Gurjus Singh

MSDS 420 – DATABASE SYSTEMS

Assignment 1: Creating Relations in 3NF from an Entity Relationship Diagram (ERD)

May 3rd, 2020

PART I:

1. One partial dependency involves INV_NUMBER as the key and it determines INV_DATE, and CUS_CODE.

Another partial dependency involves LINE_NUMBER which determines the LINE_PRICE, LINE_UNITS, P_CODE, V_CODE, and V_NAME.

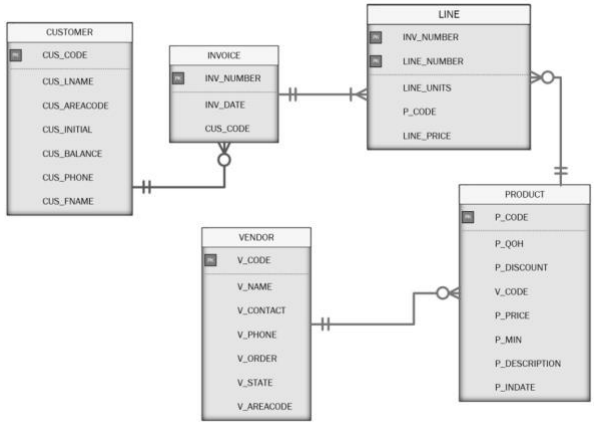
2. One transitive dependency in the table involves LINE_NUMBER as the candidate key P_CODE as the nonprime key and determines P_DESCRIPTION.

Another transitive dependency in the table involves LINE_NUMBER as the candidate key P_CODE as the nonprime key and determines P_PRICE.

Another transitive dependency in the table involves LINE_NUMBER as the candidate key P_CODE as the nonprime key and determines V_CODE.

Another transitive dependency in the table involves LINE_NUMBER as the candidate key V_CODE as the nonprime key and determines V_NAME.

PART II
3.



CUSTOMER (CUS_CODE, CUS_LNAME, CUS_AREACODE, CUS_INITIAL, CUS_BALANCE, CUS_PHONE, CUS_FNAME)

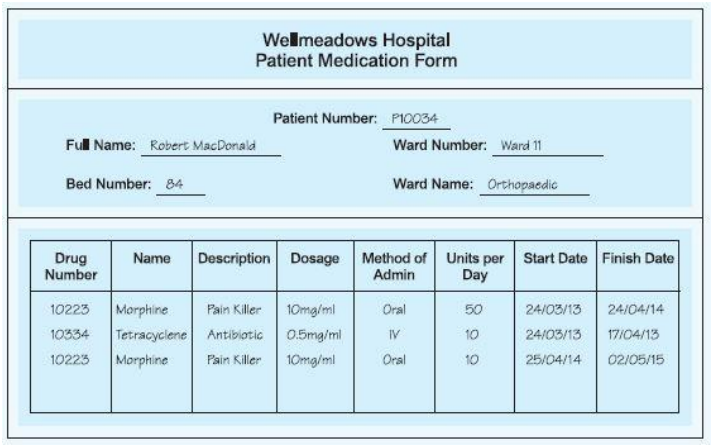
INVOICE (INV_NUMBER, INV_DATE, CUS_CODE)

LINE (INV_NUMBER, LINE_NUMBER, LINE_UNITS, P_CODE, LINE_PRICE

PRODUCT (P_CODE, P_QOH, P_DISCOUNT, V_CODE, P_PRICE, P_PRICE, P_MIN, P_DESCRIPTION, P_INDATE)

VENDOR (V_CODE, V_NAME, V_CONTACT, V_PHONE, V_ORDER, V_STATE, V_AREACODE)

PART III



Wellmeadows Hospital
Patient Medication Form

Patient Number: P10034

Full Name: Robert MacDonald Ward Number: Ward 11

Bed Number: 84 Ward Name: Orthopaedic

Drug Number	Name	Description	Dosage	Method of Admin	Units per Day	Start Date	Finish Date
10223	Morphine	Pain Killer	10mg/ml	Oral	50	24/03/13	24/04/14
10334	Tetracyclene	Antibiotic	0.5mg/ml	IV	10	24/03/13	17/04/13
10223	Morphine	Pain Killer	10mg/ml	Oral	10	25/04/14	02/05/15

a.) A Drug is associated with one name.

A Name is associated with one description.

A Drug can have multiple units per day.

A Drug can have only one way of being administered.

A Drug can have different start and end dates.

A Drug can only have one dosage.

b.) The table is in 1NF as each table cell contains a single value and each record is unique, we can move on to make the table 2NF

There are primary keys which are the drug number and units per day, so this table needs to be converted to 2NF:

The partial dependency is Drug Number determines Name, Description, Dosage and Method of Admin. So we can put it in a second table titled Drug.

Drug (Drug number, Name, Description, Dosage, Method of Admin)

Prescription (Drug number, Units per day, Start Date, Finish Date)

For 2NF to be in 3NF there needs to be no presence of transitive dependencies. In this table there are no presence of transitive dependencies.

So the table is in 3NF:

Drug (Drug number, Name, Description, Dosage, Method of Admin)

Prescription (Drug number, Units per day, Start Date, Finish Date)