Dental Clinic DBMS

CPS510\_Group 3\_Section 1

Assignment 10

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**Application Data: Dental Clinic DBMS**

A Dental Clinic database was chosen as the topic of focus for our design. The direction of this database is to organize and simplify the information of the employees, patients and supply orders. This will also allow the clinic to access the information of the patient, update patient data and schedule as well as cancel appointments. Product orders will also be implemented to enable the tracking and sending of outgoing and incoming orders to supply the clinic with dental products.

**Functions:**

CreateAppointment()

cancelAppointment()

rescheduleAppointment()

orderSupplies()

createNewPatient()

updatePatientData()

createNewEmployee()

updateEmployeeData()

Treats()

Pays()

**Operational Data:**

Person

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| \*Person\_ID | **Name** | **Date\_Of\_**  **Birth** | **Phone\_**  **Number** | **Street\_Address** | **City** | **Postal\_Code** | **Country** |

Employee

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \*Employee\_ ID | **Person\_ID** | **Salary** | **Date\_Hired** | **Schedule** |

Receptionist

|  |  |  |
| --- | --- | --- |
| \*Recpetionist\_ID | **Employee\_ID** | **Receptionist\_Certification** |

Patient

|  |  |  |
| --- | --- | --- |
| \*Patient\_ID | **Person\_ID** | **Insurance\_Provider** |

Dentist

|  |  |  |
| --- | --- | --- |
| \*Dentist\_ID | **Employee\_ID** | **Dental\_Certification** |

Clinic

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \*Clinic\_ID | **Street\_Address** | **City** | **Country** | **Postal\_Code** |

Treatment

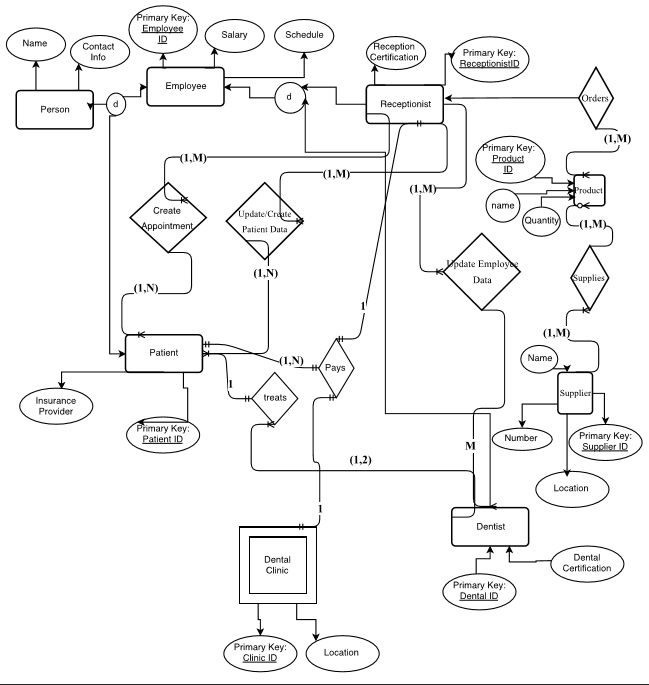
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| \*Treatment  \_ID | **Patient**  **\_ID** | **Dentist**  **\_ID** | **Treatment** | **Date\_Of\_Treatment** | **Time\_Of\_Treatment** |

Supplier

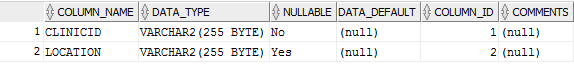
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| \*Supplier\_ID | **Company\_Name** | **Street\_Address** | **City** | **Country** | **Postal\_Code** |

Product

|  |  |  |  |
| --- | --- | --- | --- |
| \*Product ID | **Supplier\_ID** | **Quantity** | **Name** |



