

Lab_10

202003018

202003019

Views

- Patient Prescription (Total)

Create View patient_prescription As

Select * from prescription where patient_id = X

Create View patient_prescription As

Select * from prescription where patient_id = 926722993945

Data Output		Explain	Messages	Notifications				
	patient_id numeric (12)	doctor_id numeric (12)	medicine_id integer	from_date date	to_date date	morning_dose character varying (10)	noon_dose character varying (10)	night_dose character varying (10)
1	926722993945	131407887378	5	2020-12-04	2020-12-22	7	6	3
2	926722993945	986786537816	4	2020-12-04	2020-12-10	0	9	7
3	926722993945	540258634201	8	2020-12-10	2020-12-20	7	3	0
4	926722993945	131407887378	6	2020-12-04	2020-12-12	7	2	6










- Prescription from a particular Doctor to a Patient

Create View patient_doctor_prescription As

Select * from prescription where patient_id = X and doctor_id = Y

Create View patient_doctor_prescription As

Select * from prescription where patient_id = 107998063737 and
doctor_id = 596818320348

Data Output		Explain	Messages	Notifications				
	patient_id numeric (12) 	doctor_id numeric (12) 	medicine_id integer 	from_date date 	to_date date 	morning_dose character varying (10) 	noon_dose character varying (10) 	night_dose character varying (10) 
1	107998063737	596818320348	8	2020-09-05	2020-09-25	7	2	3

- Available medicines(cost_per_unit,medicine name, amount in unit, company name, amount available)

Create View available_meidcines As

Select * from medicines

Data Output		Explain	Messages	Notifications		
	<div>medicine_id</div> <div>integer</div>	<div>medicine_name</div> <div>character varying (40)</div>	<div>cost_per_unit</div> <div>numeric (8,2)</div>	<div>amount_in_unit</div> <div>smallint</div>	<div>amount_available</div> <div>integer</div>	<div>company_name</div> <div>character varying (40)</div>
1	1	Lithium Carbonate	185.00	10	56	Krajcik Inc
2	2	Staples Instant Hand Sanitizer	715.00	20	65	Osinski Group
3	3	Hand Cleanser	236.00	20	43	Heller Group
4	4	Dexilant	275.00	5	100	Bins-Jacobi
5	5	Naproxen	460.00	10	49	Leuschke and Sons
6	6	MICRELL Sp	200.00	12	25	Aufderhar Inc
7	7	Less Relief	590.00	10	67	Lehner-Thompson
8	8	Levofloxacin	920.00	5	49	Hayes LLC
9	9	hyoscyamine sulfate	975.00	5	87	Kreiger-Greenholt
10	10	METFORMIN HYDROCHLORIDE	200.00	10	50	Hauck, Lowe and Steuber

- operations done by a particular doctor

Create View operation_doctor As

Select * from operation where doctor_id = X

Create View operation_doctor As

Select * from operation where doctor_id = 540258634201

	patient_id numeric (12) 🔒	begin_date_time timestamp without time zone 🔒	duration time without time zone 🔒	type character varying (20) 🔒	doctor_id numeric (12) 🔒
1	107998063737	2020-12-04 12:00:00	04:40:00	Lungs	540258634201







- Operation of a patient = X

Create View operation_patient As

Select * from operation where patient_id = X

Create View operation_patient As

Select * from operation where patient_id = 713964268158

Data Output		Explain	Messages	Notifications	
	patient_id numeric (12) 	begin_date_time timestamp without time zone 	duration time without time zone 	type character varying (20) 	doctor_id numeric (12) 
1	713964268158	2021-04-07 09:00:00	05:24:00	Cancer	657596761672
2	713964268158	2021-04-07 09:00:00	05:24:00	Cancer	131407887378
3	713964268158	2021-04-07 09:00:00	05:24:00	Cancer	220195004338

Queries

- Given a doctor id = X, one can obtain the data of patients which have been operated by him/her in an operation.

