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Intro Databases
23 September 2016

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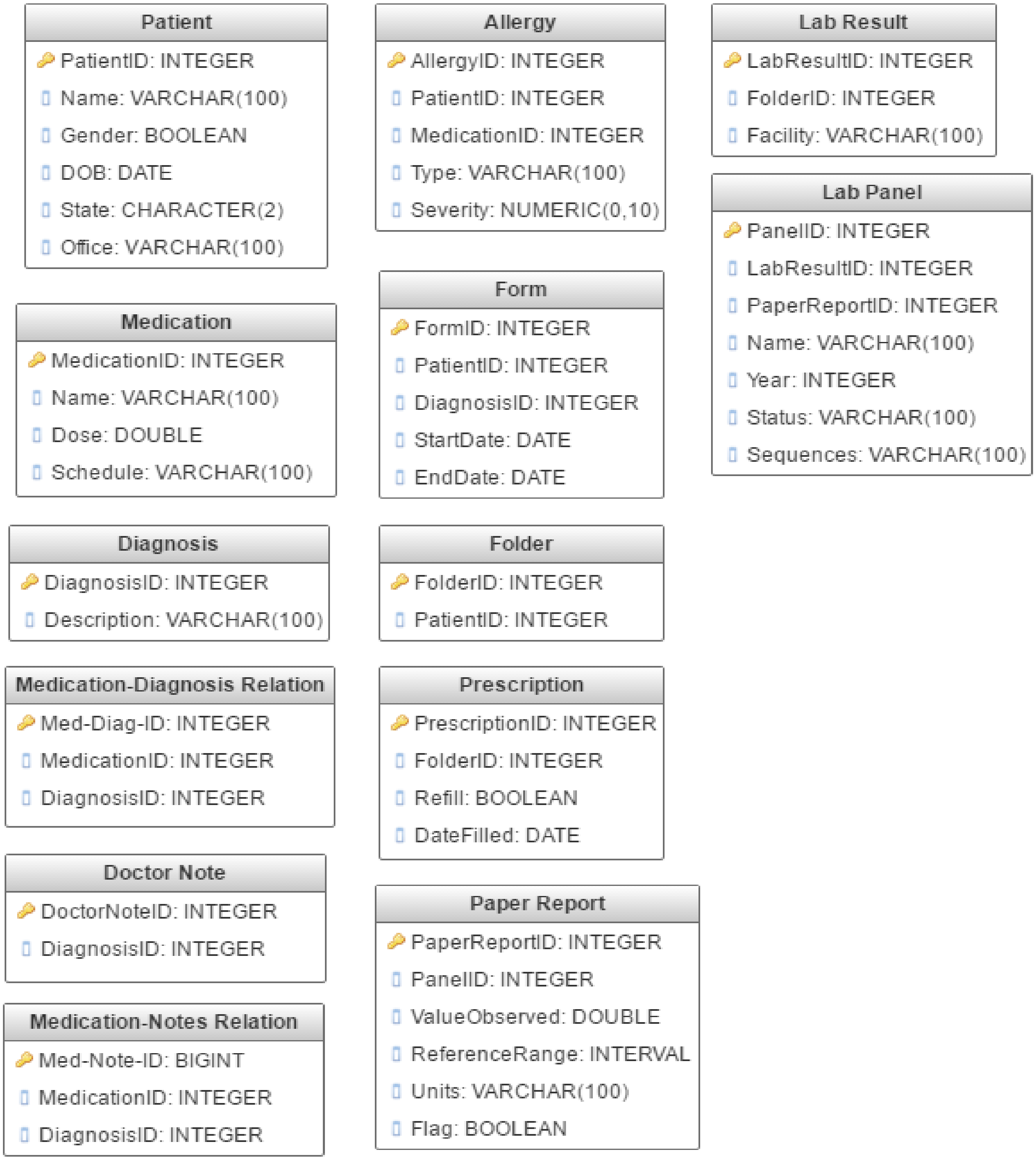


Patient
🔑 PatientID: INTEGER
Name: VARCHAR(100)
Gender: BOOLEAN
DOB: DATE
State: CHARACTER(2)
Office: VARCHAR(100)

Medication
🔑 MedicationID: INTEGER
Name: VARCHAR(100)
Dose: DOUBLE
Schedule: VARCHAR(100)

