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Course: CS-434

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Project 5

Part1:

- 1) How many customers are in a specific plan under a specific agent?

Large Database

```
→ select contract.planno, agent.aid, agent.name, count(*) from contract, agent, customer
where agent.aid = contract.aid and customer.cid = contract.cid group by agent.aid, con
tract.planno order by contract.planno, agent.aid
```

Showing rows 0 - 24 (14557 total, Query took 1.0094 seconds) [planno: 1... - 1...] [aid: 1... - 25...]

select contract.planno, agent.aid, agent.name, count(*) from contract, agent, customer where agent.aid = contract.aid and customer.cid = contract.cid group by agent.aid, contract.planno order by contract.planno, agent.aid

Number of rows: 25 Filter rows: Search this table

planno	aid	name	count(*)
1	1	Sebastian Ince	3
1	2	Sue Underwood	5
1	3	Rachel Springer	9
1	4	Charles Hunter	11
1	5	Edward Payne	10
1	6	Brian Quinn	12
1	7	Anna Skinner	8
1	8	Olivia Marshall	3
1	9	Christopher Tucker	8
1	10	Sarah McLean	4
1	11	Allison Vaughan	4
1	12	Dominic Paige	5
1	13	Carolyn Hudson	6
1	14	Stewart Davies	8
1	15	Edward Wallace	13
1	16	Dominic White	14
1	17	Abigail Roberts	9
1	18	Lillian Quinn	7
1	19	Stewart Gill	8
1	20	William Ogden	4
1	21	Donna Kerr	6
1	22	Felicity Churchill	3
1	23	Jan Lawrence	5
1	24	Sean Edmunds	5
1	25	James Burgess	3

2) How many accidents were recorded in a specific City and State in 2016?

Large Database

```
➔ select address.city, address.state, count(accident.reportno) from accident, address where accident.accidentstreet = address.street and accident.accidentzip = address.zipcode and accident.date BETWEEN '2016-01-01' and '2016-12-31' group by address.city, address.state order by count(accident.reportno) desc
```

The screenshot shows the phpMyAdmin interface for a database named 'patelinsurance'. The left sidebar displays the database structure, including tables like 'information_schema', 'mysql', 'patelinsurance', 'agent', 'carinfo', 'carinvolved', 'carpolicy', 'contract', 'customer', 'customerinvolved', 'houseinfo', 'housepolicy', 'insuranceplan', 'performance_schema', 'phpmyadmin', 'smallpatelinsurance', and 'test'. The main panel shows the 'address' table selected. A message indicates that the current selection does not contain a unique column, so grid edit, checkbox, Edit, Copy, and Delete features are not available. Below this, a green bar shows 'Showing rows 0 - 24 (2121 total, Query took 0.5998 seconds)'. The SQL query is displayed: `select address.city, address.state, count(accident.reportno) from accident, address where accident.accidentstreet = address.street and accident.accidentzip = address.zipcode and accident.date BETWEEN '2016-01-01' and '2016-12-31' group by address.city, address.state order by count(accident.reportno) desc`. The results are shown in a table with columns 'city', 'state', and 'count(accident.reportno)'. The results are ordered by the count in descending order.

city	state	count(accident.reportno)
CHICAGO	IL	359
SPRINGFIELD	IL	144
PEORIA	IL	127
AURORA	IL	49
E SAINT LOUIS	IL	41
BLOOMINGTON	IL	38
BELLEVILLE	IL	33
SCHAUMBURG	IL	31
CAROL STREAM	IL	31
OAK PARK	IL	30
EAST SAINT LOUIS	IL	28
BEDFORD PARK	IL	28
OAK LAWN	IL	24
DECATUR	IL	23
HOFFMAN ESTATES	IL	22
JOLIET	IL	21
CAMPTON HILLS	IL	21
SHOREWOOD	IL	20
BANK OF AMERICA	IL	20
NAPERVILLE	IL	18
URBANA	IL	17
BOLINGBROOK	IL	16
CHAMPAIGN	IL	16
Console	HEIGHTS	16

- 3) List all cars that are under a specific plan that were involved in the accident more than once?