$\pi_{\text{aadhar_id, fname, mname, lname, dob, gender, blood_group}} (\sigma_{\text{doctor_id} = X} (\text{operation} \bowtie \langle \text{operation.patient_id} = \text{patient_details.aadhar_id} \rangle \text{patient_details}))$

select aadhar_id, fname, mname, lname, dob, gender, blood_group from
operation join patient_details on operation.patient_id =
patient_details.aadhar_id where doctor_id = X

```
select aadhar_id, fname, mname, lname, dob, gender, blood_group from
operation join patient_details on operation.patient_id =
patient_details.aadhar_id where doctor_id = '220195004338'
```

	Data Output	Explain	Messages	Notifications					
	aadhar_id [PK] numeric (12)	fname character varying (20)	mname character varying (20)	lname character varying (20)	dob date	gender character (1)	blood_group character varying (3)		
1	713964268158	Shelli	Basilio	Febvre	1976-10...	M	AB+		
2	107998063737	Konstantine	Derron	Spadoni	1950-10...	F	O+		

- One can get list of patients with similar disease = 'X'.

$$\pi_{\text{patient_id}} (\sigma_{\text{upper(disease) = 'X'}} (\text{patient_disease}))$$

```
select patient_id from patient_disease where upper(disease) = 'X'
```

```
select patient_id from patient_disease where upper(disease) =
'DENGUE'
```

	patient_id numeric (12)	
1	923692306899	
2	578283562069	

- One can know in how much amount a medicine with medicine id = X is available in the hospital.

$\pi_{\text{medicine_id, amount_in_unit, amount_available}} (\sigma_{\text{medicine_id=X}} (\text{medicines}))$

select medicine_id, amount_in_unit, amount_available from medicines
where medicine_id = X;

select medicine_id, amount_in_unit, amount_available from medicines
where medicine_id = 4;










Data Output	Explain	Messages	Notifications
<div> <div> <div></div> <div> <div>medicine_id</div> <div>[PK] integer</div> </div> <div></div> </div> </div>		<div> <div> <div>amount_in_unit</div> <div>smallint</div> </div> <div></div> </div>	<div> <div> <div>amount_available</div> <div>integer</div> </div> <div></div> </div>
1	4	5	100

- Prescriptions mentioned by the doctor id = X to the patient tid = Y will be saved and will be accessible to patients and nurses.

$\sigma_{\text{doctor_id=X and patient_id=Y}} (\text{prescription})$

select * from prescription where doctor_id = X and patient_id = Y

select * from prescription where doctor_id = 131407887378 and patient_id = 926722993945

Data Output		Explain	Messages	Notifications					
	 patient_id [PK] numeric (12)	 doctor_id [PK] numeric (12)	 medicine_id [PK] integer	 from_date [PK] date	 to_date date	 morning_dose character varying (10)	 noon_dose character varying (10)	 night_dose character varying (10)	
1	926722993945	131407887378		5 2020-12-04	2020-12-22	7	6	3	
2	926722993945	131407887378		6 2020-12-04	2020-12-12	7	2	6	

- Given a doctor id = X one can obtain all the details of that doctor.

σ doctor_id = X (doctor)

select * from doctor where aadhar_id = X

select * from doctor where aadhar_id = 131407887378

Data Output											Explain	Messages	Notifications
	aadhar_id [PK] numeric (12)	fname character varying (20)	mname character varying (20)	lname character varying (20)	speciality character varying (30)	office_number integer	dob date	gender character (1)	status boolean	mobile_number bigint			
1	131407887378	Darryl	Carlota	Riccardelli	General	996310	1975-10-	M	false	2045737006			

- Given a patient id = X one can find if he is currently admitted or not. (To check by running on the data)

σ aadhar_id = X and days_admitted is Null (patient_records)

Select * from patient_records where aadhar_id = X and days_admitted IS NULL

Select * from patient_records where aadhar_id = 760724389956 and days_admitted IS NULL

	Data Output	Explain	Messages	Notifications	
	aadhar_id [PK] numeric (12)	mobile_number bigint	date_of_admit [PK] date	type boolean	days_admitted integer
1	760724389956	5317231019	2021-10-06	true	[null]

- One can find number of empty beds for a given room_no = X.

π number_of_beds – number_of_beds_occupied (σ room_no = x(room))

Select number_of_beds – number_of_beds_occupied from room where room_no = X

Select number_of_beds - number_of_beds_occupied from room where room_no = 1

Data Output		Explain
	?column? smallint	
1	10	

- One can find patients who are given a particular medicine.

