FINAL DATABASE PROJECT

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Project Description:

An integrated system comprising numerous entities makes up the hospital management system. The management of all these elements would be difficult. We are therefore creating a single database for hospitals to address this issue and improve system efficiency by maintaining all the information needed to administer hospitals. Additionally, with the aid of this project, we will use visualization tools to exhibit and convey the data for prevalent trends for the breakouts. This would make it easier to comprehend analytics based on data or information collected from several hospitals.

Hospital Admin Table:

We manually input the data for the hospital admin table. We have 4 columns in our table, and using Jupyter, we were able to read the hospital admin's csv file and remove all of the null values. We have verified the accuracy of the data for this table by displaying all the rows with null values. After finishing everything, we entered this information into our database.

Doctor Table:

We used python programs to web scrape the data for the doctor table from the Browse AI website. Our table has eight columns, and using Jupyter, we were able to read the doctor's csv file and remove all of the null entries. By grouping by one column (primary spec) and count (doc id), we were able to see the data. Next, we used matplotlib to plot the following bar graph. Finally, we group by primary spec once more, got the mean for the age, and plot the graph for age. After finishing everything, we entered this information into our database.

Patient Table:

We manually input the data for the patients table. We have 13 columns in our table, and using Jupyter, we were able to read the patient's csv file and remove all of the null values. We have verified the accuracy of the data for this table by displaying all the rows with null values. By converting the admit date into a month and year using the date-time format, we then grouped the data by monthyear, counted the patient IDs, and generated a line graph. After finishing everything, we entered this information into our database.

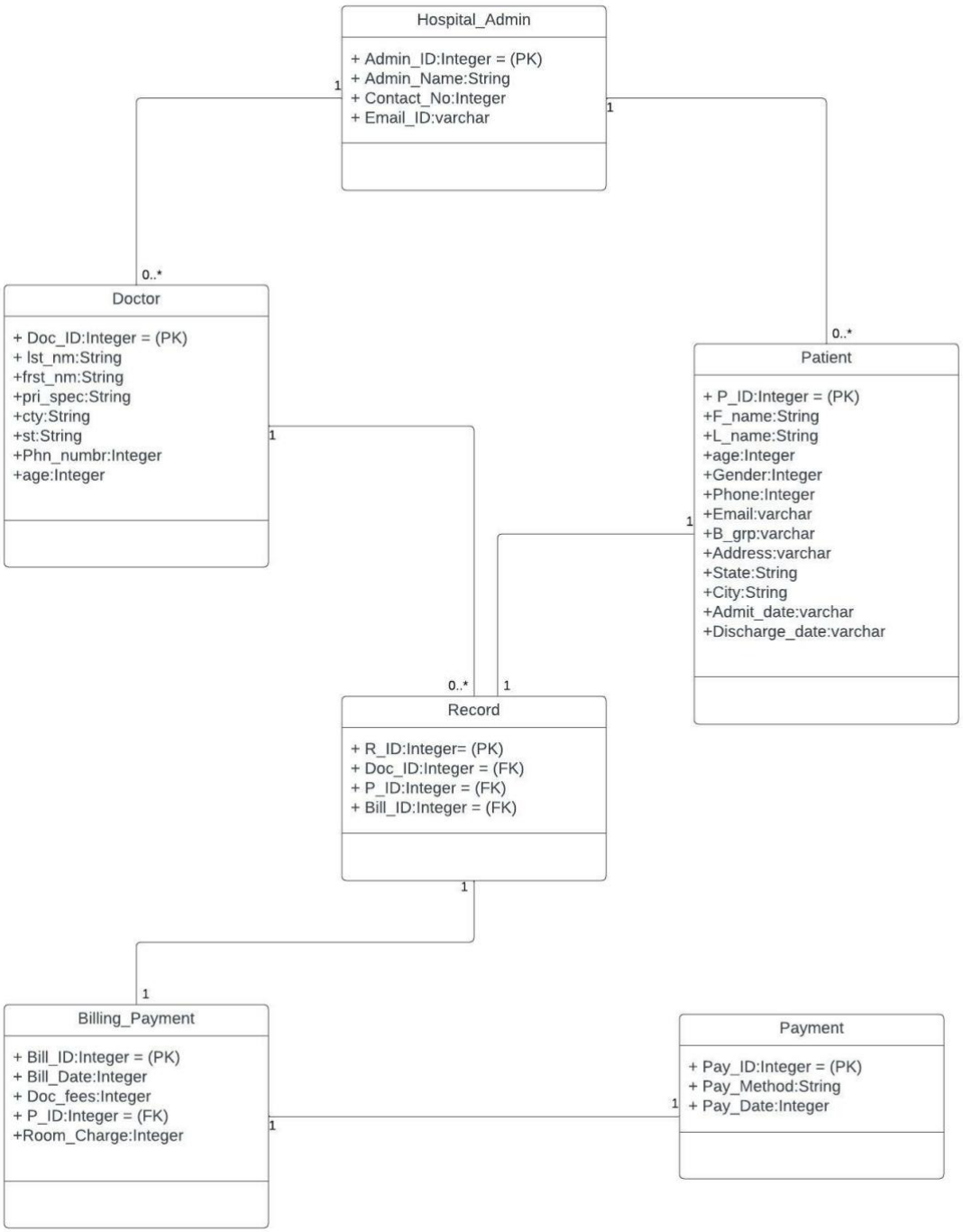
Payment Table:

The management of all patient and hospital financial information would fall under the purview of this module. All patient payment information and financial records for hospital expenses are stored and shown.

Bill Payment Table:
We manually entered the data for the bill payment table. Our database has five columns, and using Jupyter, we were able to read the bill payment csv file and remove all of the null entries. When grouping by monthyear and taking the count of the room charge, we turned the bill date into a month year by date-time before plotting the line graph. After finishing everything, we entered this information into our database.

Record Table:
We manually entered the data into the Record table. Our database has three columns, and using Jupyter, we were able to read the payment's csv file and remove all of the null entries. After finishing everything, we entered this information into our database.

ER Diagram:


Hospital_Admin
+ Admin_ID:Integer = (PK)
+ Admin_Name:String
+ Contact_No:Integer
+ Email_ID:varchar
Doctor
+ Doc_ID:Integer = (PK)
+ lst_nm:String
+frst_nm:String
+pri_spec:String
+cty:String
+st:String
+Phn_numbr:Integer
+age:Integer
Patient
+ P_ID:Integer = (PK)
+F_name:String
+L_name:String
+age:Integer
+Gender:Integer
+Phone:Integer
+Email:varchar
+B_grp:varchar
+Address:varchar
+State:String
+City:String
+Admit_date:varchar
+Discharge_date:varchar
Record
+ R_ID:Integer= (PK)
+ Doc_ID:Integer = (FK)
+ P_ID:Integer = (FK)
+ Bill_ID:Integer = (FK)
Billing_Payment
+ Bill_ID:Integer = (PK)
+ Bill_Date:Integer
+ Doc_fees:Integer
+ P_ID:Integer = (FK)
+Room_Charge:Integer
Payment
+ Pay_ID:Integer = (PK)
+ Pay_Method:String
+ Pay_Date:Integer
1
0..*
1
0..*
1
1
0..*
1
1
1
1

Snippets From Database:

1) Hospital Admin Table:

```
CREATE TABLE `admin` (
  `Admin_ID` int NOT NULL,
  `Admin_Name` varchar(255) DEFAULT NULL,
  `Contact_No` varchar(255) DEFAULT NULL,
  `Email_ID` varchar(255) DEFAULT NULL,
  PRIMARY KEY (`Admin_ID`)
)
```

Result Grid | Filter Rows: | Edit:

Admin_ID	Admin_Name	Contact_No	Email_ID
1	David	8578456321	david1@gmail.com
2	Darshan	8541253987	darshan23@gmail.com
3	Nick	8745213698	nickb@gmal.com
4	Joe	7896541236	joe2@gmail.com
5	Kapil	8574563254	kapil@gmail.com
6	Gayle	7845214639	gayle3@gmail.com
7	Otis	8547896523	otis@gmail.com
8	Olson	7135486254	olson4@gmail.com