Large Database

```
➔ select carinfo.vin, count(carinvolved.vin) from carinfo, carinvolved where carinfo.vin  
= carinvolved.vin group by carinfo.vin having count(carinvolved.vin) > 1 order by cou  
nt(carinvolved.vin) desc
```

The screenshot shows the phpMyAdmin interface for a database named 'patelinsurance'. The left sidebar displays the database structure, including tables like 'carinfo', 'carinvolved', 'contract', 'customer', 'houseinfo', 'insuranceplan', and 'performance_schema'. The main panel shows the 'carinfo' table selected. A SQL query is entered in the 'Show query box' area, and the results are displayed below it. The query is: `select carinfo.vin, count(carinvolved.vin) from carinfo, carinvolved where carinfo.vin = carinvolved.vin group by carinfo.vin having count(carinvolved.vin) > 1 order by count(carinvolved.vin) desc`. The results table shows 25 rows, with the first row having a count of 5. The table has two columns: 'vin' and 'count(carinvolved.vin)'.

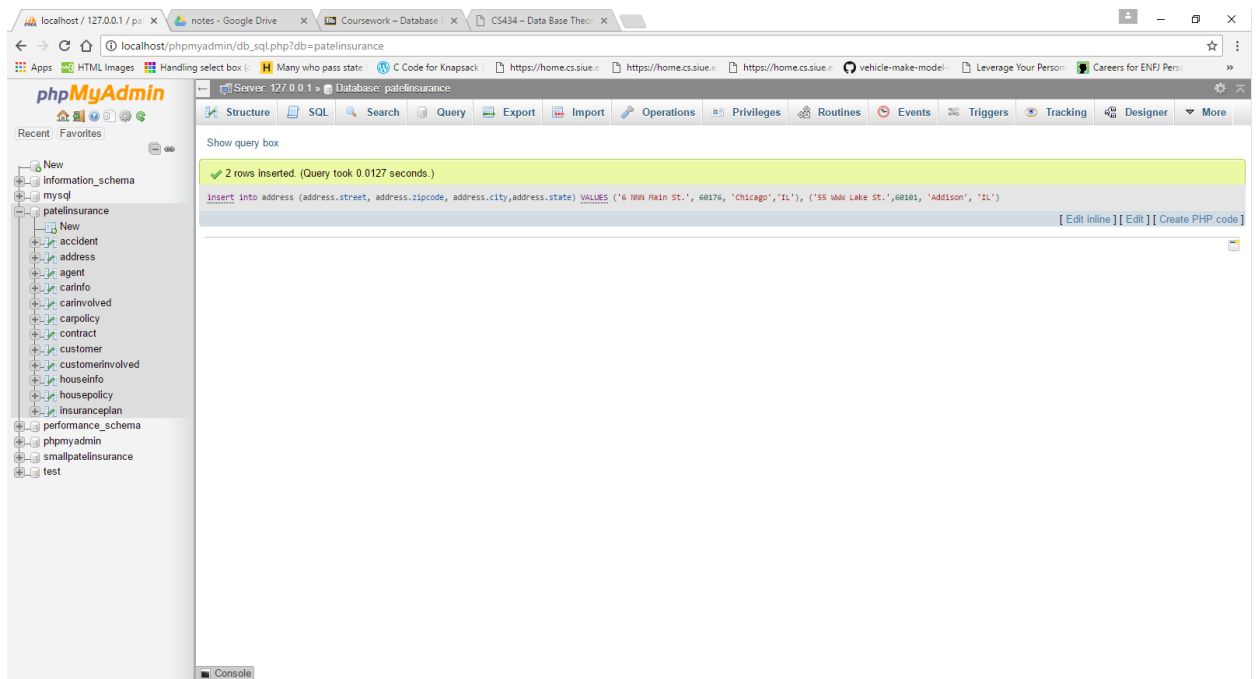
vin	count(carinvolved.vin)
1234637529	5
1234594421	4
1234612438	4
1234613603	4
1234622707	4
1234659775	4
1234617519	4
1234631263	4
1234648534	4
1234579118	4
1234596150	4
1234593351	4
1234631978	4
1234570902	4
1234618228	4
1234652584	4
1234669720	4

Part 2:

Large Database:

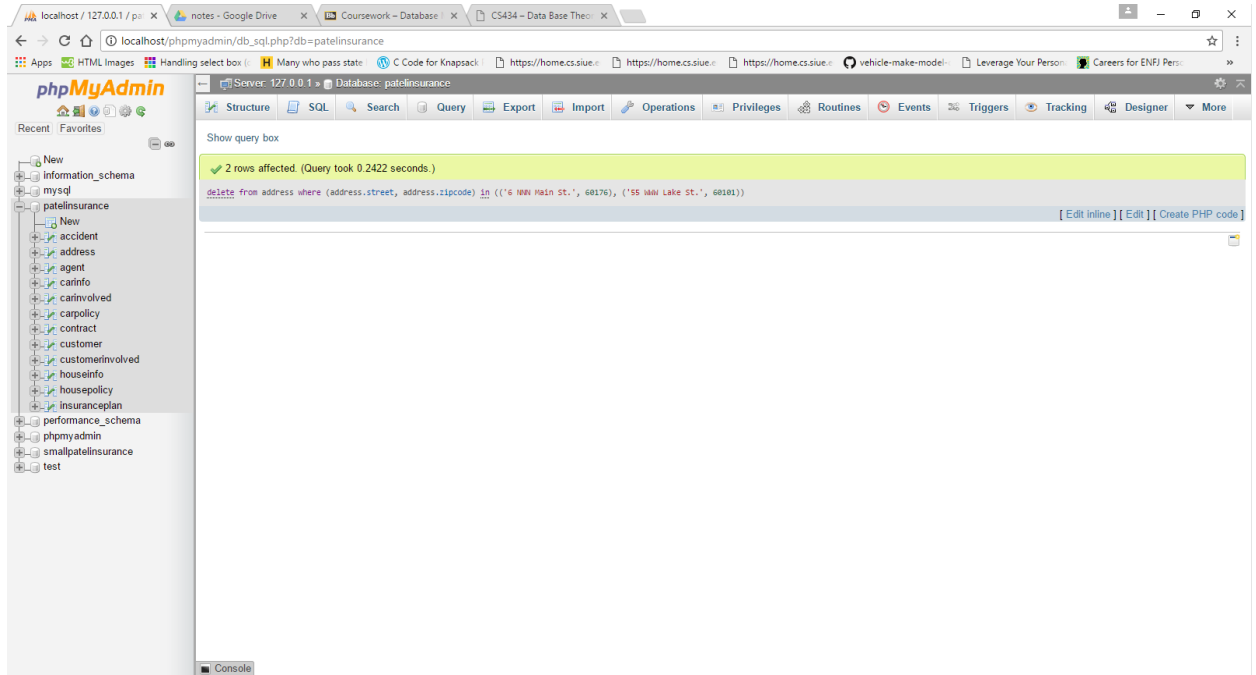
Inserting two new address into large database:

```
insert into address (address.street, address.zipcode, address.city,address.state) VALUES  
('6 NNN Main St.', 60176, 'Chicago','IL'), ('55 WWW Lake St.',60101, 'Addison', 'IL')
```



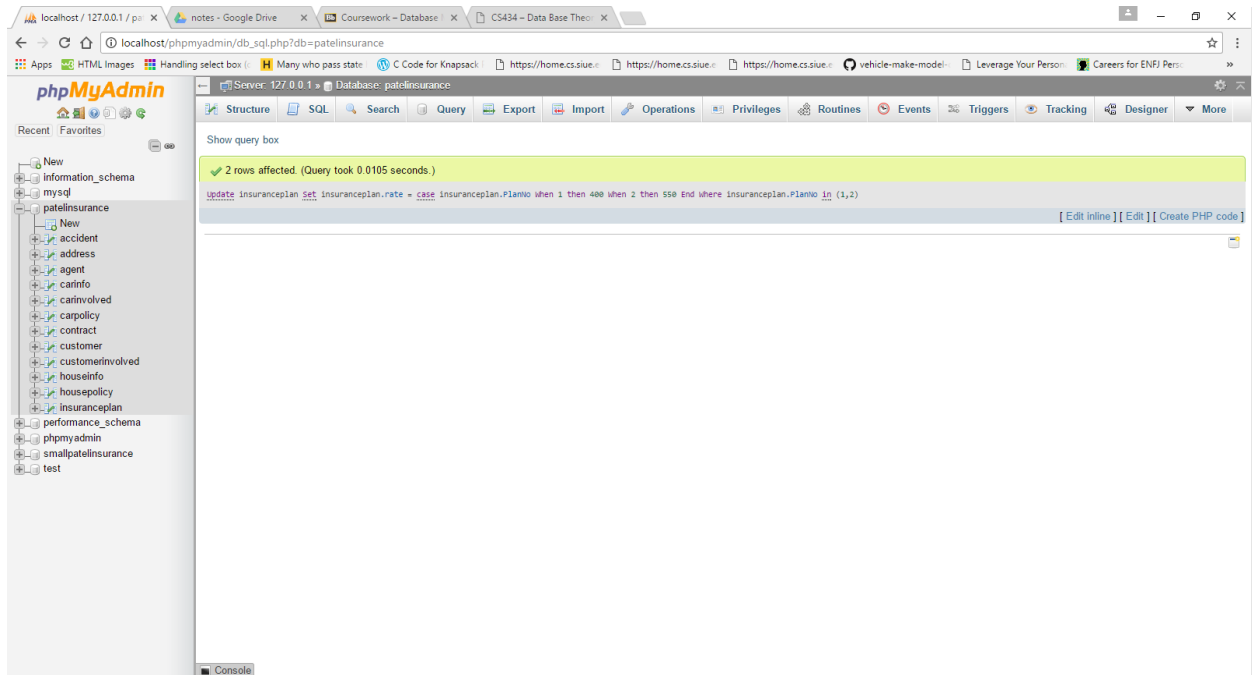
Deleting those from large database:

```
delete from address where (address.street, address.zipcode) in (('6 NNN Main  
St.', 60176), ('55 WWW Lake St.', 60101))
```