$\pi_{\text{patient_id}} (\sigma_{\text{medicine_id} = X} (\text{prescription}))$

Select patient_id from prescription where medicine_id = X

Select patient_id from prescription where medicine_id = 6

	patient_id numeric (12)	
1	107998063737	
2	926722993945	

- By the patient ID, one can get the details of his/her lab tests.

$\sigma_{\text{patient_id} = X} (\text{lab_reports})$

```
select * from lab_reports where patient_id = X
```

```
select * from lab_reports where patient_id = 983473196869
```

Data Output Explain Messages Notifications				
	date_time [PK] timestamp without time zone	patient_id [PK] numeric (12)	type [PK] character varying (30)	lab_number smallint
1	2020-11-08 14:09:00	983473196869	MRI	1
2	2020-11-08 09:07:00	983473196869	Blood Test	5

- Using patient ID = X, one can find amount of blood transfused for a given date = Y.

Date $\mathcal{F}_{\text{date}, \text{Sum}(\text{amount_ml})}(\sigma_{\text{patient_id} = X \text{ and date} = Y}(\text{blood_transfusion}))$

```
select date, Sum(amount_ml) from blood_transfusion where patient_id = X and date = Y Group by date
```

```
select date, Sum(amount_ml) from blood_transfusion where patient_id = 926722993945 and date = '05/12/2020' Group by date
```

	Data Output	Explain	Message
	<div> <div></div> <div>date</div> <div>date</div> </div>	<div> <div></div> <div>sum</div> <div>bigint</div> </div>	
1	2020-12-05	200	

- One can obtain patients with same blood group.

$\sigma_{\text{blood_group} = X}(\text{patient_details})$

select * from patient_details where blood_group = X

select * from patient_details where blood_group = 'B-'

Data Output		Explain	Messages	Notifications			
	<div><div><div>aadhar_id</div><div>[PK] numeric (12)</div></div></div>	<div><div><div>dob</div><div>date</div></div></div>	<div><div><div>gender</div><div>character (1)</div></div></div>	<div><div><div>fname</div><div>character varying (20)</div></div></div>	<div><div><div>mname</div><div>character varying (20)</div></div></div>	<div><div><div>lname</div><div>character varying (20)</div></div></div>	<div><div><div>blood_group</div><div>character varying (3)</div></div></div>
1	707819011547	1987-10...	F	Aridatha	Chadd	Erwin	B-
2	618290147720	1976-10...	F	Annetta	Rollie	Dowley	B-

- One can find amount of blood (blood group = X) currently available in blood bank.

$\pi_{\text{date}, X}(\sigma_{\text{date} = (\text{cast GETDATE() as Date})}(\text{blood_bank}))$

select date, X from blood_bank where date = current_date

select date, a_pos_ml from blood_bank where date = current_date

	date [PK] date	a_pos_ml integer
1	2021-10-29	16979

- We can get patient details who are admitted in a particular room.

patient_details SEMI-INTERSECTION_{<aadhar_id = patient_id >}($\sigma_{\text{room_no} = X}$
(admitted_patients_ids))

select * from patient_details where aadhar_id in (select patient_id
from admitted_patients_ids where room_no = X)

select * from patient_details where aadhar_id in (select patient_id
from admitted_patients_ids where room_no = 1)


	aadhar_id [PK] numeric (12)	dob date	gender character (1)	fname character varying (20)	mname character varying (20)	lname character varying (20)	blood_group character varying (3)
1	926722993945	1981-10...	M	Jakob	Erek	Downes	A+

- We can find number of patients which are currently admitted in the hospital.

$\mathcal{F}_{\text{Count}(*)(\sigma_{\text{days_admitted IS NULL}}(\text{patient_records}))}$

select count(*) from patient_records where days_admitted is NULL

select count(*) from patient_records where days_admitted is NULL

Data Output		Expla
	count bigint	
1		2

- We can get details of all the patient who have done lab tests from a particular lab

$\pi_{\text{patient_id}}(\sigma_{\text{lab_no} = X}(\text{lab_reports}))$

Select patient_id from lab_reports where lab_number= X

Select patient_id from lab_reports where lab_number = 51

	Data Output	Explain	Mes
	<div>patient_id</div> <div>numeric (12)</div>		
1	713964268158		
2	926722993945		

- We can find details of all the lab tests of a specific date.

$\sigma_{\text{date} = X}(\text{lab_reports})$

Select * from lab_reports where cast(date_time as DATE) = X

Select * from lab_reports where cast(date_time as DATE) = '04/12/2020'

	date_time [PK] timestamp without time zone	patient_id [PK] numeric (12)	type [PK] character varying (30)	lab_number smallint
1	Fri 04 Dec 10:30:00 2020	926722993945	Blood Test	20
2	Fri 04 Dec 10:00:00 2020	926722993945	Urine Test	51

- We get details of doctors which were present in every operation of a patient id = X.

Select aadhar_id from doctor

except

(Select id from

(Select doctor.aadhar_id as id, O.begin_date_time from doctor cross
join (select * from operation where patient_id = X) as O

except

Select doctor_id, begin_date_time from operation where patient_id = X

) as D

)

Select aadhar_id from doctor

except

(Select id from

(Select doctor.aadhar_id as id, O.begin_date_time from doctor cross
join

(select * from operation where patient_id = 713964268158) as O

except

Select doctor_id, begin_date_time from operation where patient_id =
713964268158

) as D

)

Data Output	Explain	Messages	Notifications
	aadhar_id numeric (12)		
1	220195004338		

- We can get the total amount of bills which are unpaid for a particular patient.

$$\text{patient_id} \mathcal{F} \text{patient_id, (Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges))} \rightarrow \text{total) } (\sigma_{\text{patient_id} = X \text{ and status} = \text{false}}(\text{bill}))$$

Select patient_id, Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges) + Sum(service_charges) as Total From bill where patient_id = X and status = false group by patient_id

Select patient_id, Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges) + Sum(service_charges) as Total from bill where patient_id = 618290147720 and status = false group by patient_id

Data Output	Explain	Messages	
	patient_id numeric (12)	total numeric	
1	618290147720	34343.00	

- We can get the details of the bills which are unpaid.

$\sigma_{\text{status} = \text{false}}(\text{bill})$

select * from bill where status = false

select * from bill where status = false

	patient_id [PK] numeric (12)	date_time [PK] timestamp without time zone	status boolean	medicine_charges numeric (10,2)	blood_t_charges numeric (10,2)	operation_charges numeric (10,2)	lab_charges numeric (10,2)	service_charges numeric (10,2)
1	760724389956	Sun 17 Oct 11:15:00 2021	false	2340.00	9784.00	0.00	800.00	9000.00
2	618290147720	Wed 20 Oct 20:30:00 2021	false	8504.00	1839.00	0.00	0.00	3000.00

- We can get the patients whose unpaid amount of bill is greater than amount X

patient_details SEMI-INTERSECTION_{<aadhar_id = patient_id>}

$\rho(R, \pi_{\text{patient_id}} ($

$$\text{patient_id} \mathcal{F} \text{patient_id, (Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges))} \rightarrow \text{total}) (\sigma (\text{Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges))} > X \text{ and status} = \text{false}(\text{ bill }))))$$

select * from patient_details where aadhar_id in

(select patient_id from

(Select patient_id,(Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges) + Sum(service_charges)) as Total



From bill where status = false Group by patient_id Having (Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges) + Sum(service_charges)) > X)

as R)

select * from patient_details where aadhar_id in

(select patient_id from

(Select patient_id,(Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges) + Sum(service_charges)) as Total from bill where status = false group by patient_id Having (Sum(medicine_charges) + Sum(operation_charges) + Sum(blood_t_charges) + Sum(lab_charges) + Sum(service_charges)) > 30000) as R)

Data Output Explain Messages Notifications								
	aadhar_id [PK] numeric (12) 	dob date 	gender character (1) 	fname character varying (20) 	mname character varying (20) 	lname character varying (20) 	blood_group character varying (3) 	
1	618290147720	08-10-1...	F	Annetta	Rollie	Dowley	B-	