Diagnosis
🔑 DiagnosisID: INTEGER
Description: VARCHAR(100)

Medication-Diagnosis Relation
🔑 Med-Diag-ID: INTEGER
MedicationID: INTEGER
DiagnosisID: INTEGER

Doctor Note
🔑 DoctorNoteID: INTEGER
DiagnosisID: INTEGER

Medication-Notes Relation
🔑 Med-Note-ID: BIGINT
MedicationID: INTEGER
DiagnosisID: INTEGER

Allergy
🔑 AllergyID: INTEGER
PatientID: INTEGER
MedicationID: INTEGER
Type: VARCHAR(100)
Severity: NUMERIC(0,10)

Form
🔑 FormID: INTEGER
PatientID: INTEGER
DiagnosisID: INTEGER
StartDate: DATE
EndDate: DATE

Folder
🔑 FolderID: INTEGER
PatientID: INTEGER

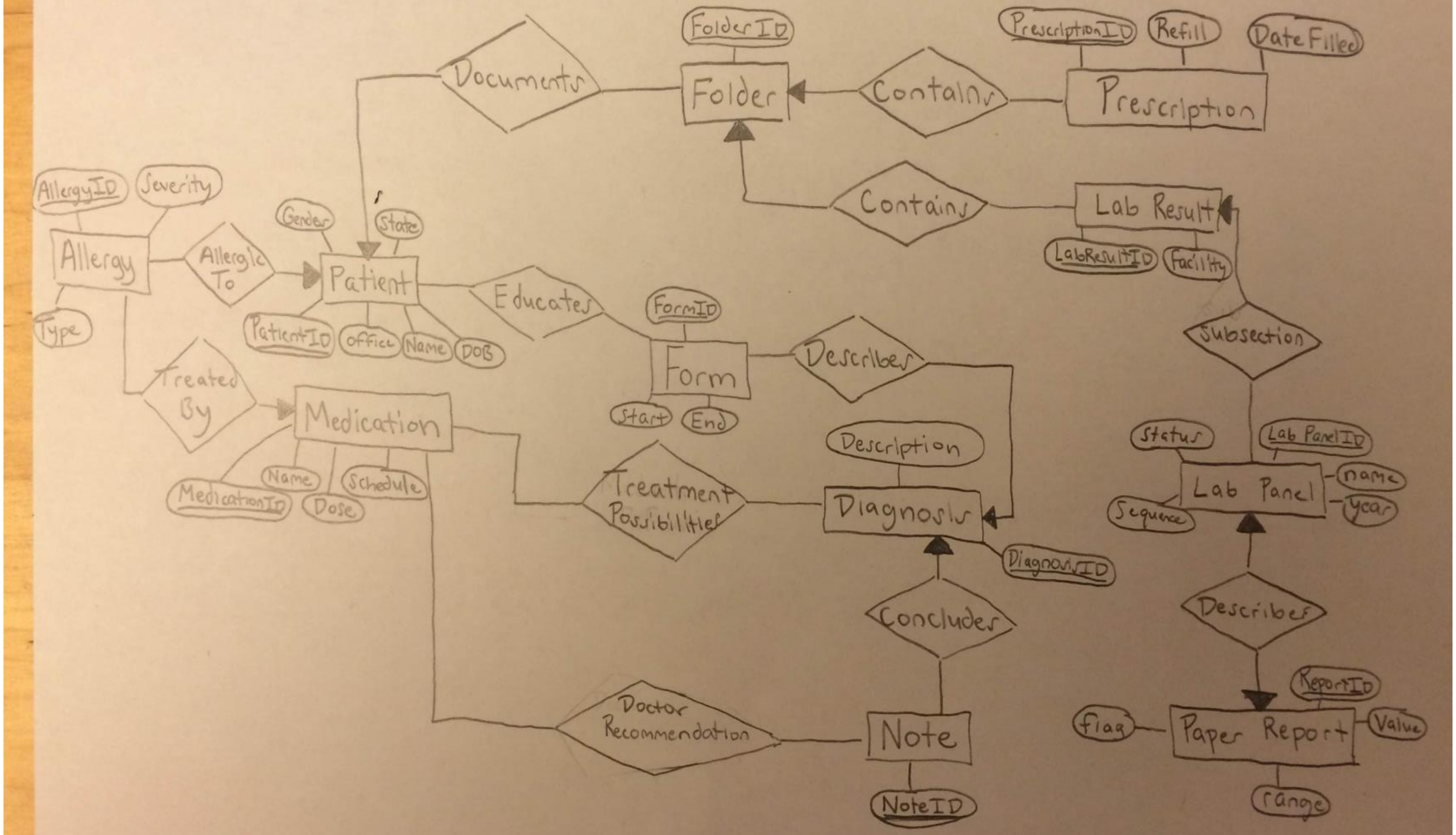
Prescription
🔑 PrescriptionID: INTEGER
FolderID: INTEGER
Refill: BOOLEAN
DateFilled: DATE

