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PROGRAM 1: INSURANCE DATABASE

Consider the Insurance database given below.

The primary keys are underlined and the data types are specified.

PERSON (driver-id #: String, name: String, address: String)

CAR (Regno: String, model: String, year: int)

ACCIDENT (report-number: int, date: date, location: String)

OWNS (driver-id #: String, Regno: String)

PARTICIPATED (driver-id: String, Regno: String, report-number: int, damage-amount: int)

```
create database insurance;
use insurance;
```

```
create table person(
    driver_id varchar(10),
    name varchar(20),
    address varchar(30),
    primary key(driver_id)
);
```

```
desc person;
```

```
create table car(
    reg_num varchar(10),
    model varchar(10),
    year int,
    primary key(reg_num)
);
```

```
desc car;
```

```
create table accident(
    report_num int,
    accident_date date,
    location varchar(20),
```

```

primary key(report_num)
);
desc accident;

create table owns(
    driver_id varchar(10),
    reg_num varchar(10),
    primary key(driver_id,reg_num),
    foreign key(driver_id) references person(driver_id),
    foreign key(reg_num) references car(reg_num)
);

desc owns;

create table participated(
    driver_id varchar(10),
    reg_num varchar(10),
    report_num int,
    damage_amount int,
    primary key(driver_id,reg_num,report_num),
    foreign key(driver_id) references person(driver_id),
    foreign key(reg_num) references car(reg_num),
    foreign key(report_num) references accident(report_num)
);

desc participated;

insert into person values('A01','Raghu','Electronic City');
insert into person values('A02','Rishab','Orange County');
insert into person values('A03','Rufus','NR Colony');
insert into person values('A04','Jamal','Lawrence Park');
insert into person values('A05','Kevin','Rosedale');

commit;

select * from person;

insert into car values('KA031111','Accord',2005);
insert into car values('KA041122','MX-5',2019);
insert into car values('KA051133','Indica',2010);
insert into car values('KA061144','Prius',2015);
insert into car values('KA071155','Camry',2020);

commit;
select * from car;

insert into accident values(111,'2020-01-01','NR Road');
insert into accident values(122,'2020-02-02','Dalhousie Road');
insert into accident values(133,'2020-03-03','Henry Road');
insert into accident values(144,'2020-04-04','Beehive Road');
insert into accident values(155,'2020-05-05','Orange Street');

```

```

commit;

select * from accident;

insert into owns values ('A01','KA031111');
insert into owns values ('A02','KA041122');
insert into owns values ('A03','KA051133');
insert into owns values ('A04','KA061144');
insert into owns values ('A05','KA071155');
commit;

```

```

select * from owns;
insert into participated values ('A01','KA031111',111, 10000);
insert into participated values ('A02','KA041122',122, 20000);
insert into participated values ('A03','KA051133',133, 30000);
insert into participated values ('A04','KA061144',144, 40000);
insert into participated values ('A05','KA071155',155, 50000);
commit;

```

```

select * from participated;

```

i. Create the above tables by properly specifying the primary keys and the foreign keys.

PERSON TABLE

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
name	varchar(20)	YES		NULL	
address	varchar(30)	YES		NULL	

CAR TABLE

MySQL Workbench

Yashaswini

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

15 reg_num varchar(10),
16 model varchar(10),
17 year int,
18 primary key(reg_num)
19);
20
21 • desc car;
22

Result Grid Filter Rows: Export: Wrap Cell Content: Result Grid Form Editor Read Only

Field	Type	Null	Key	Default	Extra
reg_num	varchar(10)	NO	PRI	NULL	
model	varchar(10)	YES		NULL	
year	int	YES		NULL	

Result 17 x

ACCIDENT TABLE

MySQL Workbench

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

24 report_num int,
25 accident_date date,
26 location varchar(20),
27 primary key(report_num)
28);
29 • desc accident;
30
31 • create table owns(

Result Grid Filter Rows: Export: Wrap Cell Content: Result Grid Form Editor Read Only

Field	Type	Null	Key	Default	Extra
report_num	int	NO	PRI	NULL	
accident_date	date	YES		NULL	
location	varchar(20)	YES		NULL	

OWNS TABLE

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

33     reg_num varchar(10),
34     primary key(driver_id,reg_num),
35     foreign key(driver_id) references person(driver_id),
36     foreign key(reg_num) references car(reg_num)
37   );
38
39 • desc owns;
40

```

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

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	

Result Grid Form Editor

PARTICIPATED TABLE

MySQL Workbench

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

49   foreign key(report_num) references accident(report_num)
50   );
51
52 • desc participated;
53
54 • insert into person values('A01','Raghu','Electronic City');
55 • insert into person values('A02','Rishab','Orange County');
56 • insert into person values('A03','Rufus','NR Colony');

```

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

Field	Type	Null	Key	Default	Extra
driver_id	varchar(10)	NO	PRI	NULL	
reg_num	varchar(10)	NO	PRI	NULL	
report_num	int	NO	PRI	NULL	
damage_amount	int	YES		NULL	

Result 5 X Read Only

ii. Enter at least five tuples for each relation.