2) Doctor Table:

```
CREATE TABLE `doctor` (
  `Doc_ID` int NOT NULL,
  `lst_nm` varchar(255) DEFAULT NULL,
  `frst_nm` varchar(255) DEFAULT NULL,
  `pri_spec` varchar(255) DEFAULT NULL,
  `cty` varchar(255) DEFAULT NULL,
  `st` varchar(255) DEFAULT NULL,
  `phn_numbr` varchar(255) DEFAULT NULL,
  `age` int DEFAULT NULL,
  PRIMARY KEY (`Doc_ID`)
)
```

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

Doc_ID	lst_nm	frst_nm	pri_spec	cty	st	phn_numbr	age
1407160575	KERR	BEATRICE	CLINICAL SOCIAL WORKER	FREDERICKSBURG	VA	5403611556.0	37
1407164437	KORENCHEN	PATRICIA	CLINICAL SOCIAL WORKER	ALBUQUERQUE	NM	5053858496.0	34
1407172521	WONG	ANDREW	NEUROLOGY	SAN ANTONIO	TX	8751452635.0	71
1407182421	MOSLEY	STEPHEN	PHYSICIAN ASSISTANT	SANTA ROSA BEACH	FL	8751452635.0	48
1407230097	BROCK	SONYA	CLINICAL SOCIAL WORKER	BARRE	MA	2149126784.0	34
1407234792	BRADBURY	MATTHEW	PSYCHIATRY	TEMPLE	TX	8751452635.0	39
1407243538	LU	JOSEPH	NEUROLOGY	SAN GABRIEL	CA	6264580181.0	28

3) Patient Table:

```
CREATE TABLE `patient` (
  `P_ID` int NOT NULL,
  `F_name` varchar(255) DEFAULT NULL,
  `L_name` varchar(255) DEFAULT NULL,
  `age` varchar(255) DEFAULT NULL,
  `Gender` varchar(255) DEFAULT NULL,
  `Phone` varchar(255) DEFAULT NULL,
  `Email` varchar(255) DEFAULT NULL,
  `B_Grp` varchar(255) DEFAULT NULL,
  `Address` varchar(255) DEFAULT NULL,
  `State` varchar(255) DEFAULT NULL,
  `City` varchar(255) DEFAULT NULL,
  `Admit_Date` varchar(255) DEFAULT NULL,
  `Discharge_Date` varchar(255) DEFAULT NULL,
  PRIMARY KEY (`P_ID`)
)
```

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

P_ID	F_name	L_name	age	Gender	Phone	Email	B_Grp	Address	State	City	Admit_Date	Discha
1	Chris	Brown	56.0	M	8578452154	cb@gmail.com	A+	56, Washington Street	MA	Boston	11/10/2021	11/25/
2	Nick	Jonas	45.0	M	8756984125	nj@gmail.com	B-	45, Lambert Street	TX	Dallas	10/20/2021	11/15/
3	Nikki	Brook	67.0	F	8796521453	nb@gmail.com	O+	15, Huntington Ave	FL	Tampa	1/7/2022	1/10/2
4	Robert	Costa	79.0	M	8763214589	rc@gmail.com	A-	25, Breaking Rocks	MA	Lowell	2/6/2022	2/12/2
5	Kelly	Mcardle	35.0	F	8796542314	km@gmail.com	A+	88, Center Street	MA	Boston	3/15/2022	3/20/2
6	James	Johnson	46.0	M	8578963254	jj@gmail.com	B+	726, Brighton Ave	NY	Rochester	11/7/2021	11/15/
7	William	Smith	52.0	M	7856452125	ws@hotmail.com	O-	63, Braintree	NV	Las Vegas	9/11/2021	10/5/2

4) Record Table:

```
CREATE TABLE `record` (
  `R_ID` int NOT NULL,
  `Doc_ID` int DEFAULT NULL,
  `P_ID` int DEFAULT NULL,
  `Bill_ID` int DEFAULT NULL,
  PRIMARY KEY (`R_ID`),
  KEY `Doc_ID` (`Doc_ID`),
  KEY `P_ID` (`P_ID`),
  KEY `Bill_ID` (`Bill_ID`),
  CONSTRAINT `record_ibfk_1` FOREIGN KEY (`Doc_ID`)
REFERENCES `doctor` (`Doc_ID`),
  CONSTRAINT `record_ibfk_2` FOREIGN KEY (`P_ID`)
REFERENCES `patient` (`P_ID`),
  CONSTRAINT `record_ibfk_3` FOREIGN KEY (`Bill_ID`)
REFERENCES `billpayment` (`Bill_ID`)
)
```

Result Grid | Filter Rows:

R_ID	Doc_ID	P_ID	Bill_ID
1	1407160575	1	1
2	1407164437	2	2
3	1407172521	3	3
4	1407182421	4	4
5	1407230097	5	5
6	1407234792	6	6
7	1407243538	7	7
8	1407245285	8	8
9	1407254881	9	9
10	1407256159	10	10

5) Billing Payment Table:

```
CREATE TABLE `billpayment` (
  `Bill_ID` int NOT NULL,
  `Bill_Date` varchar(255) DEFAULT NULL,
  `P_ID` int DEFAULT NULL,
  `Doc_Fees` varchar(255) DEFAULT NULL,
  `Room_Charge` varchar(255) DEFAULT NULL,
  PRIMARY KEY (`Bill_ID`),
  KEY `P_ID` (`P_ID`),
   CONSTRAINT `billpayment_ibfk_1` FOREIGN KEY (`P_ID`)
REFERENCES `patient` (`P_ID`),

)
```

Result Grid | Filter Rows: | Edit:

Bill_ID	Bill_Date	P_ID	Doc_Fees	Room_Charge
1	11/25/2021	1	50000	10000
2	11/15/2021	2	80000	15000
3	1/10/2022	3	75000	12000
4	2/12/2022	4	45000	8000
5	3/20/2022	5	60000	7500
6	11/15/2021	6	57500	4500
7	10/5/2021	7	56000	8500
8	1/10/2022	8	54500	4500

6) Payment Table:

```
CREATE TABLE `payment` (
  `Pay_ID` int NOT NULL,
  `Pay_Method` varchar(255) DEFAULT NULL,
  `Pay_Date` varchar(255) DEFAULT NULL,
  PRIMARY KEY (`Pay_ID`)
)
```

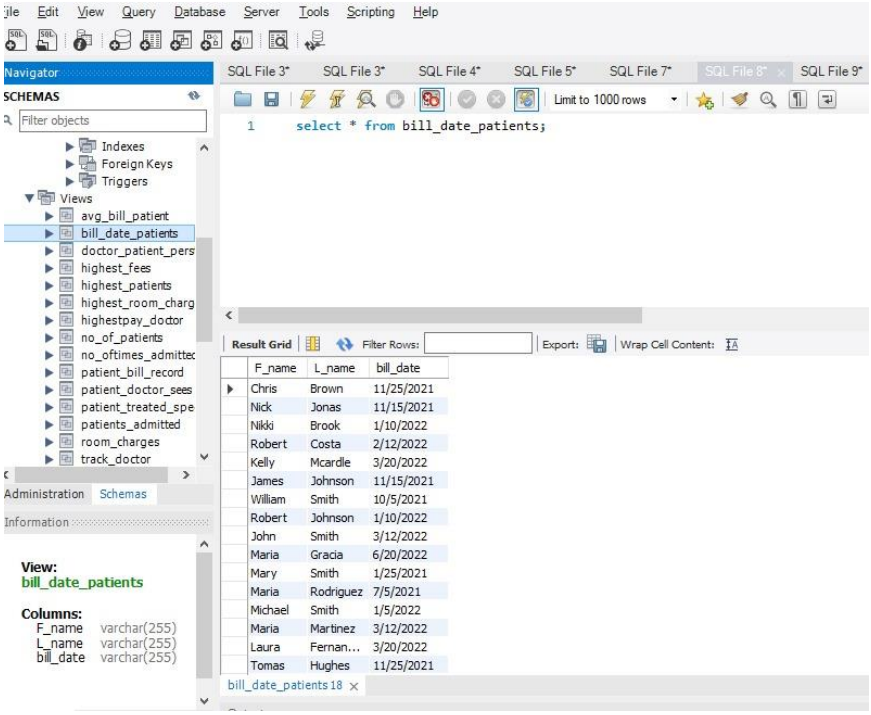
Result Grid | Filter Rows:

Pay_ID	Pay_Method	Pay_Date
1	Cash	11/28/2021
2	Card	11/19/2021
3	Cash	1/13/2022
4	Cheque	2/20/2022
5	Card	2/28/2022
6	Cash	11/15/2021
7	Card	10/15/2021
8	Cash	1/12/2022

Output of Views:

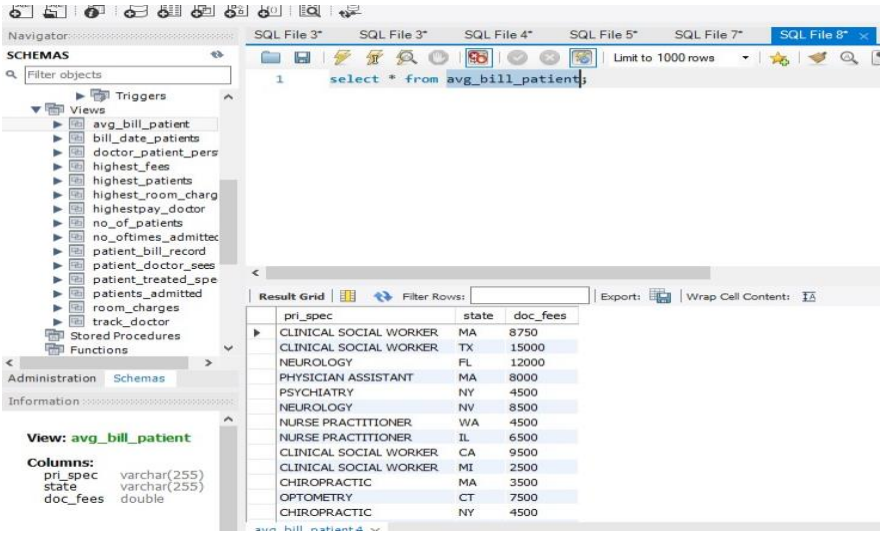
1) CREATE VIEW `bill_date_patients` AS

```
   Select p.F_name
,p.L_name ,(Bill_Date) as bill_date
From patient p
Left join billpayment bp on
bp.P_ID = p.P_ID Group by 1,2,3
```



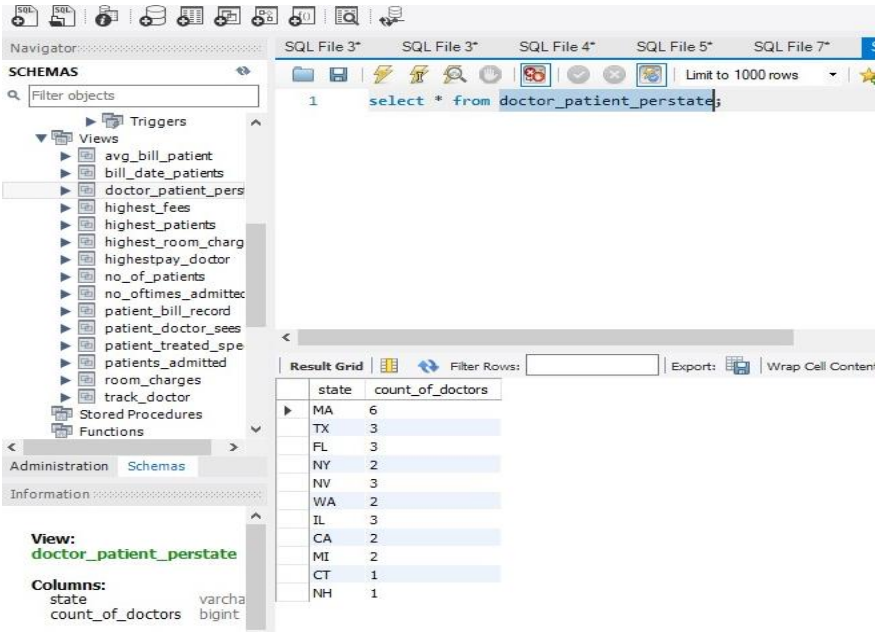
2) CREATE VIEW `avg_bill_patient` AS

```
SELECT
    `d`.`pri_spec` AS `pri_spec`,
    `p`.`State` AS `state`,
    AVG(`bp`.`Room_Charge`) AS `doc_fees`
FROM
    (((`patient` `p`
    LEFT JOIN `record` `r` ON ((`r`.`P_ID` = `p`.`P_ID`)))
    LEFT JOIN `doctor` `d` ON ((`d`.`Doc_ID` = `r`.`Doc_ID`)))
    LEFT JOIN `billpayment` `bp` ON ((`bp`.`Bill_ID` =
`r`.`Bill_ID`)))
GROUP BY `d`.`pri_spec` , `p`.`State`
```



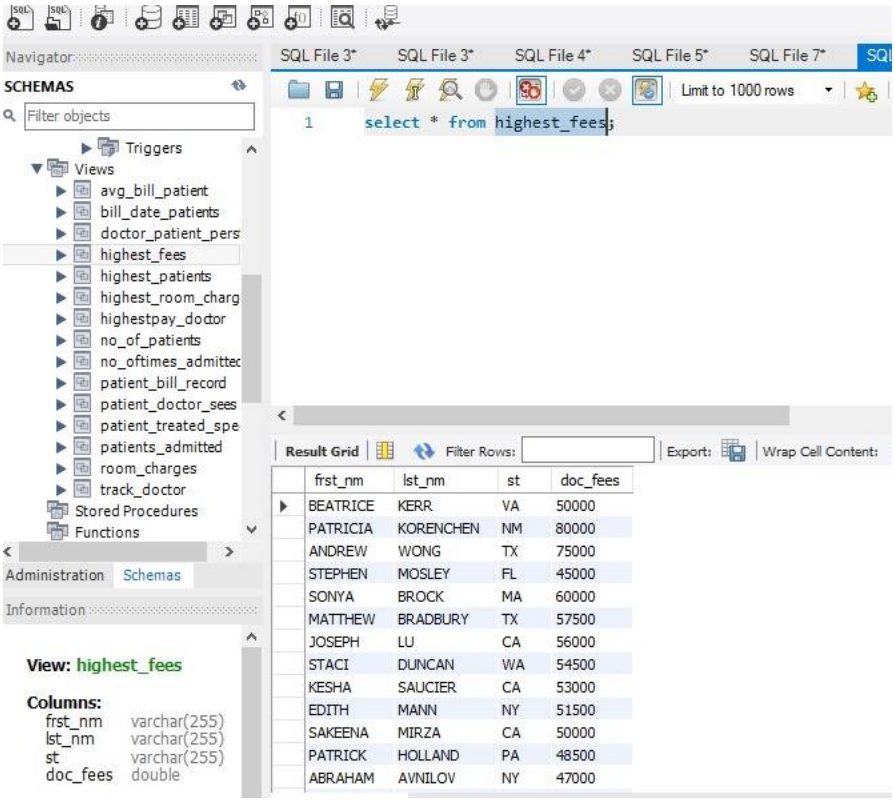
3) CREATE VIEW `doctor_patient_perstate` AS

```
SELECT
 `p`.`State` AS `state`, COUNT(0) AS `count_of_doctors`
FROM
 (`patient` `p`
   LEFT JOIN `record` `r` ON ((`r`.`P_ID` = `p`.`P_ID`)))
GROUP BY `p`.`State`
```