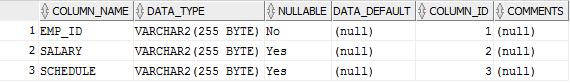
CLINIC



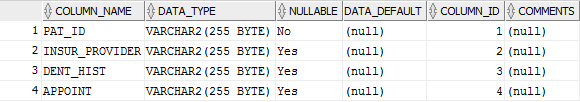
DENTIST



EMPLOYEE



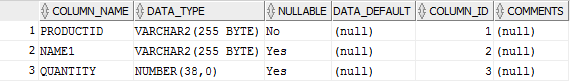
PATIENT



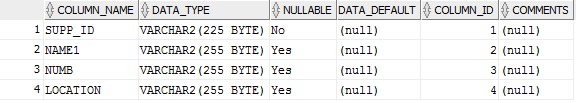
PERSON



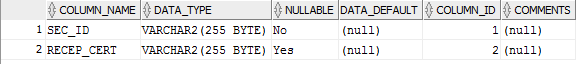
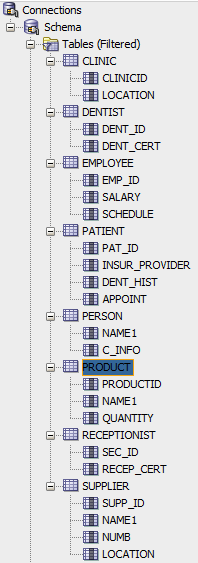
PRODUCT



SUPPLIER



RECEPTIONIST



create table clinic

(

clinic\_ID integer,

street\_adress varchar(255),

city varchar(255),

country varchar(255),

postal\_code varchar(255),

PRIMARY KEY (clinic\_ID)

);

create table person

(

person\_ID integer,

clinic\_ID integer,

name varchar(255),

date\_of\_birth varchar(255),

phone\_number integer,

street\_adress varchar(255),

city varchar(255),

country varchar(255),

postal\_code varchar(255),

PRIMARY KEY (person\_ID),

FOREIGN KEY (clinic\_ID) REFERENCES clinic(clinic\_ID)

);

create table patient

(

patient\_ID integer,

person\_ID integer,

insur\_provider varchar(255),

PRIMARY KEY (patient\_ID),

FOREIGN KEY (person\_ID) REFERENCES person(person\_ID)

);

create table employee

(

employee\_ID integer,

person\_ID integer,

salary decimal(20,2),

date\_hired varchar(255),

schedule varchar(255),

PRIMARY KEY (employee\_ID),

FOREIGN KEY (person\_ID) REFERENCES person(person\_ID)

);

create table dentist

(

dentist\_ID integer,

employee\_ID integer,

dental\_certification varchar(255),

PRIMARY KEY (dentist\_ID),

FOREIGN KEY (employee\_ID) REFERENCES employee(employee\_ID)

);

create table receptionist

(

receptionist\_ID integer,

employee\_ID integer,

receptionist\_certification varchar(255),

PRIMARY KEY (receptionist\_ID),

FOREIGN KEY (employee\_ID) REFERENCES employee(employee\_ID)

);

create table treatment

(

treatment\_ID integer,

patient\_ID integer,

dentist\_ID integer,

treatment varchar(255),

date\_of\_treatment varchar(255),

time\_of\_treatment varchar(255),

PRIMARY KEY (treatment\_ID),

FOREIGN KEY (patient\_ID) REFERENCES patient(patient\_ID),

FOREIGN KEY (dentist\_ID) REFERENCES dentist(dentist\_ID)

);

create table supplier

(

supplier\_ID integer,

clinic\_ID integer,

company\_name varchar(255),

street\_adress varchar(255),

city varchar(255),

country varchar(255),

postal\_code varchar(255),

PRIMARY KEY (supplier\_ID),

FOREIGN KEY (clinic\_ID) REFERENCES clinic(clinic\_ID)

