affected	0.000 sec
78 08:41:56	insert into teaching values("t005","c006","1")	1 row(s) affected	0.016 sec
79 08:42:02	insert into hotel values("h005","mixed hotel",25)	1 row(s) affected	0.000 sec
80 08:42:31	select * from student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
81 08:43:11	select * from faculty LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
82 08:43:21	select * from course LIMIT 0, 1000	6 row(s) returned	0.016 sec / 0.000 sec

Object Info Session

Result Grid | Filter Rows! | Edit: | Export/Import: | Wrap Cell Content: | Result Grid | Context Help Snippets

Output

course 11

Result Grid | Filter Rows! | Edit: | Export/Import: | Wrap Cell Content: | Result Grid | Context Help Snippets

SQLAdditions

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

08:43 03-04-2022

MySQL Workbench

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File Edit View Query Database Server Tools Scripting Help

Navigator

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Administration Schemas

Information

No object selected

Action Output

Time	Action	Message	Duration / Fetch
78 08:41:56	insert into teaching values("t005","c006","1")	1 row(s) affected	0.016 sec
79 08:42:02	insert into hotel values("h005","mixed hotel",25)	1 row(s) affected	0.000 sec
80 08:42:31	select * from student LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
81 08:43:11	select * from faculty LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
82 08:43:21	select * from course LIMIT 0, 1000	6 row(s) returned	0.016 sec / 0.000 sec
83 08:43:48	select * from teaching LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Result Grid | Filter Rows! | Edit: | Export/Import: | Wrap Cell Content: | Result Grid | Context Help Snippets

Output

teaching 12

Result Grid | Filter Rows! | Edit: | Export/Import: | Wrap Cell Content: | Result Grid | Context Help Snippets

SQLAdditions

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

08:43 03-04-2022

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Navigator

MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
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INSTANCE

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PERFORMANCE

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- Performance Schema Setup

Administration Schemas

Information

No object selected

Action Output

```

49 • select * from student;
50 • select * from faculty;
51 • select * from course;
52 • select * from teaching;
53 • select * from register;
54 • alter table student add grade varchar(5) not null;
55 • insert into student values("s001","lalitha","f","1998-04-05","A+");

    sid cid sem
    s001 c002 1
    s001 c005 1
    s002 c001 2
    s005 c003 1
    s004 c004 2

```

register 13 x

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

Output

Object Info Session

SQLAdditions

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Read Only Context Help Snippets

08:43 03-04-2022

MySQL Workbench

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Navigator

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PERFORMANCE

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Administration Schemas

Information

No object selected

Action Output

```

56 • update student set grade="A" where sid="s001";
57 • update student set grade="A" where sid="s002";
58 • update student set grade="B" where sid="s003";
59 • update student set grade="B+" where sid="s004";
60 • update student set grade="A+" where sid="s005";
61 • select * from student order by dob;

```

student 14 x

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

Output

Object Info Session

SQLAdditions

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

08:42 03-04-2022

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Administration Schemas

Information

No object selected

Action Output

```

57 • update student set grade="A" where sid="s002";
58 • update student set grade="B" where sid="s003";
59 • update student set grade="B+" where sid="s004";
60 • update student set grade="A+" where sid="s005";
61 • select * from student order by dob;
62 • select * from student where dno="d001";
63

```

Result Grid

sid	sname	sex	dob	dno	grade
s001	sharanya	f	1998-12-26	d001	A
s003	jacob	m	1998-12-06	d001	B
s005	rohit	m	1998-12-06	d001	B

student 15

Output

Action Output

```

81 08:43:11 select * from faculty LIMIT 0, 1000
82 08:43:21 select * from course LIMIT 0, 1000
83 08:43:48 select * from teaching LIMIT 0, 1000
84 08:43:53 select * from register LIMIT 0, 1000
85 08:46:41 select * from student order by dob LIMIT 0, 1000
86 08:48:08 select * from student where dno="d001" LIMIT 0, 1000