Updating two plan info in large database:

```
Update insuranceplan Set insuranceplan.rate = case insuranceplan.PlanNo  
When 1 then 400 When 2 then 550 End Where insuranceplan.PlanNo in (1,2)
```



Part 3

Large Database Create view table for customer with carpolicy under specific agent:

create view customeragentcarpolicy as

select contract.cid, contract.aid, contract.planno

from contract, carpolicy

where contract.planno = carpolicy.planno

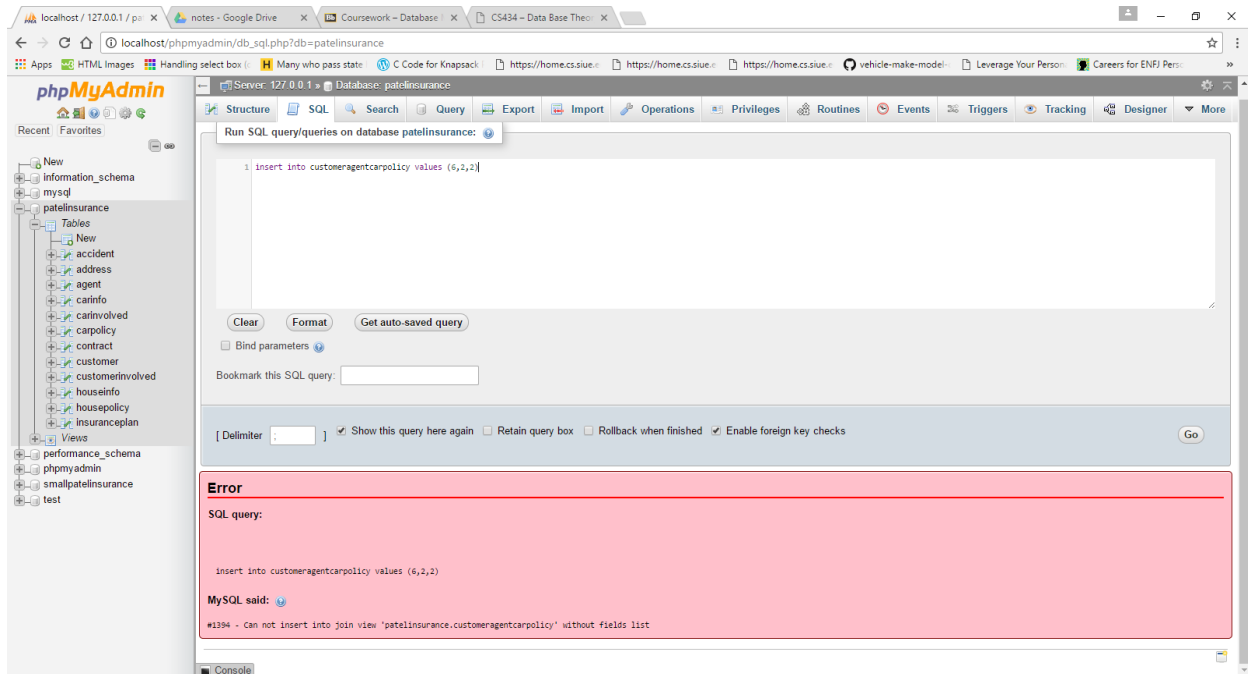
The screenshot shows the phpMyAdmin interface for a database named 'patelinsurance'. The left sidebar displays the database structure, including tables like 'contract', 'carpolicy', and 'customeragentcarpolicy'. The main panel shows the 'customeragentcarpolicy' view, which is a result of a SQL query. The query is displayed as 'SELECT * FROM `customeragentcarpolicy`'. Below the query, a table of results is shown with columns 'cid', 'aid', and 'planno'. The table contains 25 rows of data, each with a 'cid', 'aid', and 'planno' value. The interface also includes a 'Console' tab at the bottom.