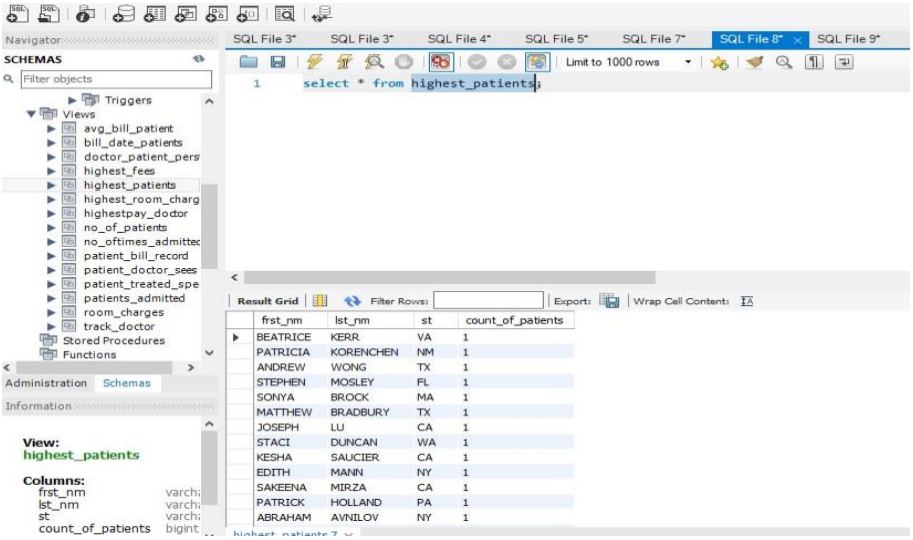
4) CREATE VIEW `highest_fees` AS

```
SELECT
    `d`.`frst_nm` AS `frst_nm`,
    `d`.`lst_nm` AS `lst_nm`,
    `d`.`st` AS `st`,
    SUM(`bp`.`Doc_Fees`) AS `doc_fees`
FROM
    ((`doctor` `d`
    LEFT JOIN `record` `r` ON ((`r`.`Doc_ID` = `d`.`Doc_ID`)))
    LEFT JOIN `billpayment` `bp` ON ((`bp`.`Bill_ID` =
`r`.`Bill_ID`)))
GROUP BY `d`.`frst_nm` , `d`.`lst_nm` , `d`.`st`
```

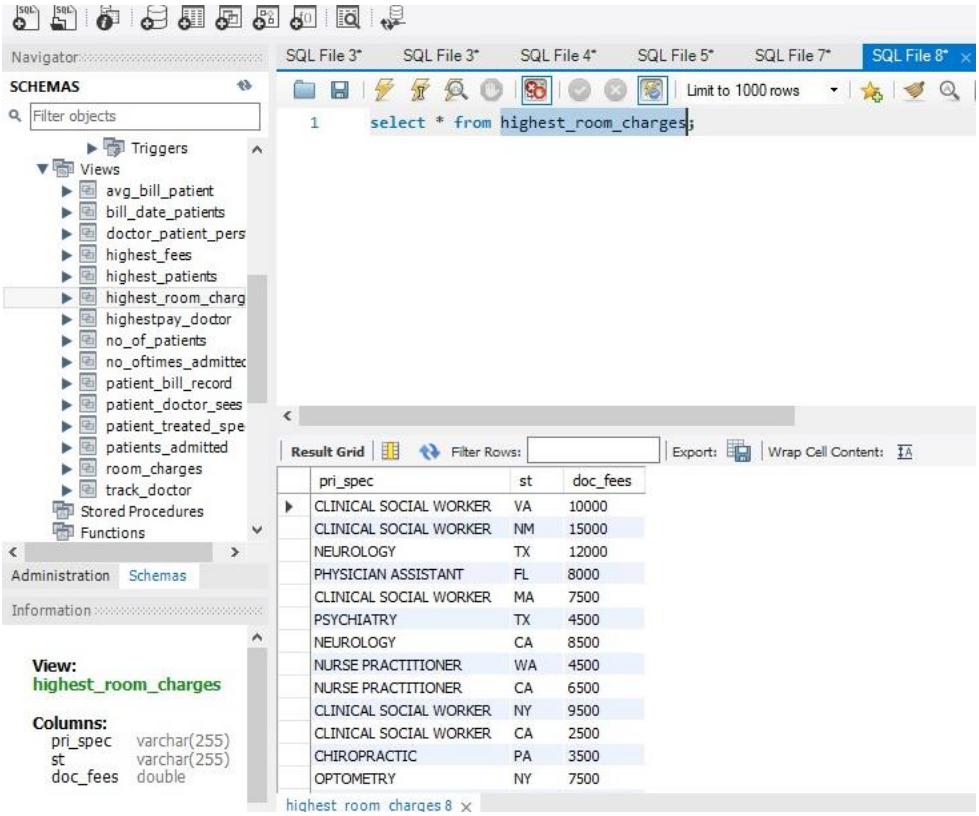


5) CREATE VIEW `highest_patients` AS

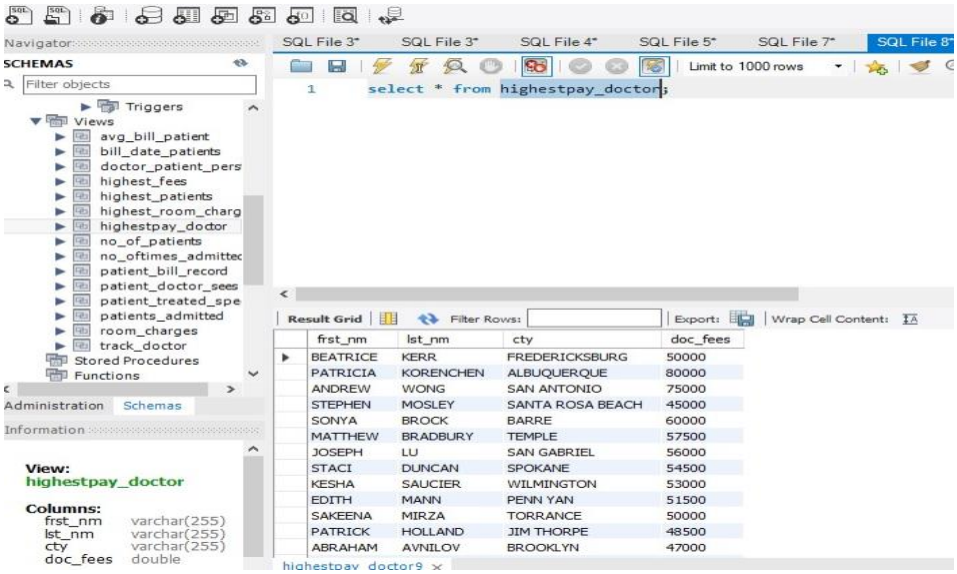
```
SELECT
    `d`.`frst_nm` AS `frst_nm`,
    `d`.`lst_nm` AS `lst_nm`,
    `d`.`st` AS `st`,
    COUNT(0) AS `count_of_patients`
FROM
    (`doctor` `d`
    LEFT JOIN `record` `r` ON ((`r`.`Doc_ID` = `d`.`Doc_ID`)))
GROUP BY `d`.`frst_nm` , `d`.`lst_nm` , `d`.`st`
```



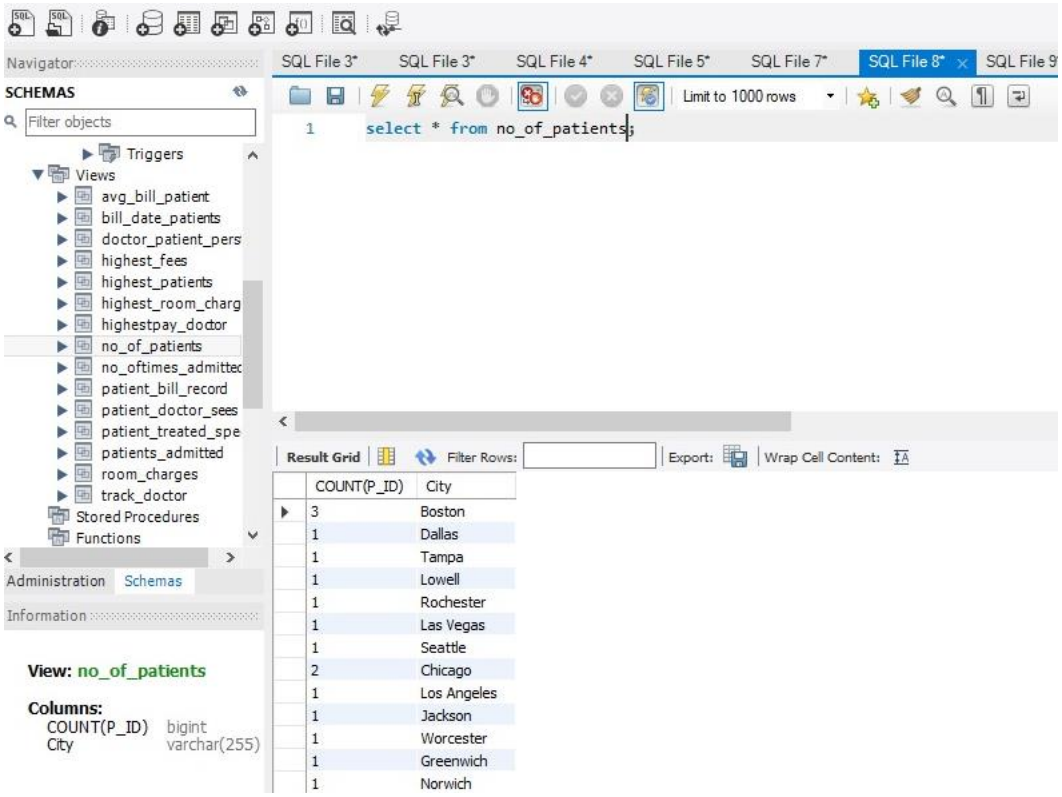
6) CREATE VIEW `highest_room_charges` AS
SELECT
`d`.`pri_spec` AS `pri_spec`,
`d`.`st` AS `st`,
SUM(`bp`.`Room_Charge`) AS `doc_fees`
FROM
((`doctor` `d`
LEFT JOIN `record` `r` ON ((`r`.`Doc_ID` = `d`.`Doc_ID`)))
LEFT JOIN `billpayment` `bp` ON ((`bp`.`Bill_ID` = `r`.`Bill_ID`)))
GROUP BY `d`.`pri_spec` , `d`.`st`



