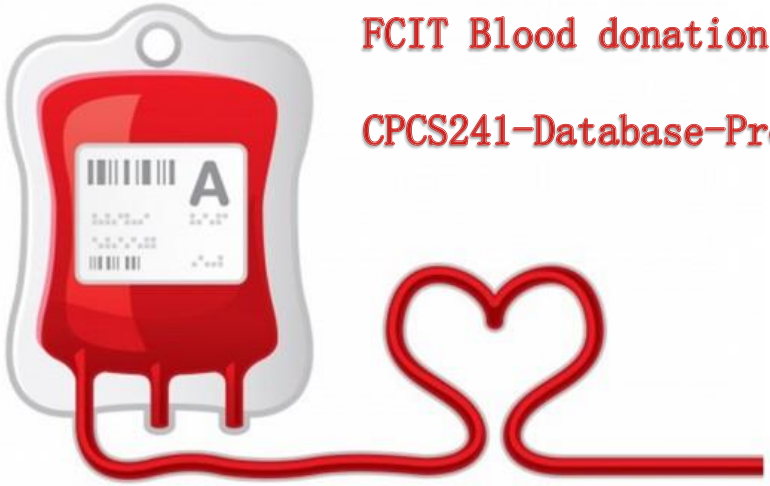

FCIT Blood donation center

CPCS241-Database-Project

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PART I: Analysis

1 Problem Definition and Data Requirements

1.1 Problem Description

One blood donor can save three cases. Blood banks provide safe blood components in an efficient manner to the patients but there are many deaths because lots of the patients need a an amount of blood that is not available in the hospital.

Our idea is to create blood donation centralized database that provides the hospitals with required amount of blood. This center will be helpful for all the hospitals especially that once in the villages.

The system is going to be one of the reasons of decreasing the deaths and to keep human lives.

1.2 Data Requirements

A. Website donors

- every person has the desire to donate blood the system must store his data on Database System as (First Name, Last Name, donor_ ID,Date of Birth, Phone Number, blood Type, gender, social status, last date of donation).

B. Blood center donors

- every person came to the center to donate blood the system must store his data on Database System as (First Name, Last Name, donor_ ID , Date of Birth, Phone Number, blood Type, gender, social status, last date of donation, medical conditions, height, weight, the reason of donation, HGB).

C. Donations

- every person donated blood to the center the system must store his data on Database System as (blood Type, date of donation , side effects after donation).

D. employee

- every person has the desire to donate blood the system must store his data on Database System as (First Name, Last Name, emp_ID, Date of Birth, Phone Number,, gender, social status, salary, job title, qualification).

E. Blood bag
   - Each blood bag stored in the blood bank the system must store this data on Database System as (blood_ID, donation date, expired date, blood type).

F. Hospital requests
   - Each hospital requests bags of blood must store this data on Database System as (patient ID, hospital name, number blood bags required, blood type required).

G. Blood shipment
   - Each blood shipment the system must store this data on Database System as (shipment_ID, shipment_date,numberOfBags,driver_id)

H. Blood inventory
   - Each blood inventory the system must store this data on Database System as (inventory_ID,blood type ,numberOfBags)

I. Address

• every person address the system must store his data on Database System as(address_id , city, street, neighborhood, post office, building number)

J. Equipment
   - Every tool needed in the blood center its data must be stored on Database System as (cost, quantity, equipment description, equipment id, equipment type)

1.3 Business Rules

A. Website donors policies

- A donor age must be between 18 and 70.
- The types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)
- The gender are male and female
- The social status are married and single

B. Center donor policies

- A donor age must be between 18 and 70.
- The types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)
- The gender are male and female
- The social status are married and single
- Last date of donation must be before than three months
- Weight must be at least 50 kg
- HGB must be at least 12.5 g/dl

C. Donations

- The types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)

D. employee policies

- A employee age must be between 18 and 50
- The gender are male and female
- The social status are married and single

E. Blood bag policies

- The types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)

F. Hospital requests policies

- Number of bags required must be less than or equal the number of bags in the blood inventory

G. Equipment

- ID
- Cost
- Equipment type
- Quality
- Equipment description

1.4 Intended Output of the system

- ID and the name of the donor
- Find People they have the desire to donate blood and communicate with them when the center need blood
- Amount of blood is available in the center
- Amount of blood requested by hospitals
- The blood reaches to the patients at the appropriate time

PART II: ER: Diagram design

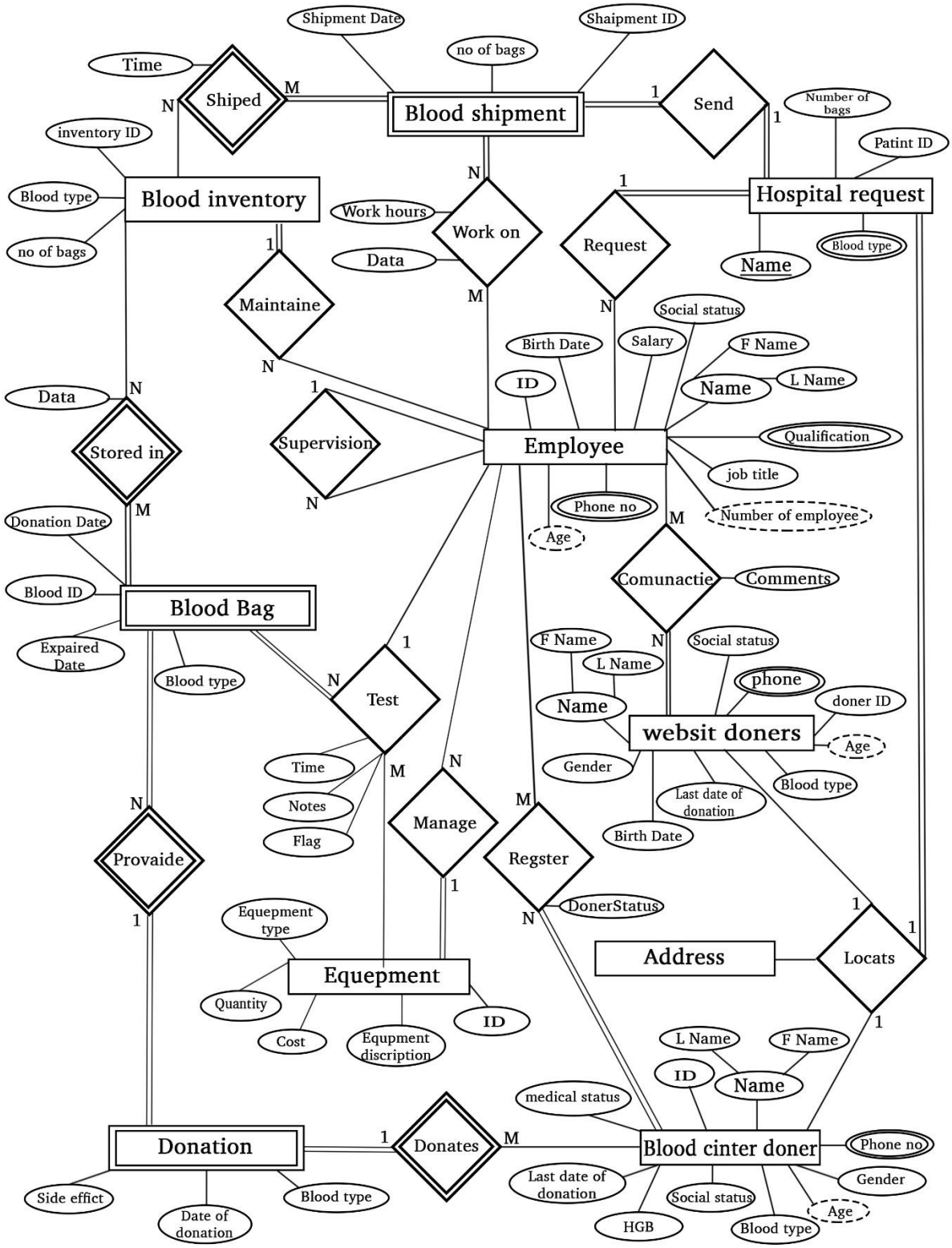
2.1 ER Entities

Entity	Attribute	Attribute Constraint	Attribute Type	Justification
Blood Center Donors (Regular)	Name	not null	composite	(First Name, Last Name
	donor_ ID	unique (PK) & not null	atomic	each donor has unique number
	Date of Birth	not null	atomic	Last date of donation must be before than three months
	Phone Number	….	atomic	…..
	blood Type	not null	atomic	types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)
	gender	not null	atomic	The gender are male and female
	social status	…	atomic	The social status are married and single
	last date of donation	not null	atomic	…..
	medical conditions	not null	atomic	…..
	height	….	atomic	…..
	weight	not null	atomic	Weight must be at least 50 kg
	the reason of donation	….	atomic	
	HGB	not null	atomic	HGB must be at least 12.5 g/dl
Donation (Regular)	blood Type	not null	atomic	types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)
	date of donation	not null	atomic	…
	side effects after donation	not null	atomic	…
Equipment (Regular)	ID	unique (PK) & not nul	atomic	each equipment has unique number
	Cost	not null	atomic	…
	Equipment type	not null	atomic	…
	Quality	…	atomic	…
	Equipment description	…	atomic	…

Entity	Attribute	Attribute Constraint	Attribute Type	Justification
Employee (Regular)	Name	not null	composite	(First Name, Last Name
	emp_ID	unique (PK) & not nul	atomic	each employee has unique number
	Date of Birth	not null	atomic	A employee age must be between 18 and 50
	Phone Number	not null	atomic	...
	gender	not null	atomic	The gender are male and female
	social status	...	atomic	The social status are married and single
	salary	not null	atomic	...
	job title	not null	atomic	...
	qualification	not null	atomic	...
Hospital requests (Regular)	patient ID	nut null	atomic	...
	hospital name	PK	atomic	...
	number blood bags required	nut null	atomic	...
	blood type required	nut null	atomic	...
	address	PK	atomic	...