cid	aid	planno
5	1728	1
12	2312	1
13	2735	1
20	1191	1
33	2866	1
35	3590	1
36	1341	1
37	2933	1
38	1660	1
39	1386	1
47	3149	1
50	2778	1
51	3024	1
58	902	1
64	1999	1
71	3479	1
87	20	1

Try to insert into customeragentcarpolicy:

insert into customeragentcarpolicy values (6,2,2)

➔ Try to insert this but did not work because customeragentcarpolicy view table is not updatable, smallcontract and smallcarpolicy tables have restrictions on them so cannot insert tuple that are not in the actual join tables.



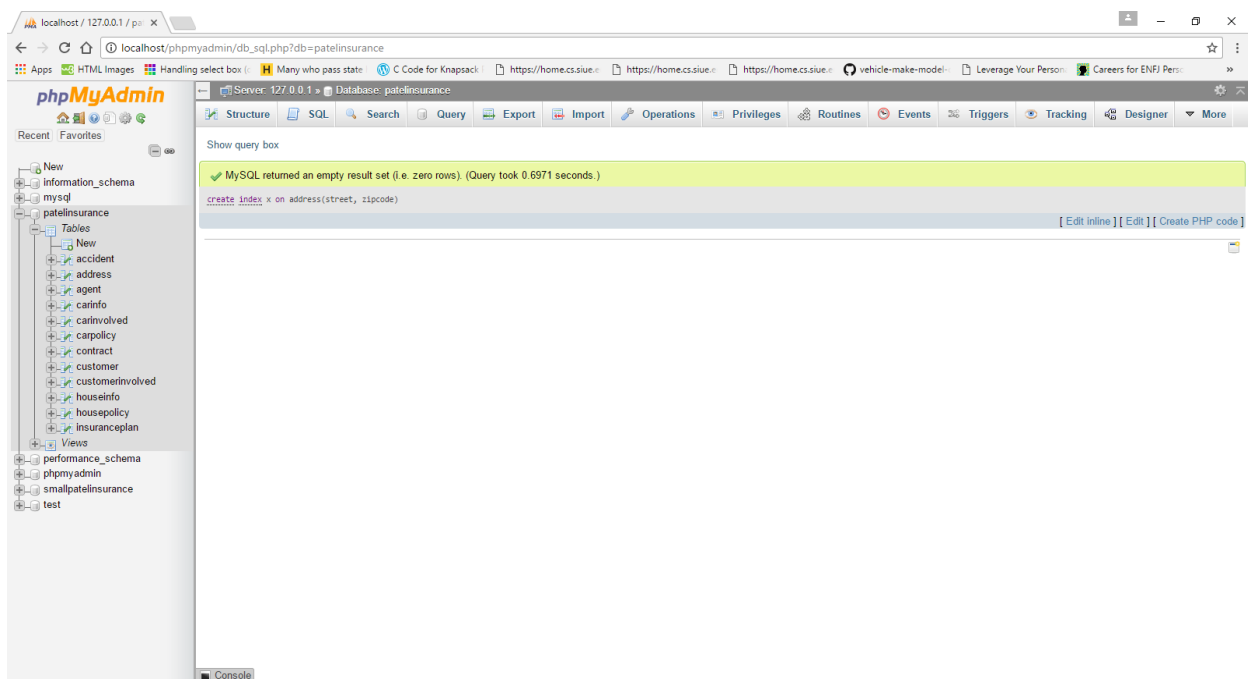
Part 4

I added index to address table on attribute street and zipcode. When I insert new address into database it did make insertion faster Also, when I delete it took less time than before. It was at least 30% faster than before.

Here is the proof of index creation:

Query:

```
create index x on address(street, zipcode)
```



Here is the image of faster inserting and deleting:

