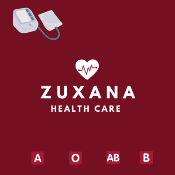
Arzu Tosayeva,Minf 4/5,Database Management Systems,Blood Donation Project 

**Introduction:**

**General Information:**

**Er\_Diagram :**

**References :**

**Introduction:** Each day, thousands of people provide compassionate care to those in need. Blood donation is a voluntary procedure that can help save the lives of others. There are several types of blood donation, which help meet different medical needs.This project is based on hospital and its staff data which is directly focused on serving donors and patients.

**General Information:**

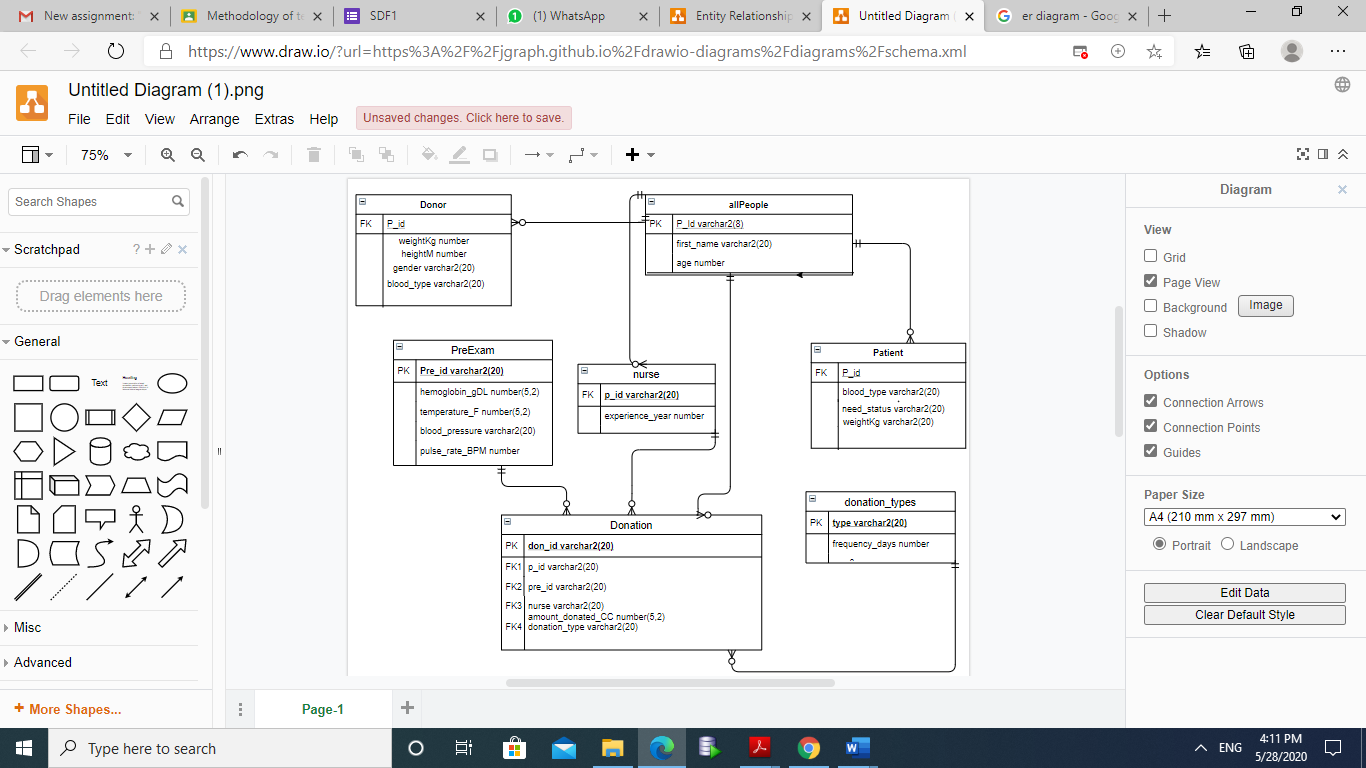
As a database management system Oracle SQL Developer was used. For the project joins,views,subqueries,update,delete,insert,select,constraints,alter operations used in different kind of purposes.