);

create table product

(

productID varchar(255),

supplier\_ID integer,

name varchar(255),

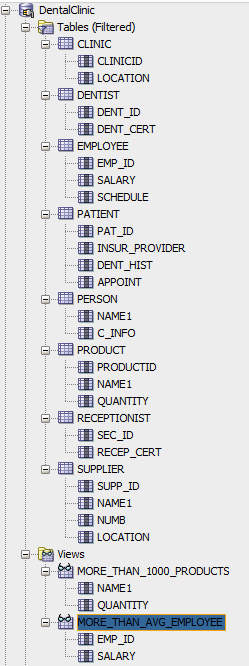
quantity INTEGER,

PRIMARY KEY (productID),

FOREIGN KEY (supplier\_ID) REFERENCES supplier(supplier\_ID)

);

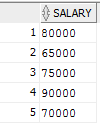
SELECT location FROM CLINIC;



SELECT DISTINCT dent\_cert FROM DENTIST;



SELECT salary FROM EMPLOYEE;

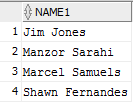


SELECT insur\_provider, dent\_hist, appoint FROM PATIENT

WHERE insur\_provider = 'InsurancePlace';

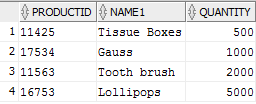


SELECT name1 from PERSON;

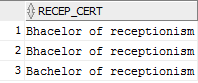


SELECT productid, name1, quantity from PRODUCT

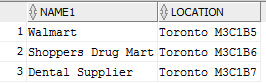
ORDER BY quantity;



SELECT recep\_cert from RECEPTIONIST;



SELECT name1, location from SUPPLIER;



CREATE VIEW more\_than\_avg\_employee AS

SELECT EMP\_ID, SALARY

FROM EMPLOYEE

WHERE SALARY > (SELECT AVG (SALARY) FROM EMPLOYEE);



CREATE VIEW more\_than\_1000\_products AS

SELECT NAME1, QUANTITY

FROM PRODUCT

WHERE QUANTITY>1000;



/\*Select all patients in the clinic\*/

select person.name

from person, patient, clinic

where person.clinic\_id = clinic.clinic\_id

and patient.person\_id = person.person\_id;

/\*Select future appoinment/treatments\*/

select person.name, treatment.treatment, treatment.date\_of\_treatment

from person, patient, treatment

where treatment.PATIENT\_ID = patient.PATIENT\_ID

AND patient.PERSON\_ID = person.PERSON\_ID

AND treatment.DATE\_OF\_TREATMENT > '2016-10-24';

/\*Select name of dentist working on upcoming treatments\*/

select person.name, treatment.treatment, treatment.date\_of\_treatment

from person, employee, dentist, treatment

where treatment.DATE\_OF\_TREATMENT > '2016-10-24'

AND treatment.dentist\_id = dentist.dentist\_id

AND dentist.employee\_ID = employee.employee\_ID

AND employee.person\_ID = person.person\_id;

/\*Select salaries over 65000\*/

SELECT person.name, employee.salary

FROM person, employee

WHERE salary > 65000

AND employee.person\_id = person.person\_id;

/\*Select everyone that has had a cleaning\*/

select person.name, treatment.date\_of\_treatment

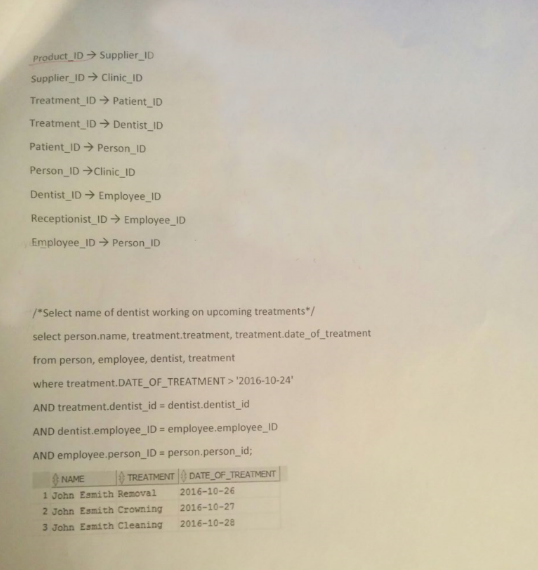
from person, patient, treatment

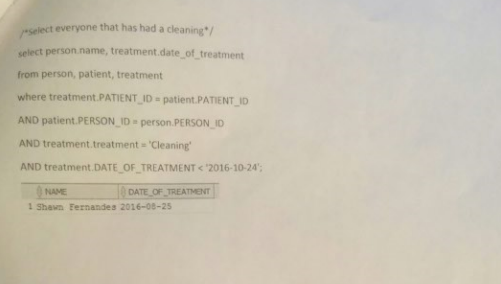
where treatment.PATIENT\_ID = patient.PATIENT\_ID