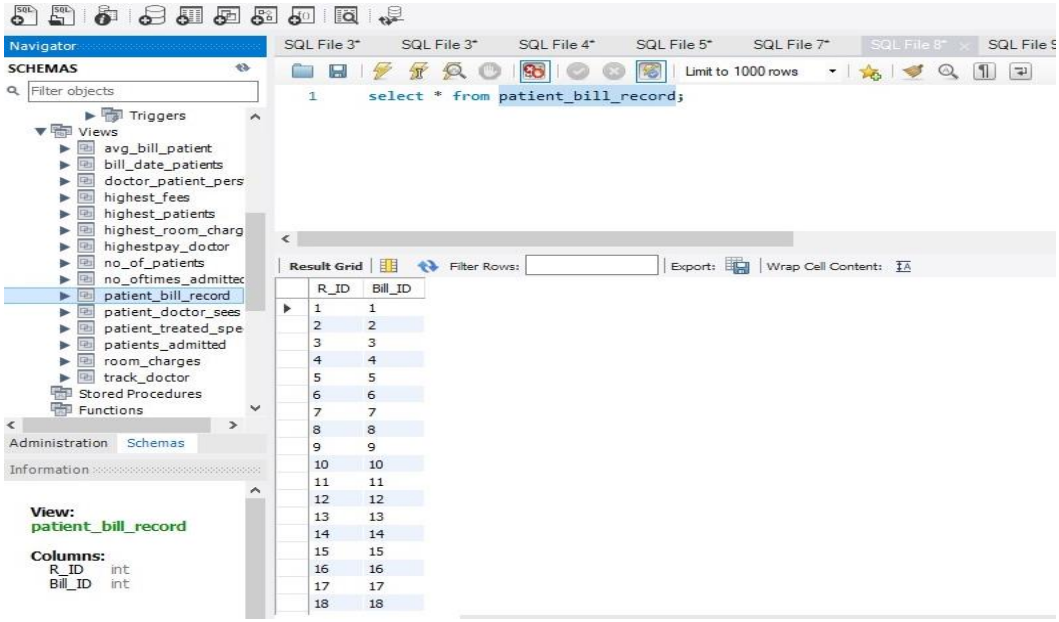
7) CREATE VIEW `highestpay_doctor` AS
SELECT
`d`.`frst_nm` AS `frst_nm`,
`d`.`lst_nm` AS `lst_nm`,
`d`.`cty` AS `cty`,
SUM(`bp`.`Doc_Fees`) AS `doc_fees`
FROM
((`doctor` `d`
LEFT JOIN `record` `r` ON ((`r`.`Doc_ID` = `d`.`Doc_ID`)))
LEFT JOIN `billpayment` `bp` ON ((`bp`.`Bill_ID` = `r`.`Bill_ID`)))
GROUP BY `d`.`frst_nm` , `d`.`lst_nm` , `d`.`cty`



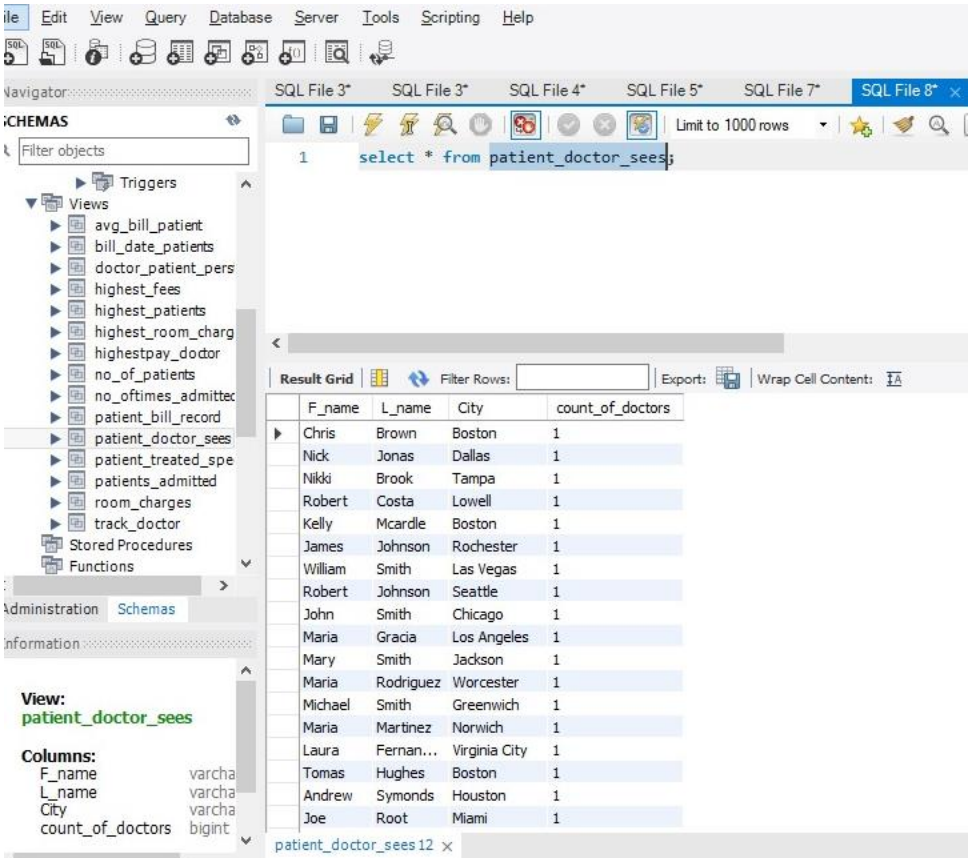
8) CREATE VIEW `no_of_patients` AS
SELECT
COUNT(`patient`.`P_ID`) AS `COUNT(P_ID)`,
`patient`.`City` AS `City`
FROM
`patient`
GROUP BY `patient`.`City`



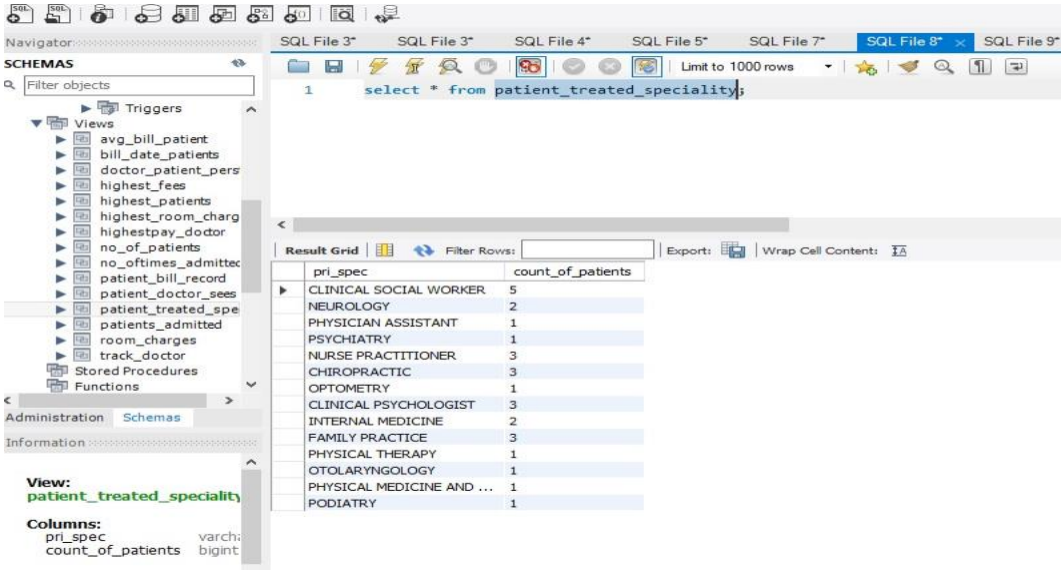
9) CREATE VIEW `patient_bill_record` AS
SELECT
`record`.`R_ID` AS `R_ID`,
`billpayment`.`Bill_ID` AS `Bill_ID`
FROM
(`record`
JOIN `billpayment` ON ((`record`.`P_ID` = `billpayment`.`P_ID`)))