Paper Report
🔑 PaperReportID: INTEGER
PanelID: INTEGER
ValueObserved: DOUBLE
ReferenceRange: INTERVAL
Units: VARCHAR(100)
Flag: BOOLEAN

Lab Result
🔑 LabResultID: INTEGER
FolderID: INTEGER
Facility: VARCHAR(100)

Lab Panel
🔑 PanelID: INTEGER
LabResultID: INTEGER
PaperReportID: INTEGER
Name: VARCHAR(100)
Year: INTEGER
Status: VARCHAR(100)
Sequences: VARCHAR(100)

Problem 1
EECS 341



***I forgot to label the cardinality constraints for problem 1 so I will list them below. Cardinality constraints restrain the relation between two entities. For each of the two entity types you can specify a pair of indices like (1:N). The left character may be 0 or 1, while the right character may be 1, N, or M. The first index is a lower bound on the relationship's cardinality, while the second index is a sort of upper bound.

Cardinality constraints for problem 1:

- Each patient will have at least one folder regardless of whether or not there identity is known. (1:N)
- Each patient could be allergic to many substances or not at all. (0:N)
- One medication can treat many allergies, but some may have no treatment. (0:N)
- A patient may have many forms, but also none. (0:N)
- A folder may or may not contain a prescription. (0:N)
- A folder may or may not contain a lab result. (0:N)
- A lab result must have a lab panel. (1:N)
- A doctor's note may or may not recommend a medication. (0:N)
- A diagnosis may or may not be treated by a medication. (0:N)
- At least one form will always describe one diagnosis. (1:N)

For additional constraints, I would say some column tables may not accept null values. Certain information must be accessed by the hospital like lab results which always have some form of a result even if it's inconclusive, it is still a result. Or patient name because the hospital must refer to them by something even if the patient's true identity is known.

For problem 1, I inferred:

- One medication can treat many allergies.
- Medications-Diagnosis Relation is a many-to-many relationship.
- Medication-Note Relation is a many-to-many relationship.
- Doctor Notes and diagnosis is a many to one relationship.
- A patient can have more than one folder if the original gets full.
- Office and facility were not put in their own table, but they could be. It would be a new table for both entities with an ID column (Integer), and a name column (Varchar). The Office and Facility columns in the old Schema would then be changed to the new respective ID columns to match the new Tables.