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

56 • insert into person values('A03','Rufus','NR Colony');
57 • insert into person values('A04','Jamal','Lawrence Park');
58 • insert into person values('A05','Kevin','Rosedale');
59
60 • commit;
61
62 • select * from person;
63

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

driver_id	name	address
A01	Raghul	Electronic City
A02	Rishab	Orange County
A03	Rufus	NR Colony
A04	Jamal	Lawrence Park
A05	Kevin	Rosedale
• NULL	NULL	NULL

person 6

Output:

Action Output

#	Time	Action	Message	Duration / Fetch
7	10:40:40	desc participated	4 row(s) returned	0.000 sec / 0.000 sec
8	10:40:47	select * from person LIMIT 0, 10	5 row(s) returned	0.015 sec / 0.000 sec

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

SQLAdditions... | Jump to | Context Help | Snippets

Apply

Type here to search

10:40 AM 5/23/2021

MySQL Workbench

Yashaswini

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

56 • insert into person values('A03','Rufus','NR Colony');
57 • insert into person values('A04','Jamal','Lawrence Park');
58 • insert into person values('A05','Kevin','Rosedale');
59
60 • commit;
61
62 • select * from person;

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

driver_id	name	address
A01	Raghul	Electronic City
A02	Rishab	Orange County
A03	Rufus	NR Colony
A04	Jamal	Lawrence Park
A05	Kevin	Rosedale
• NULL	NULL	NULL

person 6

Output:

Action Output

#	Time	Action	Message	Duration / Fetch
7	10:40:40	desc participated	4 row(s) returned	0.000 sec / 0.000 sec
8	10:40:47	select * from person LIMIT 0, 10	5 row(s) returned	0.015 sec / 0.000 sec

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

SQLAdditions... | Jump to | Context Help | Snippets

Apply

Type here to search

10:41 AM 5/23/2021

MySQL Workbench

Yashaswini

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

64 • insert into car values('KA031111','Accord',2005);
65 • insert into car values('KA041122','MX-5',2019);
66 • insert into car values('KA051133','Indica',2010);
67 • insert into car values('KA061144','Prius',2015);
68 • insert into car values('KA071155','Camry',2020);
69 • commit;
70 • select * from car;
71

```

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

	reg_num	model	year
▶	KA031111	Accord	2005
▶	KA041122	MX-5	2019
▶	KA051133	Indica	2010
▶	KA061144	Prius	2015
▶	KA071155	Camry	2020
•	NULL	NULL	NULL

SQLAdditions

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

car 8

Action Output

#	Time	Action	Message	Duration / Fetch
10	10:41:21	insert into car values('KA061144','Prius',2015)	1 row(s) affected	0.032 sec
11	10:41:24	select * from car LIMIT 0, 10	5 row(s) returned	0.000 sec / 0.000 sec

Type here to search

MySQL Workbench

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

73 • insert into accident values(122,'2020-02-02','Dalhousie Road');
74 • insert into accident values(133,'2020-03-03','Henry Road');
75 • insert into accident values(144,'2020-04-04','Beehive Road');
76 • insert into accident values(155,'2020-05-05','Orange Street');
77 • commit;
78
79 • select * from accident;
80

```

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

	report_num	accident_date	location
▶	16	2015-03-08	Domur
111	2020-01-01	NR Road	
122	2020-02-02	Dalhousie Road	
133	2020-03-03	Henry Road	
144	2020-04-04	Beehive Road	
155	2020-05-05	Orange Street	
•	NULL	NULL	NULL

SQLAdditions

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

accident 9

Action Output

#	Time	Action	Message	Duration / Fetch
11	10:41:24	select * from car LIMIT 0, 10	5 row(s) returned	0.000 sec / 0.000 sec
12	10:41:35	select * from accident LIMIT 0, 10	6 row(s) returned	0.000 sec / 0.000 sec

Type here to search

MySQL Workbench

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

82 • insert into owns values ('A02','KA041122');
83 • insert into owns values ('A03','KA051133');
84 • insert into owns values ('A04','KA061144');
85 • insert into owns values ('A05','KA071155');
86 • commit;
87
88 • select * from owns;
89 • insert into participated values ('A01','KA031111',111, 10000);

```

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

driver_id	reg_num
A01	KA031111
A02	KA041122
A03	KA051133
A04	KA061144
A05	KA071155
• NULL	NULL

SQLAdditions... | Context Help | Snippets

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

Action Output

#	Time	Action	Message	Duration / Fetch
14	10:42:02	insert into owns values ('A04','KA061144')	1 row(s) affected	0.016 sec
15	10:42:06	select * from owns LIMIT 0, 10	5 row(s) returned	0.000 sec / 0.000 sec

Type here to search

MySQL Workbench

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labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

90 • insert into participated values ('A02','KA041122',122, 20000);
91 • insert into participated values ('A03','KA051133',133, 30000);
92 • insert into participated values ('A04','KA061144',144, 40000);
93 • insert into participated values ('A05','KA071155',155, 50000);
94 • commit;
95
96 • select * from participated;

