BLOOD DONATION DATABASE

CCCS-215
FINAL REPORT
SECTION AA1

TEAM MEMBERS:

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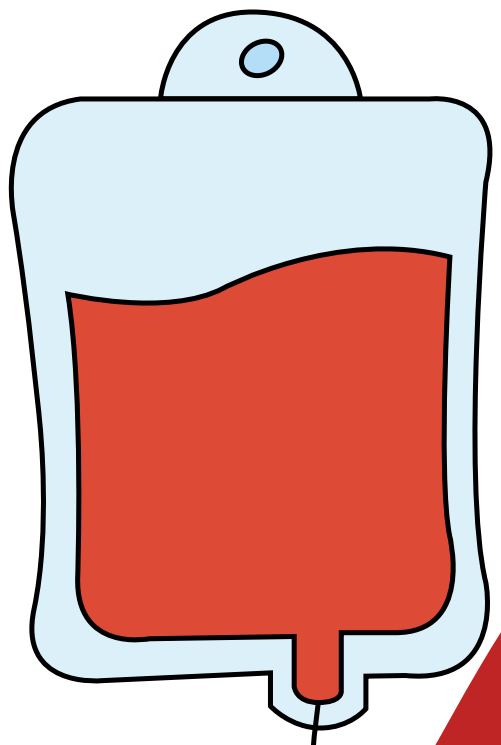
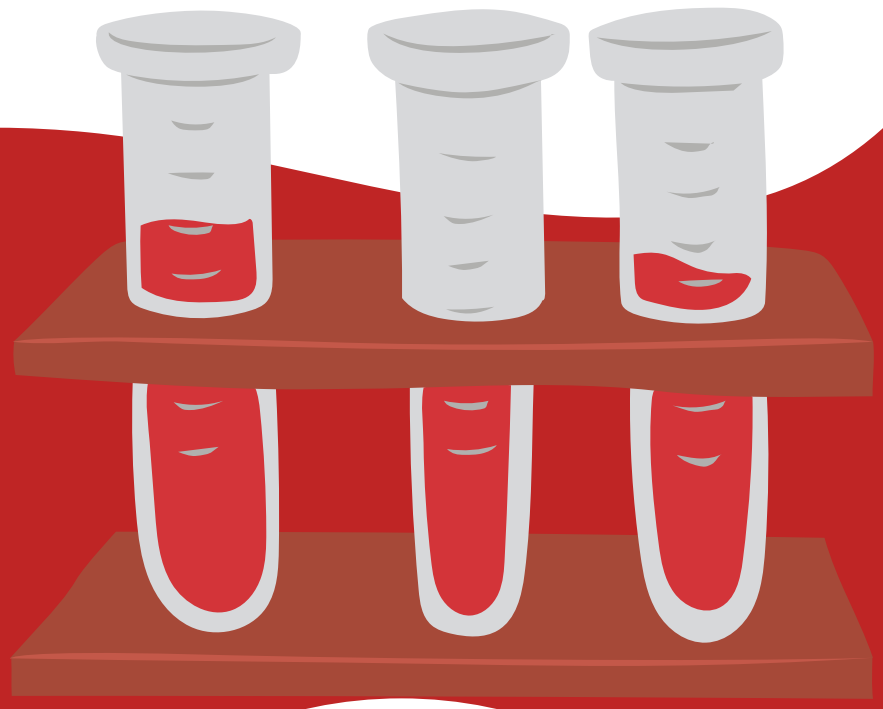
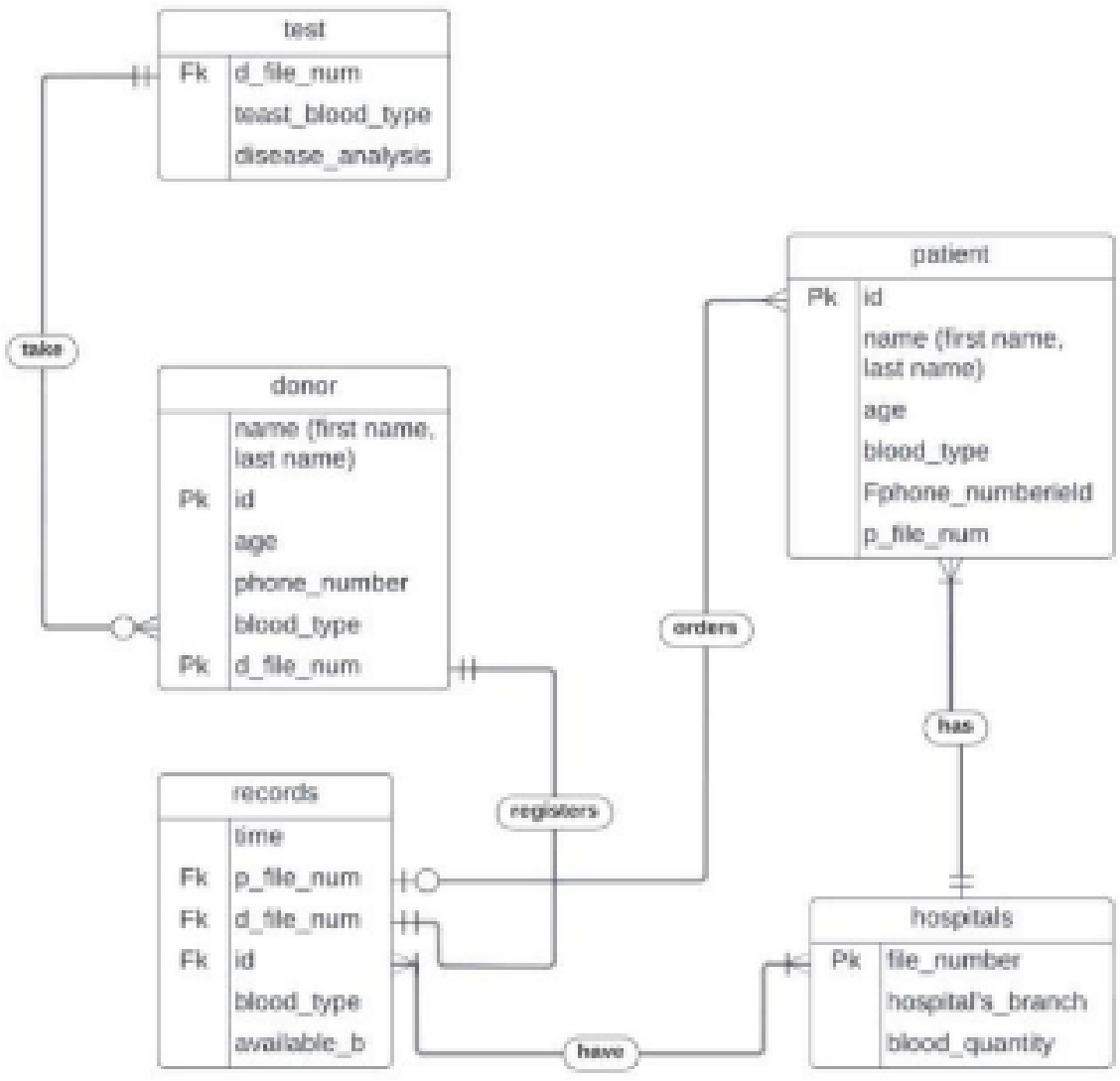