```

Message Duration / Fetch

5 row(s) returned 0.000 sec / 0.000 sec

6 row(s) returned 0.016 sec / 0.000 sec

5 row(s) returned 0.000 sec / 0.000 sec

7 row(s) returned 0.000 sec / 0.000 sec

6 row(s) returned 0.000 sec / 0.000 sec

2 row(s) returned 0.000 sec / 0.000 sec

0.000 sec / 0.000 sec

08:48 03-04-2022

MySQL Workbench

adms - Warning - not supported

File Edit View Query Database Server Tools Scripting Help

Navigator

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Administration Schemas

Information

No object selected

Action Output

```

58 • update student set grade="B" where sid="s003";
59 • update student set grade="B+" where sid="s004";
60 • update student set grade="A+" where sid="s005";
61 • select * from student order by dob;
62 • select * from student where dno="d001";
63 • select * from faculty order by salary desc;
64

```

Result Grid

fid	fname	designation	salary	dno
f003	ree	assistant professor	100000	d003
f001	manav	associate professor	50000	d001
f004	akash	associate professor	50000	d004
f005	lena	associate professor	50000	d005
f002	asha	associate professor	40000	d002

faculty 16

Output

Action Output

```

82 08:43:21 select * from course LIMIT 0, 1000
83 08:43:48 select * from teaching LIMIT 0, 1000
84 08:43:53 select * from register LIMIT 0, 1000
85 08:46:41 select * from student order by dob LIMIT 0, 1000
86 08:48:08 select * from student where dno="d001" LIMIT 0, 1000
87 08:48:43 select * from faculty order by salary desc LIMIT 0, 1000

```

Message Duration / Fetch

6 row(s) returned 0.016 sec / 0.000 sec

5 row(s) returned 0.000 sec / 0.000 sec

7 row(s) returned 0.000 sec / 0.000 sec

6 row(s) returned 0.000 sec / 0.000 sec

2 row(s) returned 0.000 sec / 0.000 sec

5 row(s) returned 0.000 sec / 0.000 sec

08:48 03-04-2022

MySQL Workbench

adms - Warning - not supported

File Edit View Query Database Server Tools Scripting Help

Navigator

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Administration Schemas

Information

No object selected

Query 1

```
58 • update student set grade='B' where sid='s003';
59 • update student set grade='B+' where sid='s004';
60 • update student set grade='A+' where sid='s005';
61 • select * from student order by dob;
62 • select * from student where dno='0001';
63 • select * from faculty order by salary desc;
64 • select count(sid) as "no of student",dno from student group by dno;
65
```

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

no of student	dno
2	d001
1	d002
1	d003
1	d004
1	d005

Result Grid Form Editor

Read Only Context Help Snippets

Action Output

Time	Action	Message	Duration / Fetch
85 08:46:41	select * from student order by dob LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
86 08:48:08	select * from student where dno='d001' LIMIT 0, 1000	2 row(s) returned	0.000 sec / 0.000 sec
87 08:48:43	select * from faculty order by salary desc LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

Output

08:52 03-04-2022

The screenshot shows the MySQL Workbench interface. In the top-left, there's a warning message: "adms - Warning - not supported". The main area contains a query editor with the following SQL code:

```
58 • update student set grade='B' where sid='s003';
59 • update student set grade='B+' where sid='s004';
60 • update student set grade='A+' where sid='s005';
61 • select * from student order by dob;
62 • select * from student where dno='0001';
63 • select * from faculty order by salary desc;
64 • select count(sid) as "no of student",dno from student group by dno;
65
```

Below the code is a "Result Grid" showing the output of the last query:

no of student	dno
2	d001
1	d002
1	d003
1	d004
1	d005

On the right side, there's a "SQLAdditions" panel with a note: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help." Below it are tabs for "Result Grid" and "Form Editor". At the bottom, there's an "Action Output" section listing three recent actions with their times, queries, messages, and durations.

QUESTION 2 :

Queries using aggregate functions(COUNT,AVG,MIN,MAX,SUM),Group by,Order by,Having.