**ER diagram**

An entity–relationship model describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types and specifies relationships that can exist between entities.

Explanation:

allPeople describes all information about people. This table is the biggest and most related table of system. Donor table keeps recording of details of donors such as (weight,height,gender and blood type). Patient table holds essential information about people who need donation. Nurse table is responsible for giving detailed information about nurses and their experiences. Pre\_exam table holds important records of donors which are very essential during the transfusion process. Donation\_types and Donation tables are related with each other with donation type. Several types of donation should have id,amount and etc.



Create table allPeople(

P\_Id varchar2(8) primary key,

first\_name varchar2(20) not null,

last\_name varchar2(20) not null,

age number not null);

create table donor(

P\_id varchar2(20) not null,

constraint p\_id\_don\_peop foreign key(p\_id)

references allPeople(p\_id),

blood\_type varchar2(20) not null,

weightKg number not null,

heightM number not null,

gender varchar2(20), check(gender='M' or gender='F'));

create table patient(

p\_id varchar2(20) not null,

constraint p\_id\_patien foreign key (p\_id)

references allpeople(p\_id),

blood\_type varchar2(20) not null,

need\_status varchar2(20),check(need\_status='low' or need\_status='high'),

weightKg varchar2(20) not null);

create table nurse(

p\_id varchar2(20),

constraint nurse\_p\_id foreign key (p\_id)

references allpeople(p\_id),

experience\_year number not null);

CREATE TABLE pre\_exam (

pre\_id varchar2(20)primary key,

hemoglobin\_gDL number(5,2) not null,

temperature\_F number(5,2) not null,

blood\_pressure varchar2(20) not null,

pulse\_rate\_BPM number not null

);

CREATE TABLE donation\_types (

type varchar2(20)primary key,

frequency\_days number not null

);

CREATE TABLE donation (

don\_id varchar2(20) primary key,

p\_id varchar2(20) not null,

constraint p\_id\_don foreign key(p\_id)

references allpeople(p\_id),

pre\_id varchar2(20) not null ,

constraint don\_id\_d foreign key(pre\_id)

references pre\_exam(pre\_id),

nurse varchar2(20) not null,

constraint p\_i\_nurse foreign key(nurse)

references allpeople(p\_id),

amount\_donated\_CC number(5,2) not null,

donation\_type varchar2(20) not null ,

constraint don\_ty foreign key (donation\_type)

references donation\_types(type)

);

alter table donor add (nextDonationDate date);

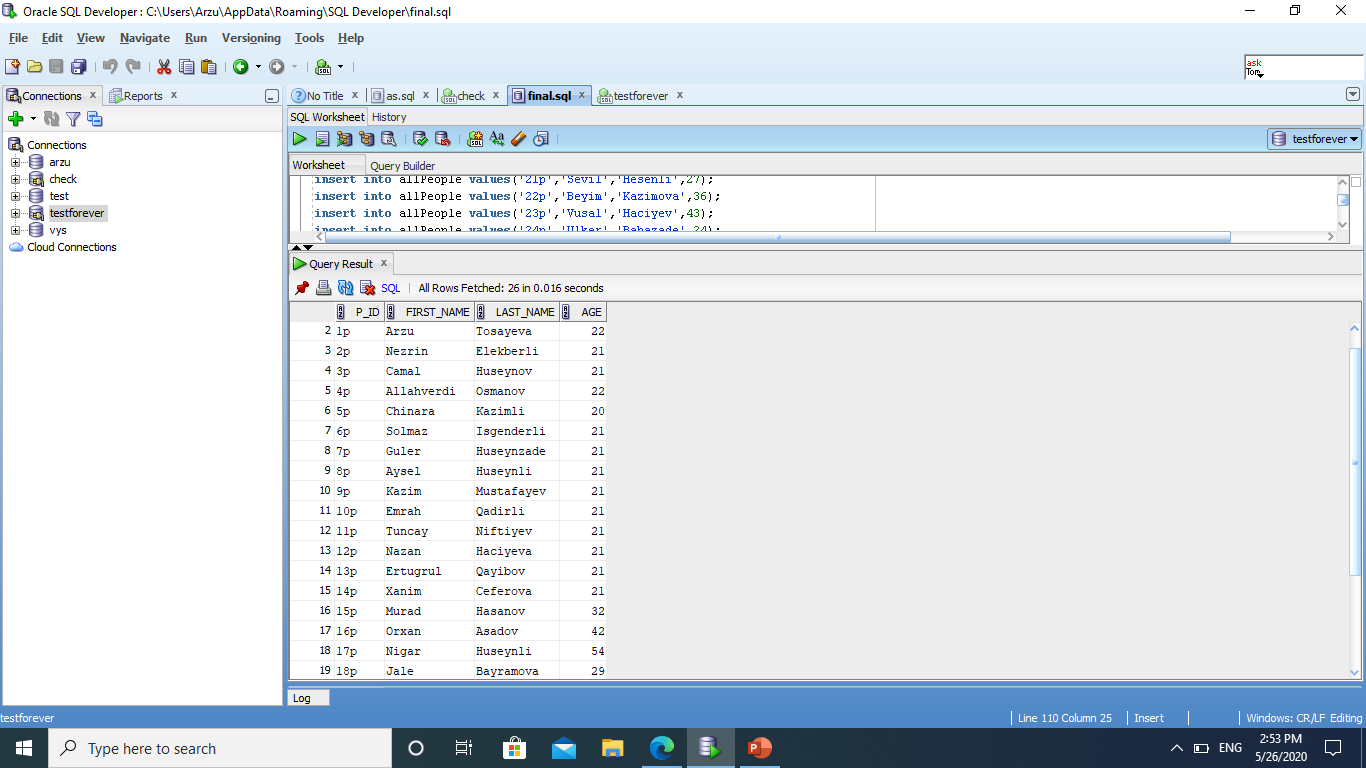
alter table donor add (phone\_number number);

--Insert--

insert into allPeople values('1p','Arzu','Tosayeva',22);

insert into allPeople values('2p','Nezrin','Elekberli',21);

insert into allPeople values('3p','Camal','Huseynov',21);



**-- O (I qrup), A (II qrup), B (III qrup) və AB (IV) --**

insert into donor values('4p','O+',60,171,'M','06-Jan-2019');

insert into donor values('7p','O-',60,168,'F','06-Feb-2019');

insert into donor values('22p','AB-',56,165,'F','08-Mar-2019');