BLOOD DONATION IS AN ESSENTIAL COMPONENT OF GLOBAL HEALTHCARE. IT MAKES BLOOD TRANSFUSION POSSIBLE AS A LIFE-SUSTAINING AND LIFE-SAVING TREATMENT. EVERY YEAR, ALMOST 100 MILLION UNITS OF BLOOD ARE DONATED AROUND THE WORLD. THE PERSON IN NEED OF BLOOD CONTACTS US TO INFORM US WHAT TYPE OF BLOOD THEY REQUIRE. IN TURN, WE CONTACT QUALIFIED DONORS IN OUR DATABASE TO DETERMINE WHO CAN DONATE BLOOD. THE DATABASE WOULD STORE DATA ON PATIENTS, BLOOD DONORS, AND BLOOD BANKS.

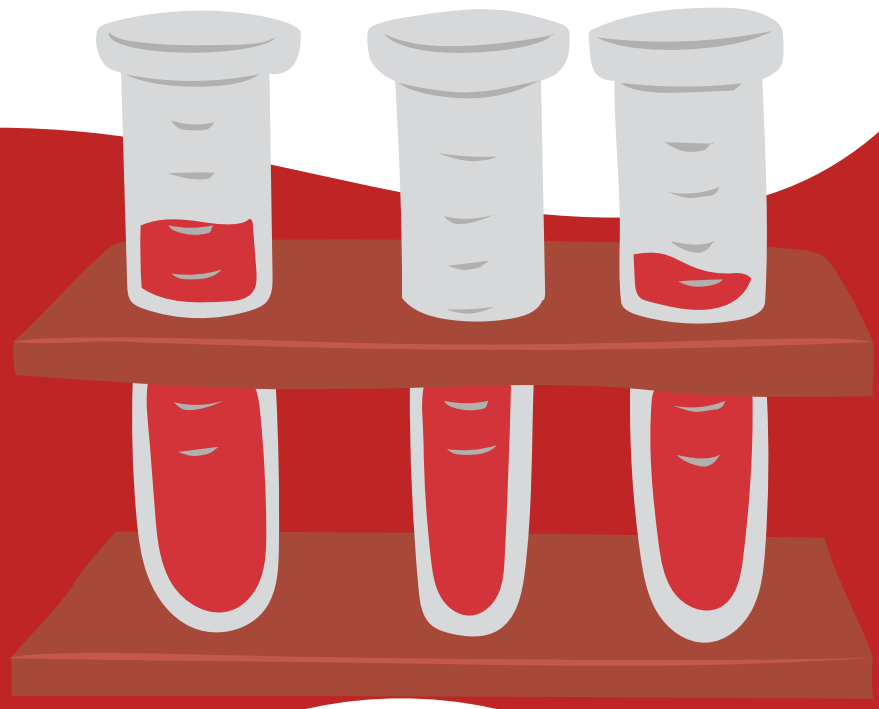
WE HAVE A BLOOD DONATION CENTER THAT DEALS WITH A HOSPITAL. WE WILL DEVELOP THE DATABASE OF THE RESPONSIBLE CENTER, SO THAT IT WILL DEAL WITH DONORS. EACH DONOR HAS (FIRST NAME, LAST NAME, UNIQUE ID NUMBER, AGE, MOBILE NUMBER, FILE NUMBER, BLOOD TYPE). IN ORDER FOR THE CENTER TO MAKE SURE THAT THE DONOR IS QUALIFIED TO DONATE HIS BLOOD, HE MUST DO SOME TESTS. THE TESTS CONTAIN (THE DONOR'S FILE NUMBER, BLOOD TYPE ANALYSIS, ANALYSIS OF DISEASES TRANSMITTED BY BLOOD). CERTAINLY, THE CENTER WILL RECORD DATA CONTAINING (THE TIME WE DREW THE BLOOD, THE DONOR'S FILE NUMBER, THE ID NUMBER, THE TYPE OF BLOOD,THE AMOUNT OF BLOOD AVAILABLE IN THE CENTER, THE RECORDS OF THE PATIENT WHO NEEDS BLOOD. THIS FIELD ISOPTIONAL FOR THE PATIENT IN CASE HE NEEDS TO DONATE IN THE FUTURE AND DEAL WITH ANOTHER HOSPITAL). AS FORTHE HOSPITAL, IT CONTAINS (THE PATIENT'S FILE NUMBER, THE BRANCH OF THE HOSPITAL IN NEED OF BLOOD, THE AMOUNT OF BLOOD HE NEEDS).





FOR RELATIONSHIPS

MORE THAN ONE PATIENT UNDERGOES EACH ANALYSIS, BUT EACH PATIENT IS OBLIGED TO TAKE AT LEAST ONE ANALYSIS. EACH DONOR MUST HAVE A RECORD IN THE CENTER, AND THE CENTER ALREADY HAS SEVERAL RECORDS FOR DONORS. EACH PATIENT HAS THE CHOICE OF WHETHER HE WANTS TO PUT HIS DATA IN THE CENTER'S RECORD OR NOT. EACH PATIENT MUST DEAL WITH A HOSPITAL ALONE IN CASE HE NEEDS TO DONATE BLOOD, AND THE HOSPITAL CAN DEAL WITH MORE THAN ONE PATIENT. THE HOSPITAL CAN TAKE BLOOD FROM ONE CENTER, AND THE CENTER CAN DISTRIBUTE BLOOD TO MORE THAN ONE BRANCH OF THE HOSPITAL.