E_ID	E_NAME	AGE	SALARY
101	ANU	22	9000
102	Shane	29	8000
103	Rohan	34	6000
104	Scott	44	10000
105	Tiger	35	8000
106	Alex	27	7000
107	Abhi	29	8000

- (i) Create Employee table containing all Records.
- (ii) Count number of employee names from employee table.
- (iii) Find the Maximum age from employee table
- (iv) Find the Minimum age from employee table.
- (v) Display the Sum of age employee table.
- (vi) Display the Average of age from Employee table
- (vii) Create a View for age in employee table
- (viii) Display views
- (ix) Find grouped salaries of employees.
- (x) Find salaries of employee in Ascending Order
- (xi) Find salaries of employee in Descending Order

Script:

(i) Query :

```
CREATE DATABASE EMPLOYEE;
USE EMPLOYEE;
CREATE TABLE Employee(
E_ID INT(25),
E_NAME VARCHAR(25),
AGE INT(10),
SALARY FLOAT(10),
PRIMARY KEY(E_ID));
```

Inserting rows :

```
INSERT INTO Employee VALUES (101,"ANU",22,9000);
INSERT INTO Employee VALUES (102,"SHANE",29,8000);
INSERT INTO Employee VALUES (103,"ROHAN",34,6000);
INSERT INTO Employee VALUES (104,"SCOTT",44,10000);
INSERT INTO Employee VALUES (105,"TIGER",35,8000);
INSERT INTO Employee VALUES (106,"ALEX",27,7000);
INSERT INTO Employee VALUES (107,"ABHI",29,8000);
```

(ii) Query :

```
SELECT COUNT(E_NAME) FROM Employee;
```

(iii) Query :

```
SELECT MAX(AGE) FROM Employee;
```

(iv) Query :

```
SELECT MIN(AGE) FROM Employee;
```

(v) Query :

```
SELECT SUM(AGE) FROM Employee;
```

(vi) Query :

```
SELECT AVG(AGE) FROM Employee;
```

(vii) Query :

```
CREATE VIEW E_AGE AS
SELECT E_NAME,AGE FROM Employee;
```

(viii) Query :

```
SELECT * FROM E_AGE;
```

(ix) Query :

```
SELECT E_NAME,SALARY FROM Employee GROUP BY E_NAME;
```

(x) Query :

```
SELECT SALARY FROM Employee ORDER BY SALARY ASC;
```

(xi) Query :

```
SELECT SALARY FROM Employee ORDER BY SALARY DESC;
```

OUTPUT

Output of (i)

Action Output			Message
#	Time	Action	
1	22:51:27	CREATE DATABASE EMPLOYEE	1 row(s) affected
2	22:51:27	USE EMPLOYEE	0 row(s) affected
3	22:51:27	CREATE TABLE Employee(E_ID INT(25), E_NAME ...	0 row(s) affected

Output of (ii)

Result Grid		Filter Rows:
COUNT(E_NAME)		
7		

Output of (iii)

Result Grid		Filter
MAX(AGE)		
44		

Output of (iv)

Result Grid		Filter Row
MIN(AGE)		
22		

Output of (v)

Result Grid		Filter
SUM(AGE)		
220		

Output of (vi)

Result Grid		Filter
AVG(AGE)		
31.4286		

Output of (vii)

Output			
Action Output			Message
#	Time	Action	
✓ 1	22:57:15	CREATE VIEW E_AGE AS SELECT E_NAME,AGE F...	0 row(s) affected

Output of (viii)

E_NAME	AGE
ANU	22
SHANE	29
ROHAN	34
SCOTT	44
TIGER	35
ALEX	27
ABHI	29

Output of (ix)

E_NAME	SALARY
ABHI	8000
ALEX	7000
ANU	9000
ROHAN	6000
SCOTT	10000
SHANE	8000
TIGER	8000

Output of (x)

SALARY
6000
7000
8000
8000
8000
9000
10000

Output of (xi)

	SALARY
▶	10000
	9000
	8000
	8000
	8000
	7000
	6000