update donor

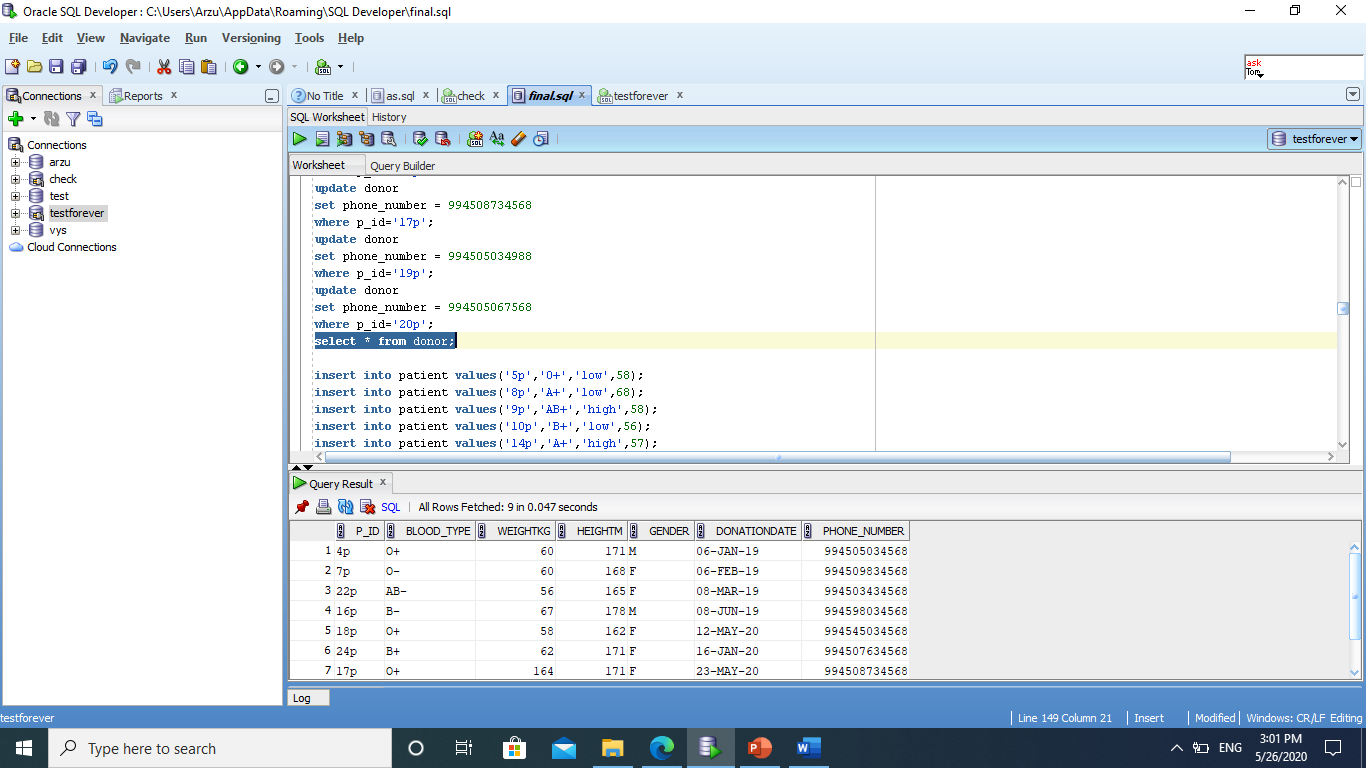
set phone\_number = 994505034568

where p\_id='4p';

update donor

set phone\_number = 994509834568

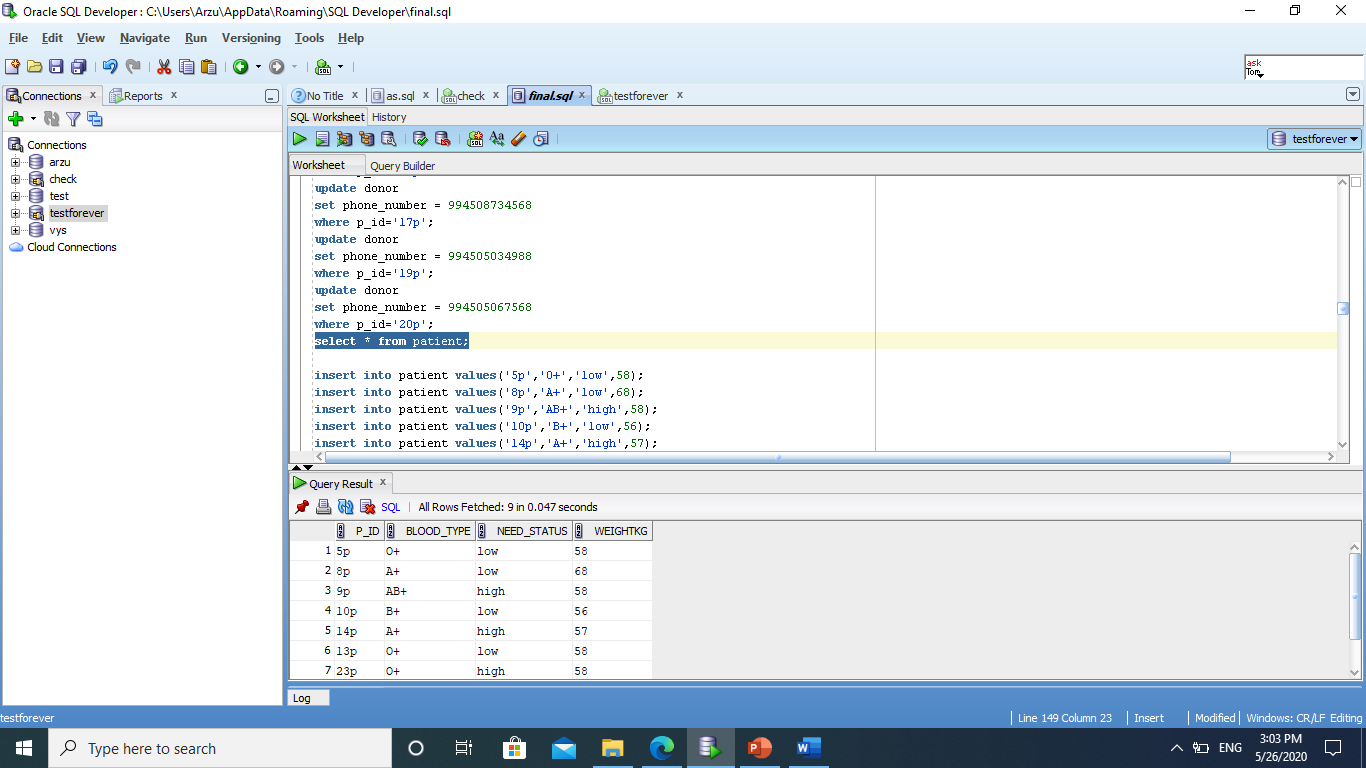
where p\_id='7p';