```

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

driver_id	reg_num	report_num	damage_amount
A01	KA031111	111	10000
A02	KA041122	122	20000
A03	KA051133	133	30000
A04	KA061144	144	40000
A05	KA071155	155	50000
• NULL	NULL	NULL	NULL

SQLAdditions... | Context Help | Snippets

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

Action Output

#	Time	Action	Message	Duration / Fetch
17	10:42:26	insert into participated values ('A04','KA061144',144, 40000)	1 row(s) affected	0.000 sec
18	10:42:29	select * from participated LIMIT 0, 10	5 row(s) returned	0.000 sec / 0.000 sec

Type here to search

iii. Demonstrate how you

a.Update the damage amount for the car with a specific Regno in the accident with report number 122 to 25000.

```
update participated set damage_amount=25000 where reg_num='KA041122' and report_num=122 ;  
commit;  
select * from participated;
```

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

- Toolbar:** File, Edit, View, Query, Database, Server, Tools, Scripting, Help.
- Connections:** labprogram1*, labprogram2, labprogram3*, labprogram4, labprogram5*.
- Script Editor:** Displays the executed SQL code:

```
94 •    commit;  
95  
96 •  select * from participated;  
97  
98 •  update participated set damage_amount=25000 where reg_num='KA041122' and report_num=122 ;  
99 •  commit;  
100 • select * from participated;  
101
```
- Result Grid:** Shows the data from the 'participated' table:

driver_id	reg_num	report_num	damage_amount
A01	KA031111	111	10000
A02	KA041122	122	25000
A03	KA051133	133	30000
A04	KA061144	144	40000
A05	KA071155	155	50000
NULL	NULL	NULL	NULL
- Output:** Shows the execution log:

#	Time	Action	Message	Duration / Fetch
30	11:01:31	commit	0 row(s) affected	0.000 sec
31	11:01:34	select * from participated LIMIT 0,10	5 row(s) returned	0.000 sec / 0.000 sec

b. Add a new accident to the database.

```
insert into accident values(166,'15-03-08','Domlur');  
select * from accident;
```

MySQL Workbench

Yashaswini

File Edit View Query Database Server Tools Scripting Help

labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

99 •    commit;
100 •   select * from participated;
101
102 •   insert into accident values(166,'15-03-08','Domlur');
103 •   select * from accident;
104
105
106

```

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

report_num	accident_date	location
16	2015-03-08	Domlur
111	2020-01-01	NR Road
122	2020-02-02	Dalhouse Road
133	2020-03-03	Henry Road
144	2020-04-04	Beehive Road
155	2020-05-05	Orange Street
166	2015-03-08	Domlur
• NULL	NULL	NULL

accident 20 x

Context Help Snippets

Action Output

#	Time	Action	Message	Duration / Fetch
32	11:03:25	insert into accident values(166,'15-03-08','Domlur')	1 row(s) affected	0.000 sec
33	11:03:42	select * from accident LIMIT 0, 10	7 row(s) returned	0.000 sec / 0.000 sec

iv. Find the total number of people who owned cars that were involved in accidents in 2008.

```
select count(distinct driver_id) CNT from participated a, accident b where a.report_num=b.report_num and b.accident_date like '%08';
```

MySQL Workbench

Yashaswini

File Edit View Query Database Server Tools Scripting Help

labprogram1* labprogram2 labprogram3* labprogram4 labprogram5*

```

101
102 •   insert into accident values(166,'15-03-08','Domlur');
103 •   select * from accident;
104
105
106
107 •   select count(distinct driver_id) CNT from participated a, accident b where a.report_num=b.report_num and b.accident_date like '%08';
108

```

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

CNT
0

Result 21 x

Output:

Action Output

#	Time	Action	Message	Duration / Fetch
33	11:03:42	select * from accident LIMIT 0, 10	7 row(s) returned	0.000 sec / 0.000 sec
34	11:05:11	select count(distinct driver_id) CNT from participated a, accident b where a.report_num=b.report_num and... 1 row(s) returned	1 row(s) returned	0.015 sec / 0.000 sec

v. Find the number of accidents in which cars belonging to a specific model were involved.

```
select count(report_num) CNT from car c,participated p where c.reg_num=p.reg_num and model='Accord';
```

The screenshot shows the MySQL Workbench interface. The title bar says "MySQL Workbench" and "Yashaswini". The menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The toolbar has various icons for database management. The query editor window contains the following code:

```
114
115
116
117 • select count(report_num) CNT from car c,participated p where c.reg_num=p.reg_num and model='Accord';
118
119
120
121
122
123
124
```

The results pane shows a single row of data:

CNT
1

Below the results, there is an "Output" section with a "Result 1" tab and a "Read Only" button. A vertical sidebar on the right is titled "SQLA" and contains some text.