Website donors (Regular)	Name	not null	composite	(First Name, Last Name
	donor_ ID	unique (PK) & not null	atomic	each donor has unique number
	Date of Birth	not null	atomic	Last date of donation must be before than three months
	Phone Number	….	atomic	.....
	blood Type	not null	atomic	types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)
	gender	not null	atomic	The gender are male and female
	social status	…	atomic	The social status are married and single
	last date of donation	not null	atomic	.....
Blood inventory (Regular)	inventory_ID	unique (PK) & not null	atomic	each inventory has unique number
	blood Type	not null	atomic	types of blood are(A+,A-,B+,B-,O+,O-,AB+,AB-)
	numberOfBags	not null	atomic	....

Entity	Attribute	Attribute Constraint	Attribute Type	Justification
Address (Regular)	address_id	unique (PK) & not null	atomic	each address has unique number
	city	not null	atomic	...
	street	not null	atomic	...
	neighborhood	not null	atomic	...
	post office	...	atomic	...
	building number	...	atomic	...
Blood Center Downer (Regular)	Name	NOT NULL	Composite	FName&Lname
	donor_ ID	UNIQUE(PK)	Atomic	Each member has unique id
	Date of Birth	NOT NULL	Atomic	between 18 & 70
	Phone Number	NOT NULL	Atomic	Maybe has 1 or more
	blood Type	NOT NULL	Atomic	(A+, A-, B+, B-, O+,O-,AB+,AB-)
	gender	NOT NULL	Atomic	Male or Female
	social status	NOT NULL	Atomic	Married or single
	last date of donation	NOT NULL	Atomic	-----
	medical conditions	NOT NULL	Atomic	-----
	height	NOT NULL	Atomic	-----
	weight	NOT NULL	Atomic	-----
	the reason of donation	NOT NULL	Atomic	-----
	HGB	NOT NULL	Atomic	-----
Blood shipment (Regular)	shipment_ID	NOT NULL	Atomic	-----
	shipment_date	NOT NULL	Atomic	-----
	numberOfBags	NOT NULL	Atomic	-----
	driver_id	NOT NULL	Atomic	-----
Blood bag (Regular)	blood_ID	NOT NULL	Atomic	-----
	donation date	NOT NULL	Atomic	-----
	expired date	NOT NULL	Atomic	-----
	blood type	NOT NULL	Atomic	(A+, A-, B+, B-, O+,O-,AB+,AB-)

2.2 ER diagram



2.2 Schema Diagram