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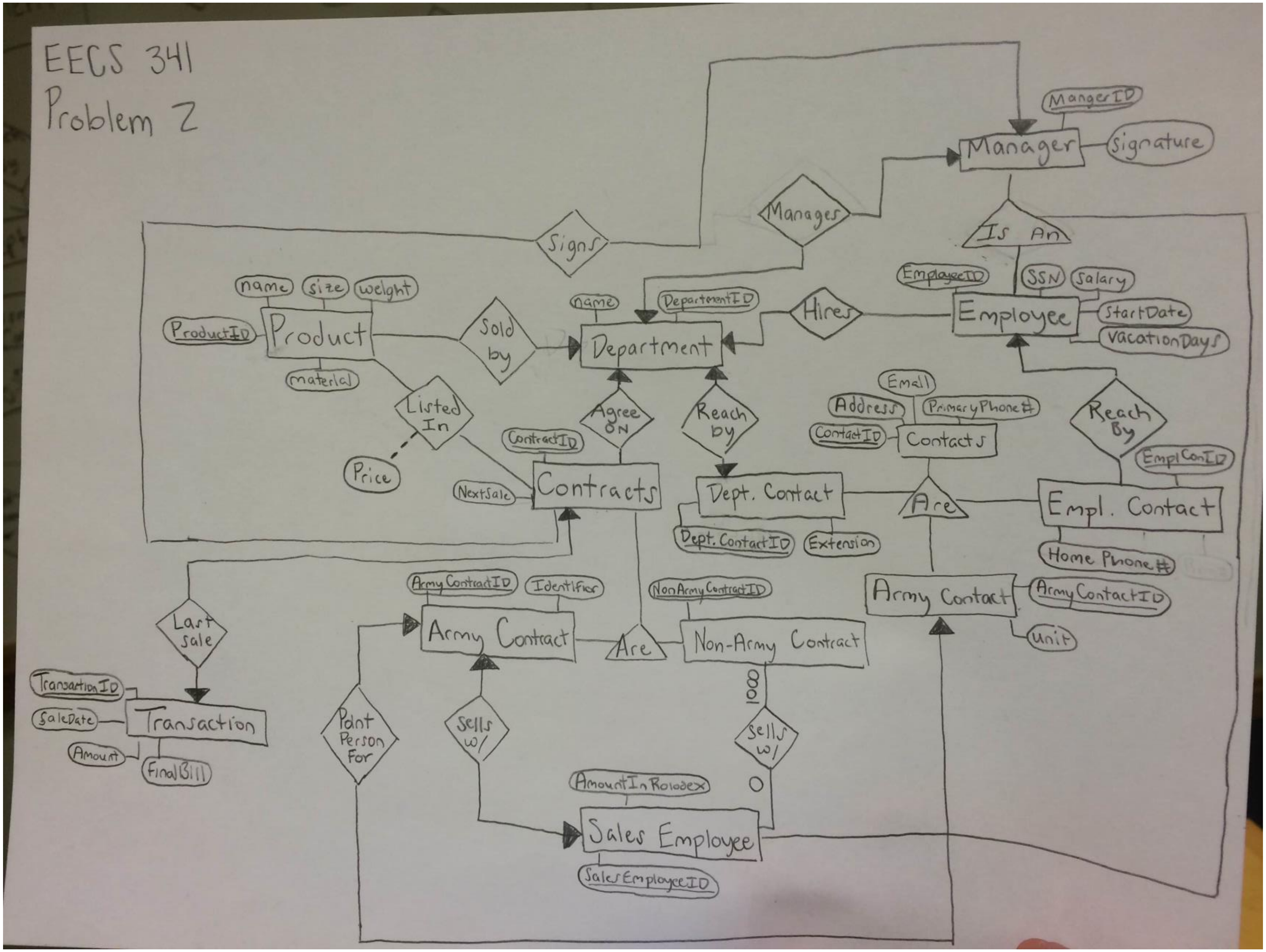
A. Will be found on the next page.

B. As is, the design only allows for a one-to-one relationship. To keep all the transactions by a customer, we will need a one-to-many relationship between the contract table and the transaction table, such that one contract is aware of many transactions. The design would be changed to remove the arrow pointer over the transaction table and replace it with a straight line.

C. As is, the design allows for a many-to-many relationship between the contract and the product. The contract will define the products' prices after negotiation and based on the company. If the price were to be the same for each customer, then the design would need to remove the relationship between the Product table and the Contracts table. The price column would be transferred onto the Product table where each entry would remain constant for each customer.

EECS 341
Problem 2


Manager
MangerID
signature
Manages
Signs
Is An
Employee
EmployeeID
SSN
Salary
StartDate
VacationDays
Hires
Department
name
DepartmentID
Product
ProductID
name
size
weight
material
Sold by
Listed In
Price
Agree ON
Reach by
Contracts
ContractID
NextSale
Dept. Contact
Dept. ContactID
Extension
Contacts
ContactID
Address
Email
PrimaryPhone#
Are
Reach By
Empl. Contact
EmplConID
Home Phone#
Army Contact
ArmyContactID
unit
Last sale
Transaction
TransactionID
SaleDate
Amount
FinalBill
Army Contract
ArmyContractID
Identifier
Are
Non-Army Contract
NonArmyContractID
Point Person For
Sells w/
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Sales Employee
AmountInRolodex
SalesEmployeeID