test
d_F e_num
teast_ blood_Type
disease_analysis
Doner
ID_d
d File_num
First_name
last_name
age
phone_num
blood_Typ
compiset pk
Records
P_File_num
Record_ID
d_File_num
ID_d
ID_P
Time
avilable_b
blood_Type
Patient
compist pk
ID_P
P_File_num
Record_ID
First_name
last_name
age
blood_Type
phone_num
P_File_num
RecordID
ID_P
H_File_num
compiset primary key
Hospitals
H_File_num
hospitals_ branch
blood_ quanity

1NF:

TEST(D_FILE_NUM, TEST_BLOOD, TYPE, DISEASE_ANALYSIS)
RECORDS(P_FILE_NUM,RECORD_ID, D_FILE_NUM, TIME, AVAILABLE_B, P_BLOOD_TYPE, D_BLOOD_TYPE)
HOSPITALS(H_FILE_NUM, HOSPITAL_BRANCH, BLOOD_QUANTITY)
PATIENT(ID_P,P_FILE_NUM,P_FIRST_NAME,P_LAST_NAME,S_AGE, D_PHONE, D_BLOOD_TYPE)
DONOR(ID_D, D_FILE_NUM, D_FIRST_NAME, D_LAST_NAME, D_AGE, D_PHONE, D_BLOOD_TYPE)

2NF:

PATIENT(ID_P, P_FILE_NUM, P_FIRST_NAME, P_LAST_NAME, S_AGE)
DONOR(ID_D, D_FILE_NUM, D_FIRST_NAME, D_LAST_NAME, D_AGE)
DONER_SUB(D_FILE_NUM, D_PHONE, D_BLOOD_TYPE)
PATIENT_SUB(P_FILE_NUM, P_PHONE, P_BLOOD_TYPE)
TEST(D_FILE_NUM, TEST_BLOOD, TYPE, DISEASE_ANALYSIS)
RECORDS(P_FILE_NUM, RECORD_ID, D_FILE_NUM,TIME, AVAILABLE_B, P_BLOOD_TYPE, D_BLOOD_TYPE)
HOSPITALS(H_FILE_NUM, HOSPITAL_BRANCH, BLOOD_QUANTITY)

3NF:

IT’S IN THE 3NF BECAUSE THERE’S NO TRANSITIVE FUNCTIONAL DEPENDENCY

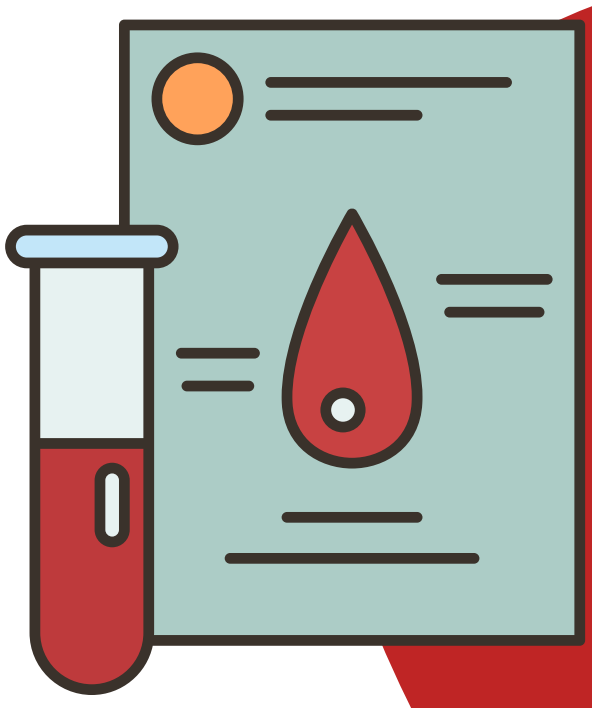
```
1CREATE TABLE TESTS (
D_FILE_NUM NUMBER(10) PRIMARY KEY,
TEST_BLOOD VARCHAR2(10),
B_TYPE VARCHAR2(3),
DISEASE_ANALYSIS VARCHAR2(20)
);

INSERT INTO TESTS
VALUES (1120000001, 'HEPATITIS', 'A+', 'HIV');
INSERT INTO TESTS
VALUES (1120000002, 'PURE BLOOD', 'AB+', 'NO DISEASE');
INSERT INTO TESTS
VALUES (1120000003, 'ANEMIA ', 'O+', 'HIV - ZIKA VARIUS');
INSERT INTO TESTS
VALUES (1120000004, 'PRUSSURE', 'B-', 'COVID-19 VARIUS');
INSERT INTO TESTS
VALUES (1120000005, 'DIABETES', 'A-', 'COVID-19 VARIUS');

SELECT * FROM TESTS;
```