insert into patient values('5p','O+','low',58);

insert into patient values('8p','A+','low',68);

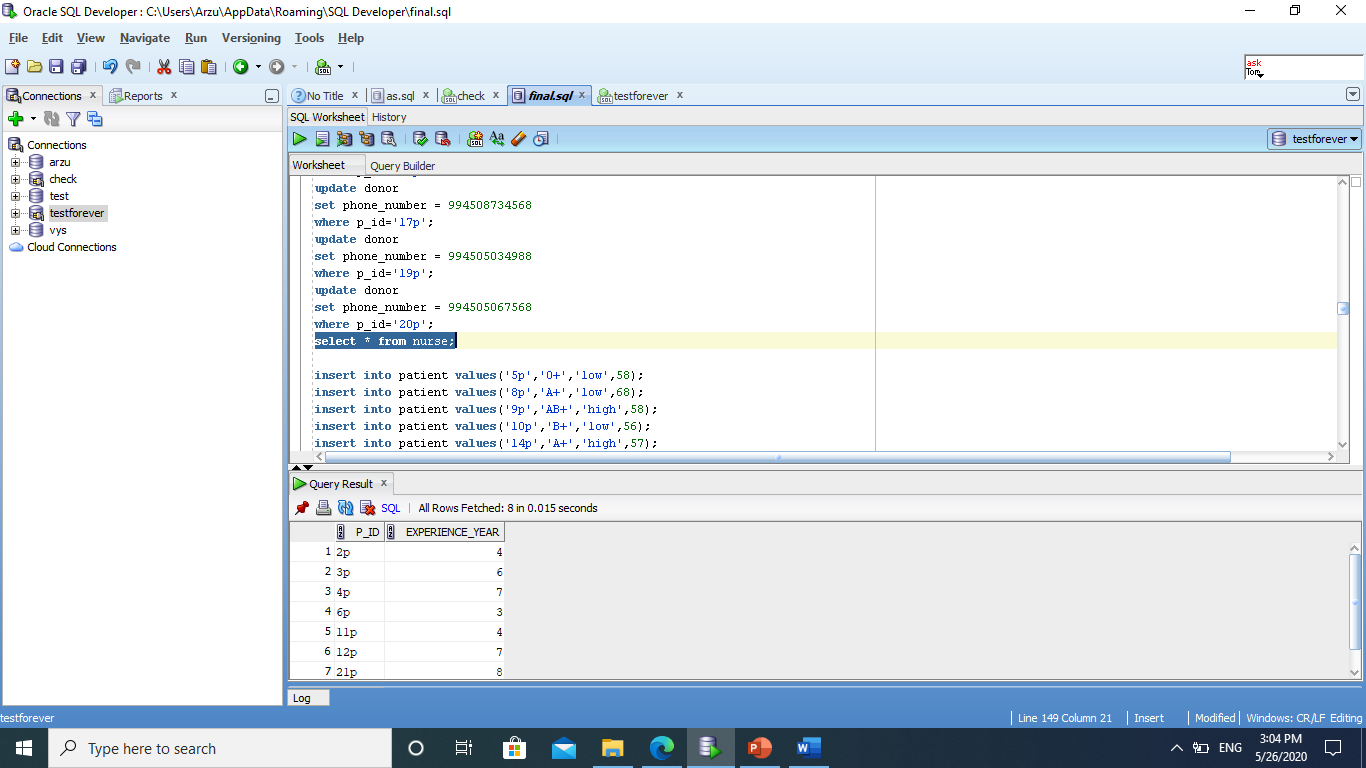
insert into patient values('9p','AB+','high',58);