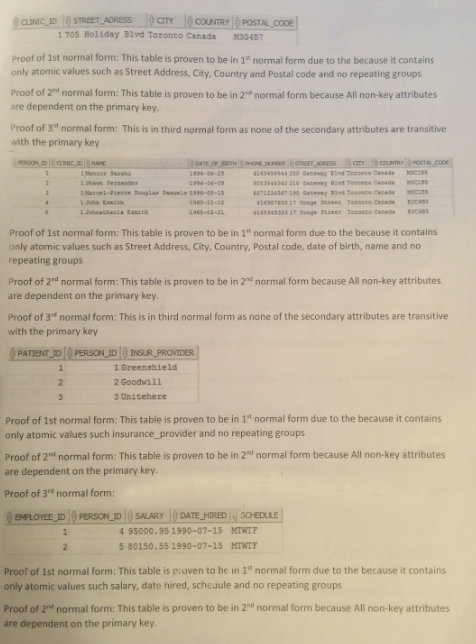
AND patient.PERSON\_ID = person.PERSON\_ID

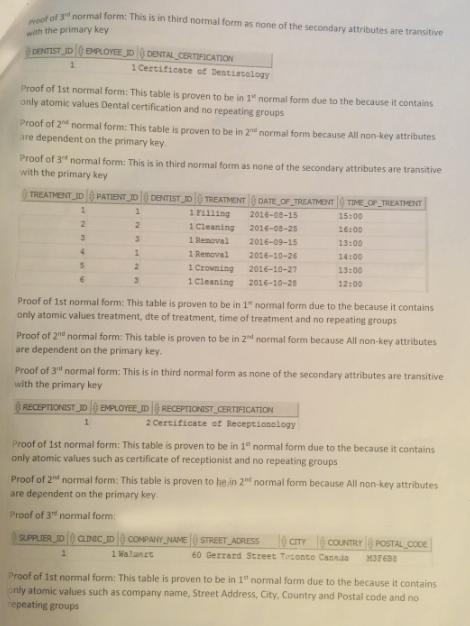
AND treatment.treatment = 'Cleaning'

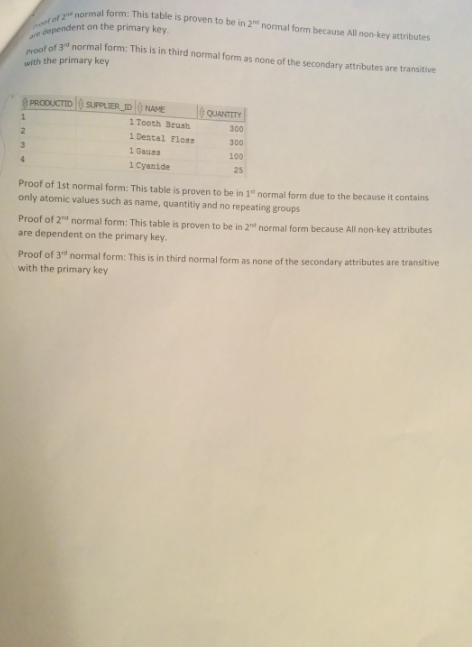
AND treatment.DATE\_OF\_TREATMENT < '2016-10-24';













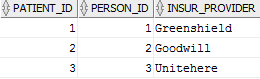
None of the attributes are functionally dependent on the primary key so thus it is in BCNF