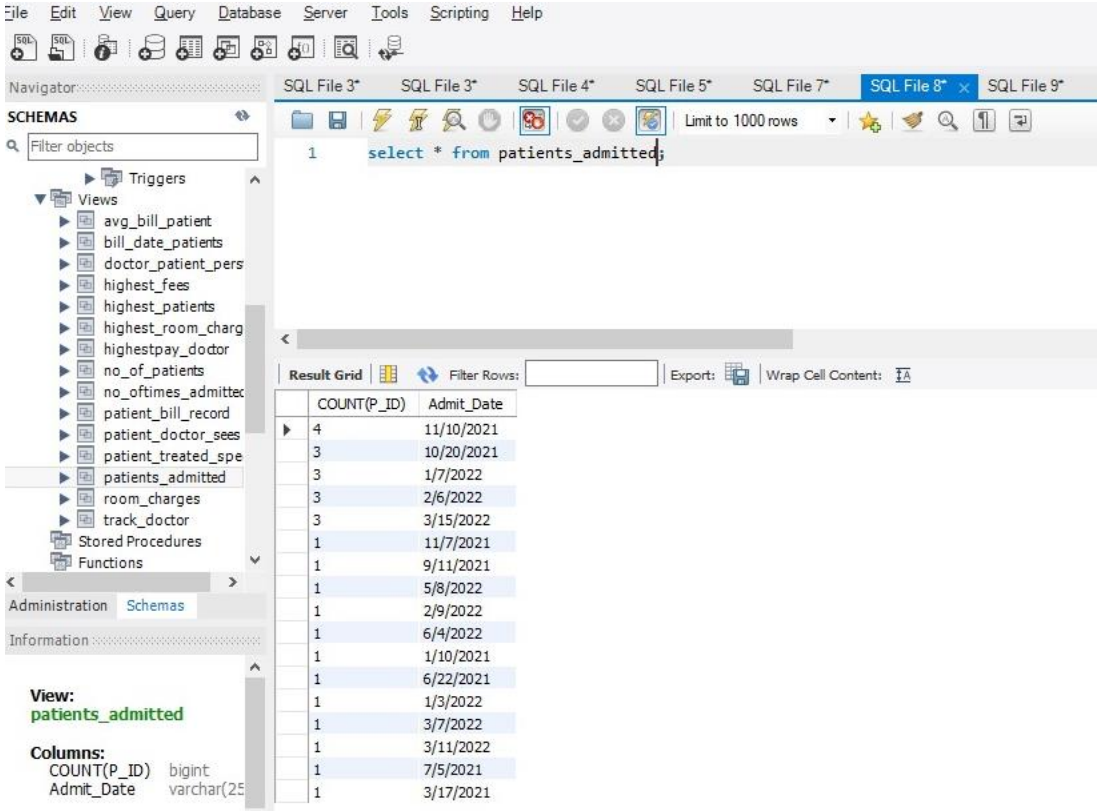
10) CREATE VIEW `patient_doctor_sees` AS
SELECT
`p`.`F_name` AS `F_name`,
`p`.`L_name` AS `L_name`,
`p`.`City` AS `City`,
COUNT(0) AS `count_of_doctors`
FROM
(`patient` `p`
LEFT JOIN `record` `r` ON ((`r`.`P_ID` = `p`.`P_ID`)))
GROUP BY `p`.`F_name` , `p`.`L_name` , `p`.`City`



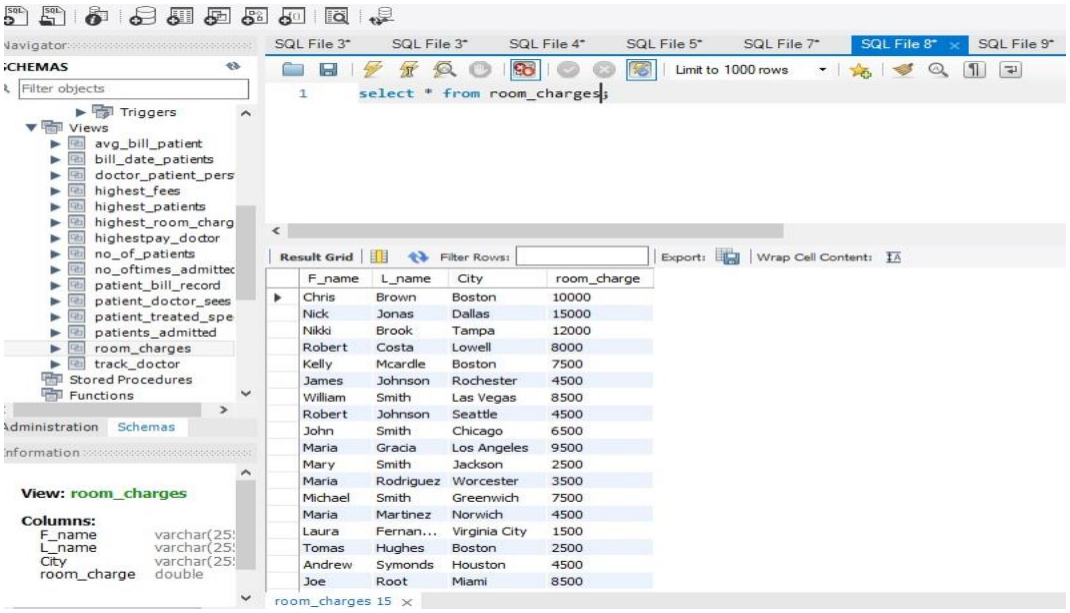
11) CREATE VIEW `patient_treated_speciality` AS
SELECT
`d`.`pri_spec` AS `pri_spec`,
COUNT(0) AS `count_of_patients`
FROM
(`doctor` `d`
LEFT JOIN `record` `r` ON ((`r`.`Doc_ID` = `d`.`Doc_ID`)))
GROUP BY `d`.`pri_spec`