insert into nurse values('1p',5);

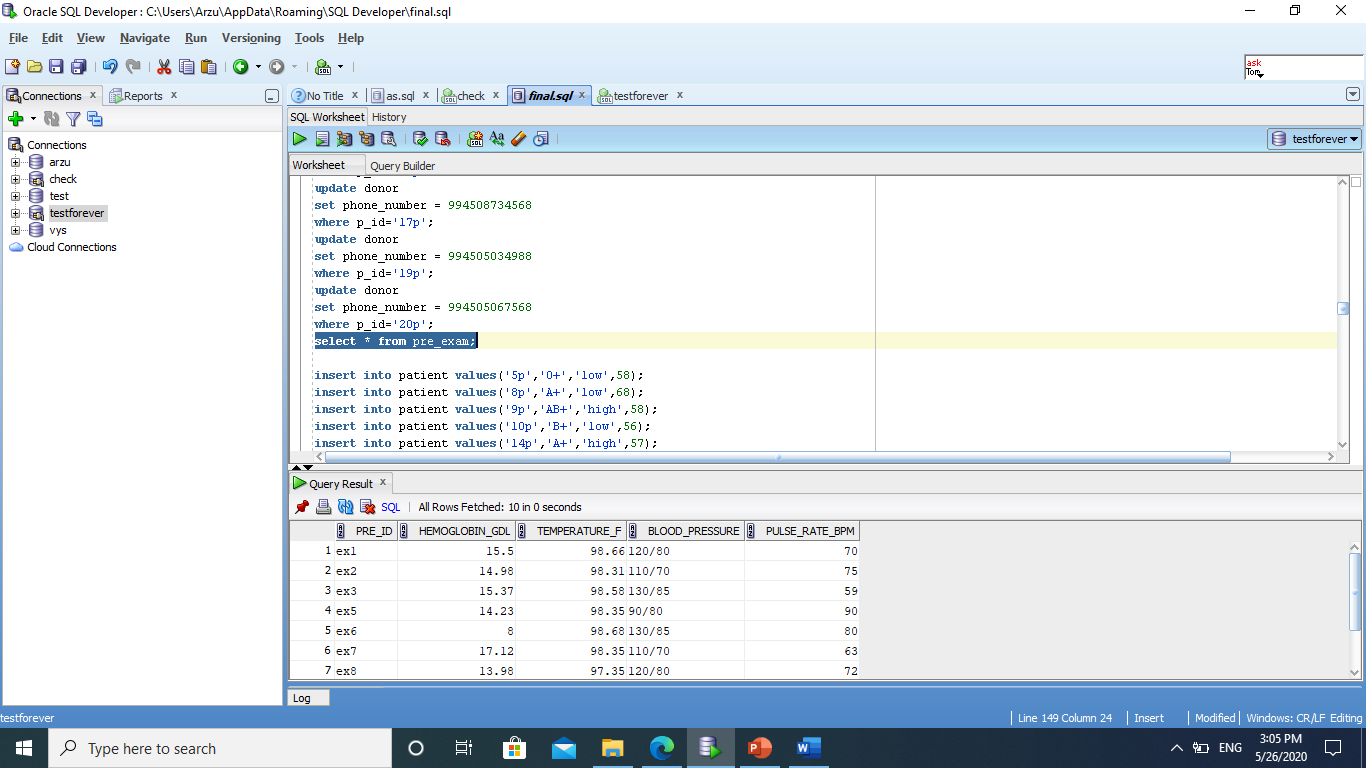
select \* from nurse;

delete from nurse where p\_id='1p';



insert into pre\_exam values('ex1',15.49974937,98.65776,'120/80',70);

insert into pre\_exam values('ex2',14.9784923,98.3138184810,'110/70',75);