TEST

D_FILE_NUM	TEST_BLOOD	B_TYPE	DISEASE_ANALYSIS
1120000001	Hepatitis	A+	HIV
1120000002	Pure blood	AB+	NO disease
1120000003	Anemia	O+	HIV - ZIKA Varius
1120000004	Prussure	B-	COVID-19 Varius
1120000005	Diabetes	A-	COVID-19 Varius

Download CSV

5 rows selected.



```
CREATE TABLE HOSPITAL (
H_FILE_NUM NUMBER(10) PRIMARY KEY,
HOSPITAL_BRANCH VARCHAR2(70),
BLOOD_QUANTITY NUMBER(10)
);

INSERT INTO HOSPITAL
VALUES(1130000001,'KING FAHAD ARMED FORCES HOSPITAL - JEDDAH',500);
INSERT INTO HOSPITAL
VALUES(1130000002,'KING FAHAD ARMED FORCES HOSPITAL - RIYADH',500);
INSERT INTO HOSPITAL
VALUES(1130000003,'MILITARY HOSPITAL - JEDDAH',200);
INSERT INTO HOSPITAL
VALUES(1130000004,'MADINA NATIONAL HOSPITAL - MADINA ',150);
INSERT INTO HOSPITAL
VALUES(1130000005,'DR.SOLIMAN FAKEEH HOSPITAL - JEDDAH',300);

SELECT * FROM HOSPITAL;
```

HOSPITAL

H_FILE_NUM	HOSPITAL_BRANCH	BLOOD_QUANTITY
1130000001	King Fahad Armed Forces Hospital - Jeddah	500
1130000002	King Fahad Armed Forces Hospital - Riyadh	500
1130000003	Military Hospital - Jeddah	200
1130000004	Madina National Hospital - Madina	150
1130000005	Dr.Soliman Fakeeh Hospital - Jeddah	300

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5 rows selected.

```
CREATE TABLE RECORDS_T (
RECORD_ID NUMBER(10) PRIMARY KEY,
P_FILE_NUM NUMBER(10),
D_FILE_NUM NUMBER(10),
TIMING DATE,
AVAILABLE_B NUMBER(10),
P_BLOOD_TYPE VARCHAR2(3),
D_BLOOD_TYPE VARCHAR2(3));
```

```
INSERT INTO RECORDS_T
VALUES(1140000001,1150000001,1120000001, DATE ' 2021-7-1 '
,0010001000,'AB-','A+');
INSERT INTO RECORDS_T
VALUES(1140000002,1150000002,1120000002, DATE '2014-11-16'
,0010000500,'AB+','AB+');
INSERT INTO RECORDS_T
VALUES(1140000003,1150000003,1120000003, DATE '2017-2-13'
,0010000300,'A-','O+');
INSERT INTO RECORDS_T
VALUES(1140000004,1150000004,1120000004, DATE '2019-5-
18',0010000150,'B','B-');
INSERT INTO RECORDS_T
VALUES(1140000005,1150000005,1120000005, DATE '2022-12-4'
,0010009700,'A-','A-');
SELECT * FROM RECORDS_T;
```

RECORD_ID	P_FILE_NUM	D_FILE_NUM	TIMING	AVAILABLE_B	P_BLOOD_TYPE	D_BLOOD_TYPE
1140000001	1150000001	1120000001	01-JUL-21	10001000	AB-	A+
1140000002	1150000002	1120000002	16-NOV-14	10000500	AB+	AB+
1140000003	1150000003	1120000003	13-FEB-17	10000300	A-	O+
1140000004	1150000004	1120000004	18-MAY-19	10000150	B	B-
1140000005	1150000005	1120000005	04-DEC-22	10009700	A-	A-