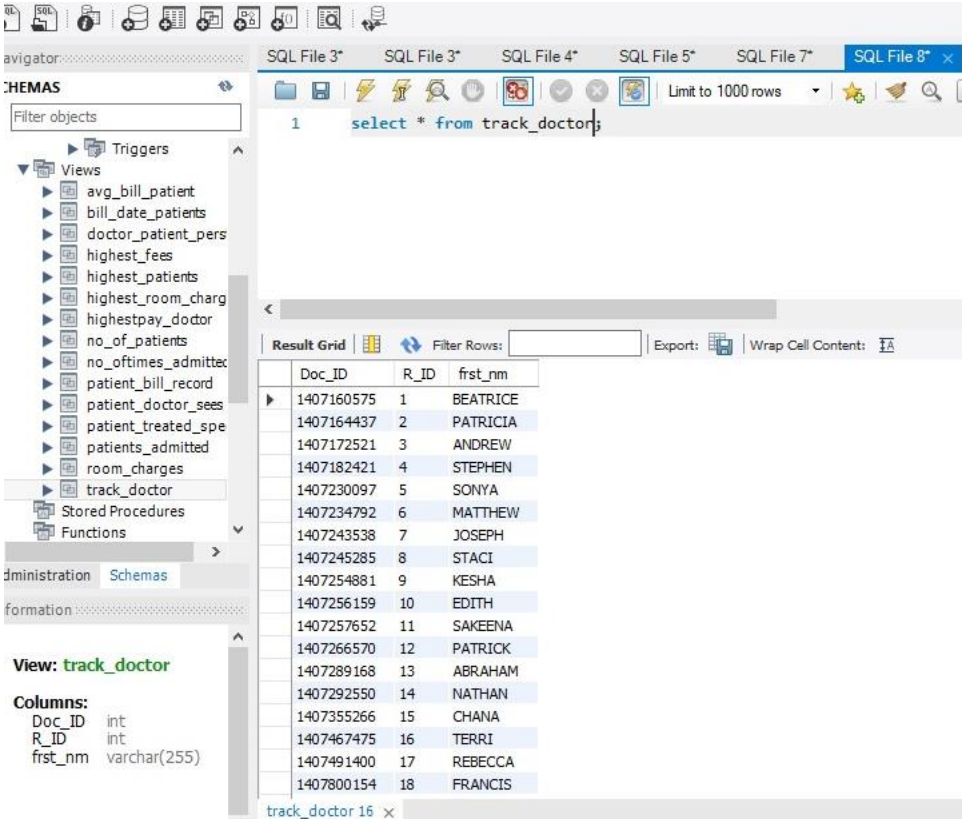
12) CREATE VIEW `patients_admitted` AS
SELECT
COUNT(`patient`.`P_ID`) AS `COUNT(P_ID)`,
`patient`.`Admit_Date` AS `Admit_Date`
FROM
`patient`
GROUP BY `patient`.`Admit_Date`



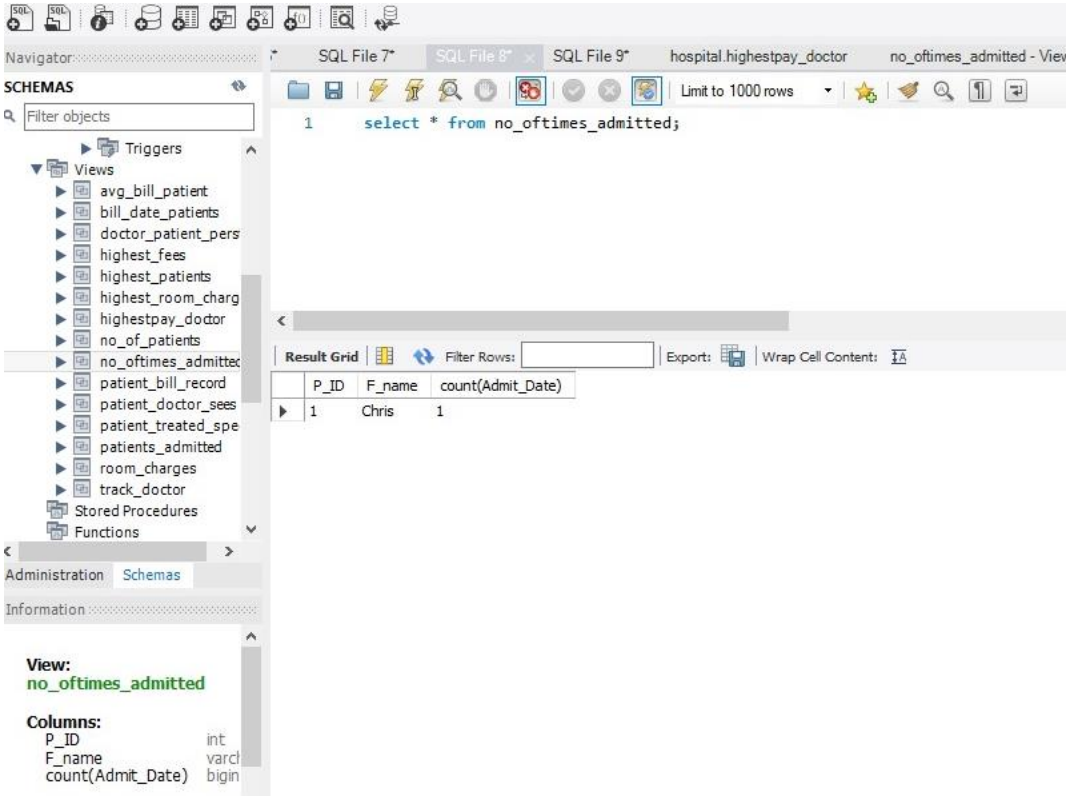
13) CREATE VIEW `room_charges` AS
SELECT
`p`.`F_name` AS `F_name`,
`p`.`L_name` AS `L_name`,
`p`.`City` AS `City`,
SUM(`bp`.`Room_Charge`) AS `room_charge`
FROM
((`patient` `p`
LEFT JOIN `record` `r` ON ((`r`.`P_ID` = `p`.`P_ID`)))
LEFT JOIN `billpayment` `bp` ON ((`bp`.`Bill_ID` = `r`.`Bill_ID`)))
GROUP BY `p`.`F_name` , `p`.`L_name` , `p`.`City`



14) CREATE VIEW `track_doctor` AS
SELECT
`doctor`.`Doc_ID` AS `Doc_ID`,
`record`.`R_ID` AS `R_ID`,
`doctor`.`frst_nm` AS `frst_nm`
FROM
(`doctor`
JOIN `record` ON ((`doctor`.`Doc_ID` = `record`.`Doc_ID`)))



15) CREATE VIEW `no_oftimes_admitted` AS
SELECT
`patient`.`P_ID` AS `P_ID`,
`patient`.`F_name` AS `F_name`,
COUNT(`patient`.`Admit_Date`) AS `count(Admit_Date)`
FROM
`patient`
GROUP BY `patient`.`P_ID`
LIMIT 1



USE-CASES:

1) To show number of patients a doctor serves in each city :

SQL File 3* SQL File 3* SQL File 4* SQL File 5* SQL File 7*

Limit to 1000 rows

```sql
Select
p.F_name
,p.L_name
,p.City
,count(*) as count_of_doctors
From patient p
Left join record r on
r.P_ID = p.P_ID
Group by 1,2,3
;
```

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

F_name	L_name	City	count_of_doctors
Chris	Brown	Boston	1
Nick	Jonas	Dallas	1
Nikki	Brook	Tampa	1
Robert	Costa	Lowell	1
Kelly	Mcardle	Boston	1
James	Johnson	Rochester	1
William	Smith	Las Vegas	1
Robert	Johnson	Seattle	1
John	Smith	Chicago	1
Maria	Gracia	Los Angeles	1
Mary	Smith	Jackson	1
Maria	Rodriguez	Worcester	1

2) To show amount of room charged in each city for Patient :

```
Select
p.F_name
,p.L_name
,p.City
,sum(room_charge) as room_charge
From patient p
Left join record r on
r.P_ID = p.P_ID
Left join billpayment bp on
bp.bill_id = r.bill_id
Group by 1,2,3
;
```

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

F_name	L_name	City	room_charge
Chris	Brown	Boston	10000
Nick	Jonas	Dallas	15000
Nikki	Brook	Tampa	12000
Robert	Costa	Lowell	8000
Kelly	Mcardle	Boston	7500
James	Johnson	Rochester	4500
William	Smith	Las Vegas	8500
Robert	Johnson	Seattle	4500
John	Smith	Chicago	6500
Maria	Gracia	Los Angeles	9500
Mary	Smith	Jackson	2500

3) Show billing date of patients:

```
Select
p.F_name
,p.L_name
 ,(Bill_Date) as bill_date
From patient p
Left join billpayment bp on
bp.P_ID = p.P_ID
Group by 1,2,3
;
```

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

F_name	L_name	bill_date
Chris	Brown	11/25/2021
Nick	Jonas	11/15/2021
Nikki	Brook	1/10/2022
Robert	Costa	2/12/2022
Kelly	Mcardle	3/20/2022
James	Johnson	11/15/2021
William	Smith	10/5/2021
Robert	Johnson	1/10/2022
John	Smith	3/12/2022
Maria	Gracia	6/20/2022
Mary	Smith	1/25/2021

4) View the number of patients served by doctors in a particular state:

```
select p.state, count(*) as count_of_doctors From Patient p LEFT JOIN record r
on r.P_ID=p.P_ID Group by 1;
```