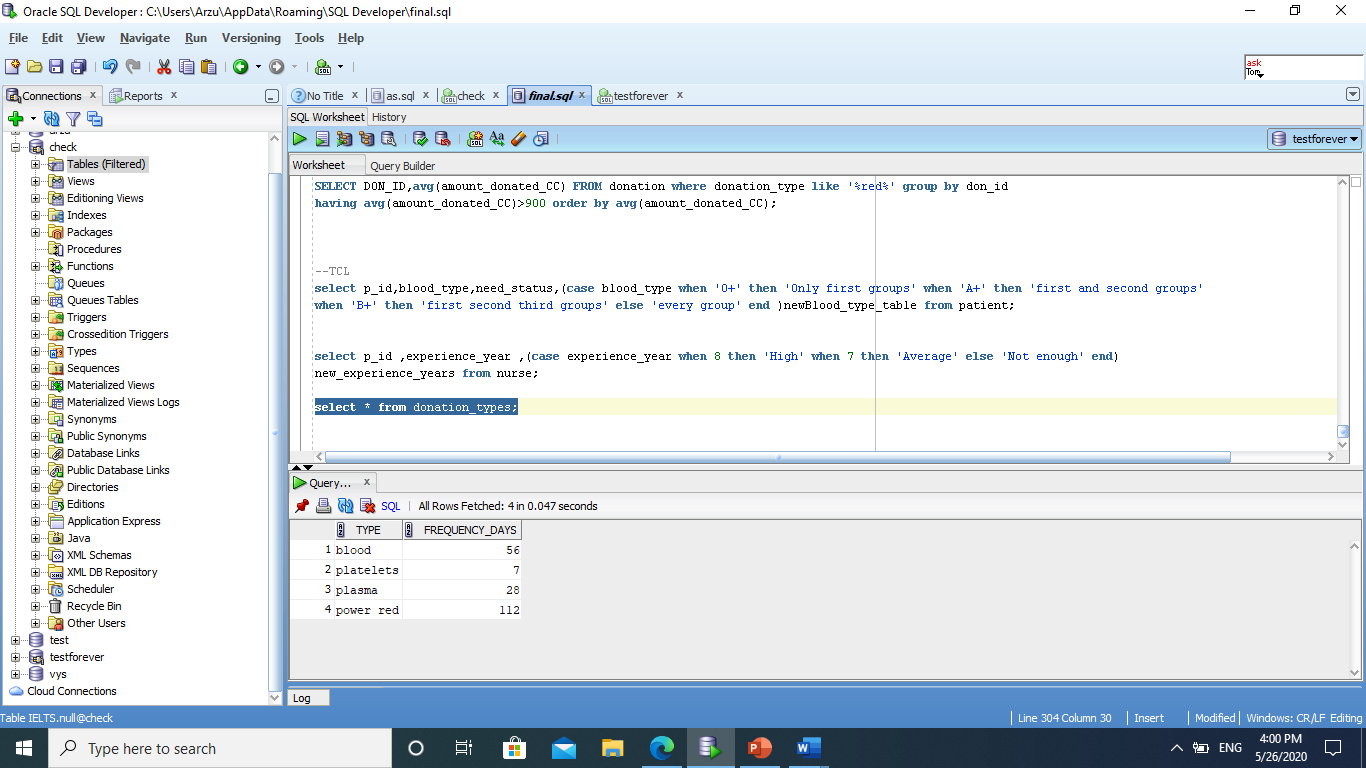


insert into donation\_types values('blood',56);

insert into donation\_types values('platelets',7);

insert into donation values('d1','4p','ex1','1p',946.2,'power red');

insert into donation values('d2','7p','ex2','1p',946.2,'power red');



***--Select Commands***

select nurse from donation where donation\_type='power red';

select blood\_type from donor where weightkg>60;

select blood\_pressure from pre\_exam where pulse\_rate\_bpm>63;