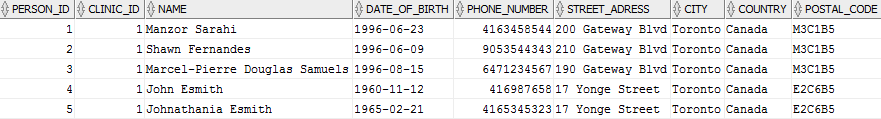
Employee\_ID is dependent on the Dentist\_ID and since Employee\_ID is a candidate key for this table it is in BCNF



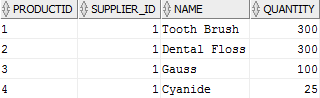
Person\_ID is dependent on Employee\_ID and since Person\_ID is a candidate key for this table it is in BCNF



Person\_ID is dependent on Patient\_ID and since Person\_ID is a candidate key for this table it is in BCNF



Clinic\_ID is dependent on Person\_ID and since Clinic\_ID is a candidate key for this table it is in BCNF



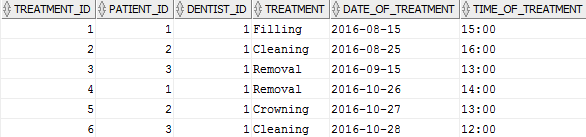
Supplier\_ID and NAME are dependent on Product\_ID and since Supplier\_ID and NAME are candidate keys for this table it is in BCNF



Employee\_ID is dependent on the Reception\_ID and since Employee\_ID is a candidate key for this table it is in BCNF

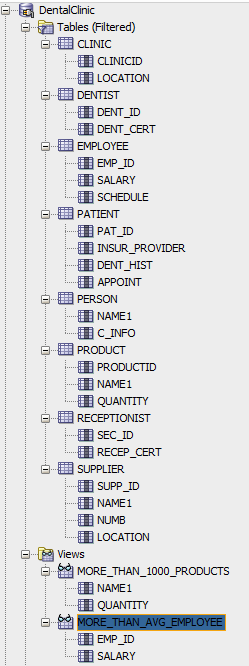


Company\_Name is dependent on the Suppler\_ID and since Company\_Name is a candidate key for this table it is in BCNF



None of the attributes are functionally dependent on the primary key so thus it is in BCNF

SELECT location FROM CLINIC; σsubject = “location”^(CLINIC)



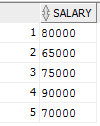
SELECT DISTINCT dent\_cert FROM DENTIST;

σsubject = “dent\_cert”^(DENTIST)



SELECT salary FROM EMPLOYEE;

σsubject = “salary”^(EMPLOYEE)



SELECT insur\_provider, dent\_hist, appoint FROM PATIENT

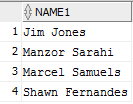
WHERE insur\_provider = 'InsurancePlace';

σsubject = “insur\_provider” = “InsurancePlace” and “dent\_hist” and “appoint”^(PATIENT)



SELECT name1 from PERSON;

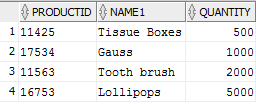
σsubject = “name1”^(PERSON)



SELECT productid, name1, quantity from PRODUCT

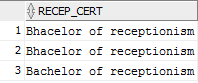
ORDER BY quantity;

σsubject = “productid” and “name1” and “quantity”^(PRODUCT)



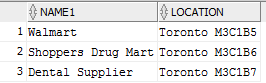
SELECT recep\_cert from RECEPTIONIST;

σsubject = “recep\_cert”^(RECEPTIONIST)



SELECT name1, location from SUPPLIER;

σsubject = “name1” and “location” ^(SUPPLIER)



CREATE VIEW more\_than\_avg\_employee AS

SELECT EMP\_ID, SALARY

FROM EMPLOYEE

WHERE SALARY > (SELECT AVG (SALARY) FROM EMPLOYEE);

σsubject = “emp\_id” and “salary” > AVG(“salary”)^(EMPLOYEE)



CREATE VIEW more\_than\_1000\_products AS

SELECT NAME1, QUANTITY

FROM PRODUCT

WHERE QUANTITY>1000;

σsubject = “name1” and “quantity” > 1000 ^(PRODUCT)