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

state	count_of_doctors
MA	6
TX	3
FL	3
NY	2
NV	3
WA	2
IL	3
CA	2
MI	2
CT	1
NH	1

5) To show highest-paid medical professional in each city:

```
Select
d.frst_nm
,d.lst_nm
,d.cty
,sum(DOC_Fees) as doc_fees
From doctor d
Left join record r on
r.Doc_ID = d.Doc_ID
Left join billpayment bp on
bp.bill_id = r.bill_id
Group by 1,2,3;
```

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

frst_nm	lst_nm	cty	doc_fees
BEATRICE	KERR	FREDERICKSBURG	50000
PATRICIA	KORENCHEN	ALBUQUERQUE	80000
ANDREW	WONG	SAN ANTONIO	75000
STEPHEN	MOSLEY	SANTA ROSA BEACH	45000
SONYA	BROCK	BARRE	60000
MATTHEW	BRADBURY	TEMPLE	57500
JOSEPH	LU	SAN GABRIEL	56000
STACI	DUNCAN	SPOKANE	54500
KESHA	SAUCIER	WILMINGTON	53000
EDITH	MANN	PENN YAN	51500
SAKEENA	MIRZA	TORRANCE	50000

6) Number of patients treated in each speciality :

```
select d.pri_spec, count(*) as count_of_patients From Doctor d LEFT JOIN
record r on r.Doc_ID=d.Doc_ID Group by 1;
```

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

pri_spec	count_of_patients
CLINICAL SOCIAL WORKER	5
NEUROLOGY	2
PHYSICIAN ASSISTANT	1
PSYCHIATRY	1
NURSE PRACTITIONER	3
CHIROPRACTIC	3
OPTOMETRY	1
CLINICAL PSYCHOLOGIST	3
INTERNAL MEDICINE	2
FAMILY PRACTICE	3
PHYSICAL THERAPY	1

7) Specialty bringing in highest room charges per state:

```
select
d.pri_spec
,d.st
,sum(room_charge) as doc_fees
From doctor d
Left join record r on
r.Doc_ID = d.Doc_ID
Left join billpayment bp on
bp.bill_id = r.bill_id
Group by 1,2
;
```

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

pri_spec	st	doc_fees
CLINICAL SOCIAL WORKER	VA	10000
CLINICAL SOCIAL WORKER	NM	15000
NEUROLOGY	TX	12000
PHYSICIAN ASSISTANT	FL	8000
CLINICAL SOCIAL WORKER	MA	7500
PSYCHIATRY	TX	4500
NEUROLOGY	CA	8500
NURSE PRACTITIONER	WA	4500
NURSE PRACTITIONER	CA	6500
CLINICAL SOCIAL WORKER	NY	9500
CLINICAL SOCIAL WORKER	CA	2500
CHIROPRACTIC	PA	3500

8) Doctor with highest fees in each state:

```
Select
d.frst_nm
,d.lst_nm
,d.st
,sum(DOC_Fees) as doc_fees
From doctor d
Left join record r on
r.Doc_ID = d.Doc_ID
Left join billpayment bp on
bp.bill_id = r.bill_id
Group by 1,2,3;
```

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

frst_nm	lst_nm	st	doc_fees
BEATRICE	KERR	VA	50000
PATRICIA	KORENCHEN	NM	80000
ANDREW	WONG	TX	75000
STEPHEN	MOSLEY	FL	45000
SONYA	BROCK	MA	60000
MATTHEW	BRADBURY	TX	57500
JOSEPH	LU	CA	56000
STACI	DUNCAN	WA	54500
KESHA	SAUCIER	CA	53000
EDITH	MANN	NY	51500
SAKEENA	MIRZA	CA	50000
PATRICK	HOLLAND	PA	48500

9) Doctor served the highest patients in every state :

```
select d.frst_nm,d.lst_nm,d.st,count(*) as count_of_patients From Doctor d Left
JOIN record r on r.Doc_ID=d.Doc_ID GROUP BY 1,2,3;
```

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

frst_nm	lst_nm	st	count_of_patients
BEATRICE	KERR	VA	1
PATRICIA	KORENCHEN	NM	1
ANDREW	WONG	TX	1
STEPHEN	MOSLEY	FL	1
SONYA	BROCK	MA	1
MATTHEW	BRADBURY	TX	1
JOSEPH	LU	CA	1
STACI	DUNCAN	WA	1
KESHA	SAUCIER	CA	1
EDITH	MANN	NY	1
SAKEENA	MIRZA	CA	1
PATRICK	HOLLAND	PA	1

10) Average bill per patient per state:

```
Select
d.pri_spec
,p.state
,avg(room_charge) as doc_fees
From patient p
Left join record r on
r.P_ID = p.P_ID
Left join doctor d on
d.Doc_ID = r.Doc_ID
Left join billpayment bp on
bp.bill_id = r.bill_id
Group by 1,2
;
```

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

pri_spec	state	doc_fees
CLINICAL SOCIAL WORKER	MA	8750
CLINICAL SOCIAL WORKER	TX	15000
NEUROLOGY	FL	12000
PHYSICIAN ASSISTANT	MA	8000
PSYCHIATRY	NY	4500
NEUROLOGY	NV	8500
NURSE PRACTITIONER	WA	4500
NURSE PRACTITIONER	IL	6500
CLINICAL SOCIAL WORKER	CA	9500

11) Patient Admitted the maximum time:

```
select P_ID,F_name,count(Admit_Date) as number_ofTimes_admitted
from patient
group by patient.P_ID
limit 1;
```

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

P_ID	F_name	number_ofTimes_admitted
1	Chris	1

12) Count patient admit date:

```
SELECT COUNT(P_ID) , Admit_Date
FROM patient
GROUP BY Admit_Date;
```

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

COUNT(P_ID)	Admit_Date
4	11/10/2021
3	10/20/2021
3	1/7/2022
3	2/6/2022
3	3/15/2022
1	11/7/2021
1	9/11/2021
1	5/8/2022
1	2/9/2022

13) Count Bill ID :

```
Select record.R_ID, billpayment.Bill_ID
From Record
Inner Join billpayment On record.P_ID = billpayment.P_ID;
```

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

R_ID	Bill_ID
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

14) To show doctor and record ID:

```
Select doctor.Doc_ID, record.R_ID, doctor.frst_nm
From doctor
Inner Join Record On doctor.Doc_ID = record.Doc_ID
```

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

Doc_ID	R_ID	frst_nm
1407160575	1	BEATRICE
1407164437	2	PATRICIA
1407172521	3	ANDREW
1407182421	4	STEPHEN
1407230097	5	SONYA
1407234792	6	MATTHEW
1407243538	7	JOSEPH
1407245285	8	STACI
1407254881	9	KESHA

15) To show total count of patient per city:

```
SELECT COUNT(P_ID) , City
FROM patient
GROUP BY City;
```

Result Grid | Filter Rows: | Export: | Wr

COUNT(P_ID)	City
3	Boston
1	Dallas
1	Tampa
1	Lowell
1	Rochester
1	Las Vegas
1	Seattle
2	Chicago
1	Los Angeles

16) View the follower and tweet id:

```
select user.followers,tweets.id
FROM user
INNER JOIN tweets ON user.screen_name=tweets.screen_name
```

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

followers	id
24577	1593797276421324800
756	1593151531565846528
756	1593151531565846528
756	1593151531565846528
799	1593144436019666944
799	1593144436019666944
799	1593144436019666944
799	1593144436019666944
799	1593144436019666944

17) View the total number of tweets by a particular user:

```
Select COUNT(text) From tweets where screen_name ="LGCW2022"
```

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

COUNT(text)
3

Steps for choosing datasets to get final DB:

https://data.cms.gov/provider-data/topics/doctors-clinicians

We first located the dataset on this website, and then we scraped the data using Python scripts. The data for the doctor table was web scraped from the Browse AI website using python programs, and using Jupyter, we were able to read the doctor's csv file and eliminate all of the null values. We were able to see the data by grouping by one column (main spec) and count (doc id). We then plotted the following bar graph using matplotlib. Finally, we re-group by primary spec, calculate the age mean, and plot the age graph. After completing everything, we manually entered the data in other tables and through our database after entering this information by Python programs The data was entered into my sql workbench. We obtained our final database after normalizing the data from the prior assignment.