***--Retrieving and Restricting Data***

select first\_name || ' ' || last\_name as "full name" from allpeople;

select p\_id from nurse where experience\_year>3;

select first\_name from allpeople where p\_id='2p';

select p\_id,phone\_number,donationDate from donor order by donationDate desc

fetch first 2 rows only;--**Latest 2 donors**

***--Joins--***

**--Available donors and their blood\_types for patients**

select d.p\_id,d.blood\_type,d.donationdate,p.need\_status,p.p\_id,p.blood\_type from donor d inner join patient p on d.blood\_type=p.blood\_type

and p.need\_status='high';

**--see names of nurses and their details**

select \* from allpeople inner join nurse on allpeople.p\_id=nurse.p\_id;

**--which donation belongs to which donor**

select d.don\_id,d.p\_id,donor.p\_id,d.donation\_type,a.first\_name,a.last\_name from donation d join donor on donor.p\_id=d.p\_id join allpeople a on donor.p\_id=a.p\_id;

**--blood characteristics belongs which donors**

select \* from pre\_exam join donation using(pre\_id);

select \* from patient;

***--Subqueries--***

**--Patients who have the same blood\_type with patient who has '5p'id**

select \* from patient

where blood\_type=

(select blood\_type from

patient where p\_id='5p');

**--Shows all data of donors who donated blood after donor with id '4p'--**

select \* from donor

where donationdate>

(select donationdate from donor where p\_id='4p');

**--Identify who can donate a blood if 30 days has passed from previous donation**

select p\_id,blood\_type,donationdate from donor where (sysdate-donationdate)>30;

**--shows hemoglabin amounts of donation which are more than amount of hemoglabin in donation number 'ex6'**

select \* from pre\_exam where hemoglobin\_gDL>(select hemoglobin\_gDL from pre\_exam where pre\_id='ex6');

***--views--***

**--make a view from donation table where donation\_type is blood--**

create view donationview

as select don\_id,p\_id,nurse from donation where donation\_type='blood';

describe donationview;

select \* from donationview;

**--make a view from patient table where need for blood is high--**

create view patientview

as select p\_id,blood\_type from patient where need\_status='high';

select \* from patientview;

--

create sequence donor\_seq

increment by 10

start with 10

maxvalue 100

cycle

nocache;

select \* from donor\_seq;

--

create public synonym donors

for ielts.donor;

***--Single Row Functions***

select last\_name,

upper(concat(substr(last\_name,1,5),'\_zu'))

from allpeople

where age=21;

select avg(pulse\_rate\_BPM) from pre\_exam ;

select p\_id,blood\_type,phone\_number ,(sysdate-donationdate)/7 as weeks

from donor

where blood\_type='O+';

***--Group Functions***

select avg(pulse\_rate\_BPM) from pre\_exam group by pre\_id;

select pre\_id,avg(TEMPERATURE\_F) from pre\_exam group by pre\_id having max(hemoglobin\_gDL)>14;

SELECT DON\_ID,avg(amount\_donated\_CC) FROM donation where donation\_type like '%red%' group by don\_id

having avg(amount\_donated\_CC)>900 order by avg(amount\_donated\_CC);

**--TCL**

select p\_id,blood\_type,need\_status,(case blood\_type when 'O+' then 'Only first groups' when 'A+' then 'first and second groups'

when 'B+' then 'first second third groups' else 'every group' end )newBlood\_type\_table from patient;

select p\_id ,experience\_year ,(case experience\_year when 8 then 'High' when 7 then 'Average' else 'Not enough' end)

new\_experience\_years from nurse;

***--Commit,rollback,savepoint***

insert into allpeople values('p30','Sevda','Hesenova',30);commit;

update allpeople set first\_name='Sevgi' where p\_id='p30';

select \* from allpeople;

savepoint A;

insert into allpeople values('p32','Hesen','Hesenli',30);

savepoint B;

rollback to B;

***References:***

<https://www.geeksforgeeks.org/dbms/>

<https://app.sqldbm.com/SQLServer/BringDb/>

<https://www.redcross.org/about-us.html>