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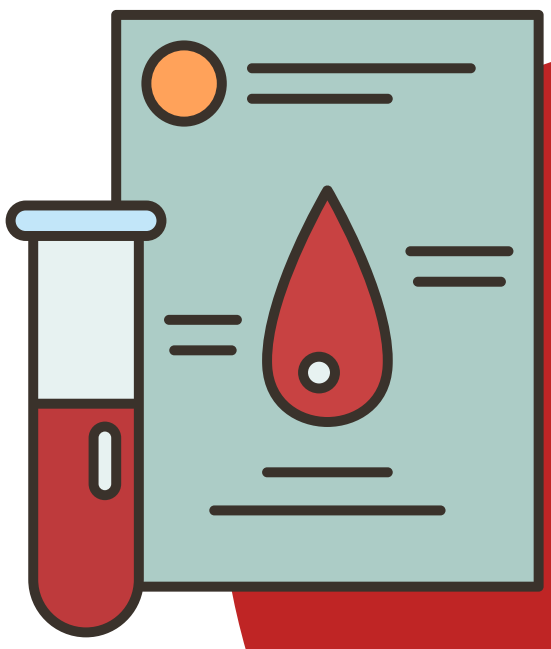
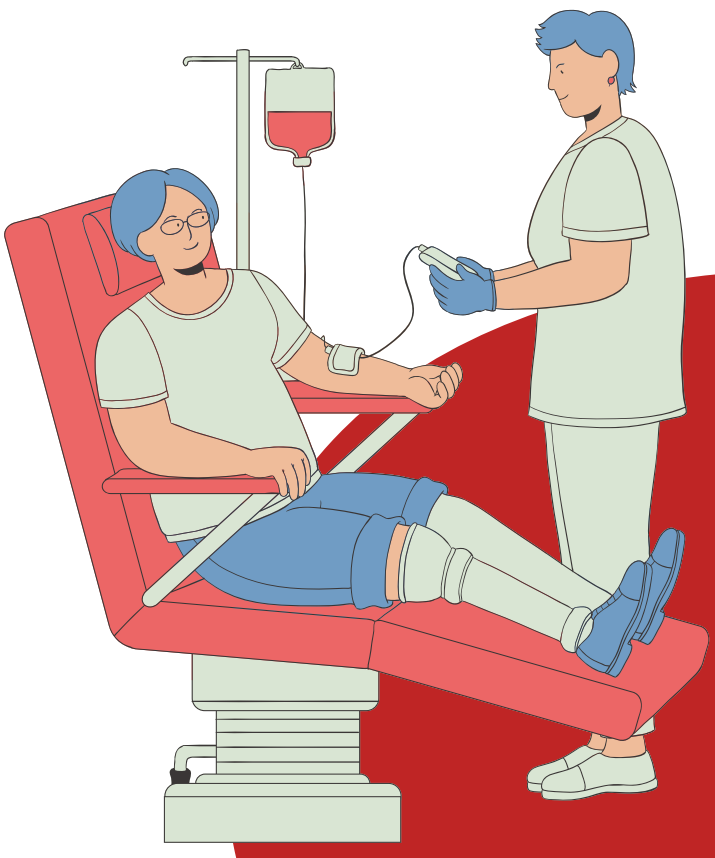
5 rows selected.



```
CREATE TABLE DONER (
ID_D NUMBER(10) NOT NULL,
FILE_NUM NUMBER(10),
FIRST_NAME VARCHAR2(10),
LAST_NAME VARCHAR2(10),
AGE NUMBER(3),
CONSTRAINT DONER_PK PRIMARY KEY(ID_D),
CONSTRAINT FOREIGN_PKDONER FOREIGN KEY (D_FILE_NUM)
REFERENCES DONER_SUB
(D_FILE_NUM));
INSERT INTO DONER
VALUES(11234, 1120000001,'MOHAMMED','ALGHAMDI',23);
INSERT INTO DONER
VALUES(19876,1120000002,'AMAL','ALQAHTANI',26);
INSERT INTO DONER
VALUES(13498,1120000003,'MURUJ','ALZAHRANI',25);
INSERT INTO DONER
VALUES(14769,1120000004, 'ALI','ALJUHANI',30);
INSERT INTO DONER
VALUES(17053,1120000005,'YARA','ALMUTAIRI',33);
SELECT* FROM DONER;
```

ID_D	D_FILE_NUM	FIRST_NAME	LAST_NAME	AGE
19876	1120000002	Amal	Alqahtani	26
13498	1120000003	Muruj	Alzahrani	25
14769	1120000004	Ali	Aljuhani	30
17053	1120000005	Yara	Almutairi	33
11234	1120000001	Mohammed	Alghamdi	23

Download CSV
5 rows selected.



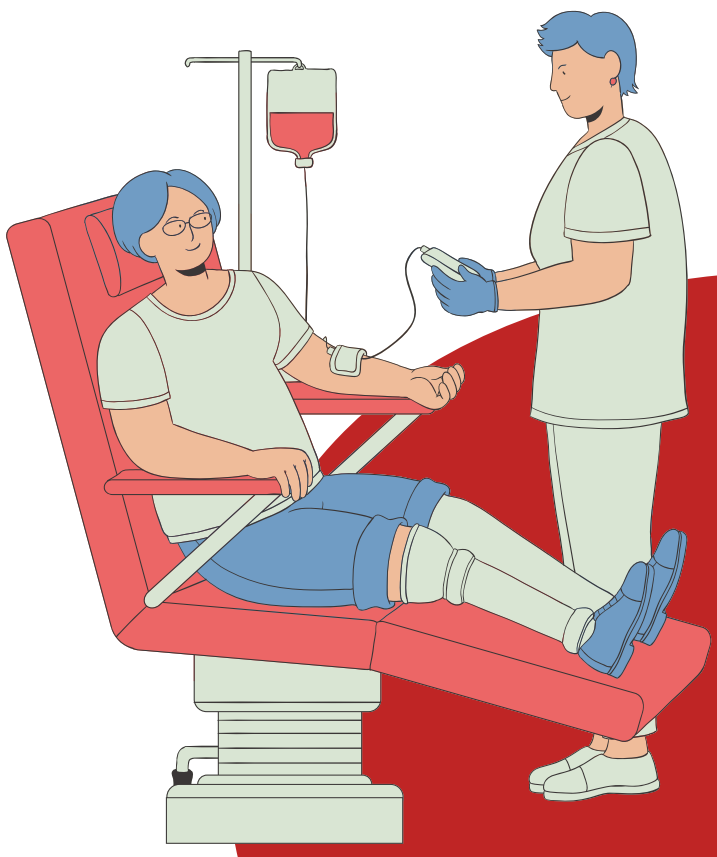
```
CREATE TABLE DONER_SUB (
D_FILE_NUM NUMBER(10) NOT NULL,
PHONE_NUMBER NUMBER(10),
BLOOD_TYPE VARCHAR2(3),
CONSTRAINT DONER_PK_SUB PRIMARY KEY(D_FILE_NUM)
);
INSERT INTO DONER_SUB
VALUES(1120000001,05123456789,'A');
INSERT INTO DONER_SUB
VALUES(1120000002,0580401278,'AB');
INSERT INTO DONER_SUB
VALUES(1120000003,0568086474,'O+');
INSERT INTO DONER_SUB
VALUES(1120000004,0539247150,'B-');
INSERT INTO DONER_SUB
VALUES(1120000005,0520307798,'A+');

SELECT*FROM DONER_SUB;
```

D_FILE_NUM	PHONE_NUMBER	BLOOD_TYPE
1120000001	5123456789	A
1120000002	580401278	AB
1120000003	568086474	O+
1120000004	539247150	B-
1120000005	520307798	A+

Download CSV

5 rows selected.



```
CREATE TABLE PATIENT (
ID_P NUMBER(10)NOT NULL,
P_FILE_NUM NUMBER(10),
FIRST_NAME VARCHAR2(10),
LAST_NAME VARCHAR2(10),
AGE NUMBER(3),
CONSTRAINT PATIENT_PK PRIMARY KEY (ID_P),
CONSTRAINT FOREIGN_PKPATIENT FOREIGN KEY (P_FILE_NUM)
REFERENCES PATIENT_SUB
(P_FILE_NUM));

INSERT INTO PATIENT
VALUES(16789,1150000001,'SALMAN','ALOTAIBI',35);
INSERT INTO PATIENT
VALUES(15487,1150000002,'KHALED','ALOMRI',37);
INSERT INTO PATIENT
VALUES(19821,1140000003,'FAHED','ALRAHILI',22);
INSERT INTO PATIENT
VALUES(17504,1150000004,'JOANNA','ALAMOUDI',41);
INSERT INTO PATIENT
VALUES(12071,1150000005,'RAHAF','ALSALME',30);

SELECT * FROM PATIENT;
```

ID_P	P_FILE_NUM	FIRST_NAME	LAST_NAME	AGE
19821	1140000003	Fahed	Alrahili	22
16789	1150000001	Salman	Alotaibi	35
15487	1150000002	Khaled	Alomri	37
17504	1150000004	Joanna	Alamoudi	41
12071	1150000005	Rahaf	Alsalme	30

Download CSV

5 rows selected.

```
CREATE TABLE PATIENT_SUB (
P_FILE_NUM NUMBER(10)NOT NULL,
PHONE_NUMBER NUMBER(10),
BLOOD_TYPE VARCHAR2(3),
CONSTRAINT PATIENT_PK_SUB PRIMARY KEY (P_FILE_NUM)
);

INSERT INTO PATIENT_SUB
VALUES(1150000001,0543870921,'AB');
INSERT INTO PATIENT_SUB
VALUES(1150000002,0576498250,'AB');
INSERT INTO PATIENT_SUB
VALUES(1140000003,0545721098,'A-');
INSERT INTO PATIENT_SUB
VALUES(1150000004,1140000004,'B');
INSERT INTO PATIENT_SUB
VALUES(1150000005,1140000004,'A-');

SELECT*FROM PATIENT_SUB;
```

P_FILE_NUM	PHONE_NUMBER	BLOOD_TYPE
1150000001	543870921	AB
1150000002	576498250	AB
1140000003	545721098	A-
1150000004	1140000004	B
1150000005	1140000004	A-

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5 rows selected.

SELECT MIN(AGE),MAX(AGE),AVG(AGE) FROM DONER WHERE AGE>=30;

MIN(AGE)	MAX(AGE)	AVG(AGE)
30	33	31.5

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SELECT AGE FROM PATIENT WHERE AGE>=30 GROUP BY AGE ORDER BY AGE ;

AGE
30
35
37
41

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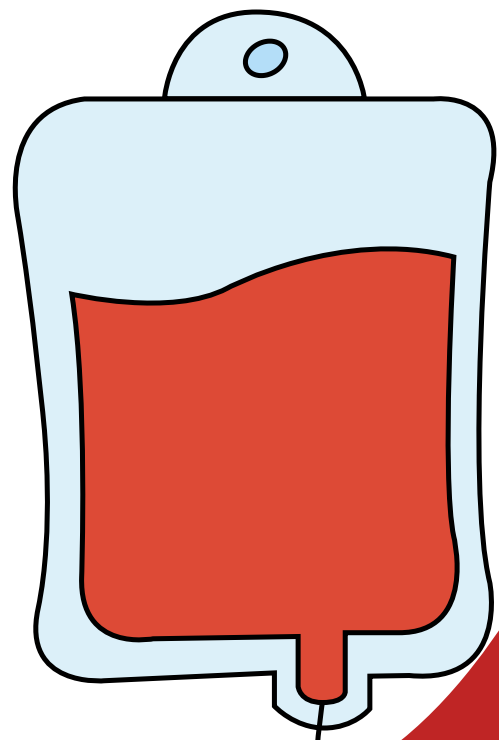
4 rows selected.



```
SELECT FIRST_NAME
FROM PATIENT
WHERE P_FILE_NUM IN (SELECT P_FILE_NUM FROM PATIENT_SUB
WHERE BLOOD_TYPE = 'AB');
```

FIRST_NAME
Salman
Khaled

Download CSV

2 rows selected.

```
SELECT DONER.FILE_NUM, FIRST_NAME, AGE
FROM DONER INNER JOIN DONER_SUB ON
DONER.FILE_NUM = DONER_SUB.D_FILE_NUM ORDER BY AGE;
```

FILE_NUM	FIRST_NAME	AGE
1120000001	Mohammed	23
1120000003	Muruj	25
1120000002	Amal	26
1120000004	Ali	30
1120000005	Yara	33

Download CSV

5 rows selected.