

ETM538HW5

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1. List 10 questions you want to be able to answer using the Hospitals Data Warehouse (10%).

- Which departments generate the most revenue?
- Which departments generate the most revenue per patient?
- Which procedures generate the most revenue?
- Which procedures generate the most revenue per patient?
- Which procedures generate the most revenue per hour?
 - Which procedures can be scaled up to generate more revenue?
- What equipment is required for these procedures?
- What disposables are required for these procedures?
- What are the biggest expenses? How can they be minimized?
- What are the drivers of length of hospital stay? E.g. doctor, patient, health record attributes, department, procedure, etc.?
- Which patients have the most complications?
- Which doctors see patients with the highest rates of complications?
- Which complications are covered by insurance (i.e. someone else pays) versus ones the hospital is responsible for (i.e. the hospital loses money)?
- Which services are the most popular?
- Which services are most correlated (if a patient uses one, they're likely to use the other)?
- What are the sources of revenue (e.g. insurance, government, private pay, other)?
- What services require involvement from multiple departments?
- What treatments require involvement from multiple departments?
- What patients require involvement from multiple departments?
- What is the average fill rate for the hospital beds?
- What seasonal effects can be found?
 - Optional services at the end of the year

- Flu season
- Surgical procedures before holidays
- What are the patient mortality rates?
 - By department
 - By doctor
 - By procedure

2 Entities we should include:

- Patients
- Physicians
- Departments
- Visits
- Conditions
- Accounts
- Transactions
- Treatments

3 Relationships between entities:

- Patients should link to:
 - Visits
 - Accounts
 - Transactions
 - Conditions
 - Treatments
- Physicians should link to:
 - Visits
 - Treatments
 - Departments
- Departments should link to:
 - Physicians
 - Visits
 - Conditions
- Visits should link to:
 - Patients
 - Physicians
 - Conditions
 - Treatments
 - Departments
- Conditions should link to
 - Patients
 - Visits
 - Departments
 - Treatments
- Accounts should link to
 - Patients

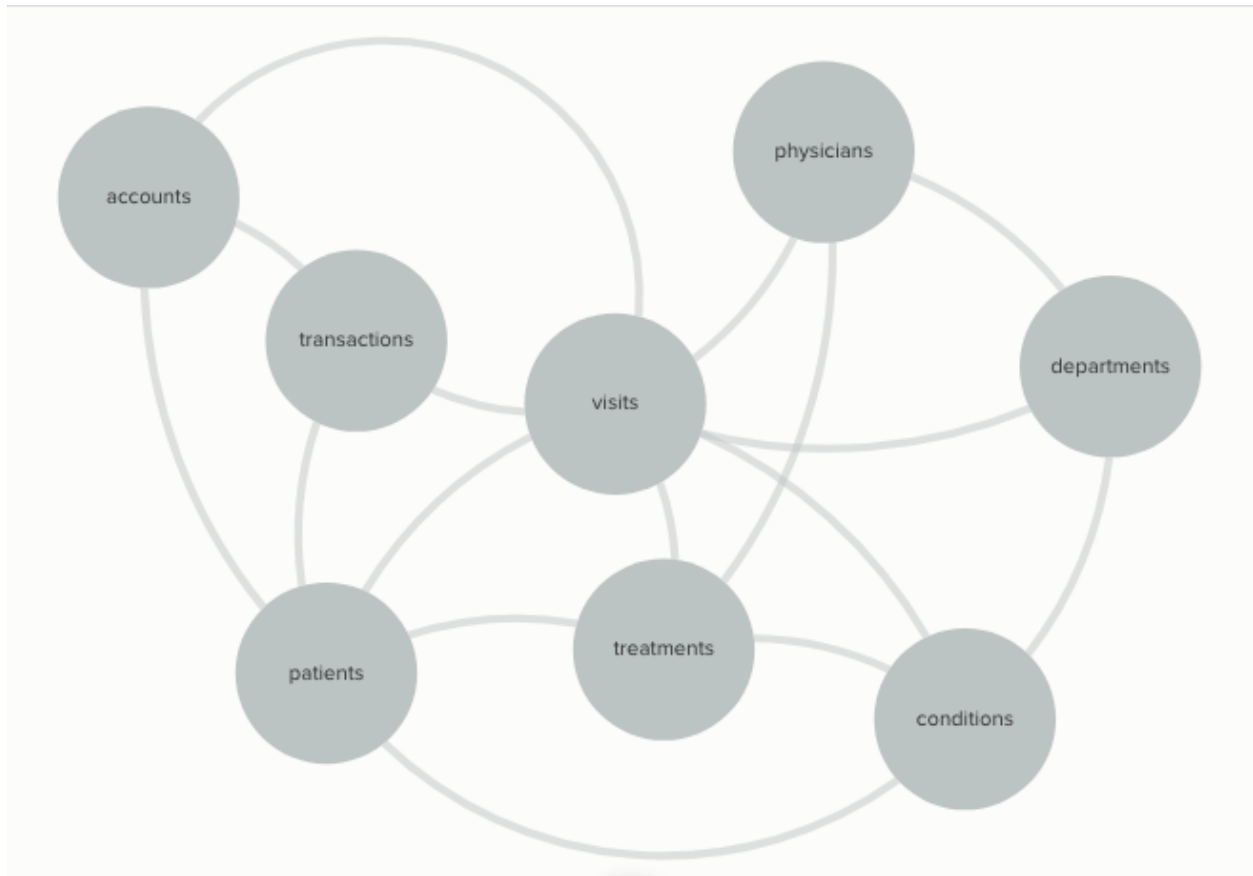


Figure 1: dataWarehouseMap

- Transactions
- Transactions should link to
 - Accounts
 - Patients
 - Visits
- Treatments should link to
 - Patients
 - Visits
 - Physicians
 - Conditions
 - Transactions

4 Draw a diagram of the entities above and their relationships

5 Attributes for each entity

- Patients should include
 - unique identifier/account number
 - name
 - date of birth
 - date of first visit
 - date of last visit (wouldn't this have to autoupdate from Visits?)

- Physicians should include
 - unique identifier
 - physician name
 - department
 - specialty
- Visits should include
 - dates/times
 - patient name
 - patient date of birth
 - physician name
 - diagnostic code / condition
 - treatment
 - notes/follow up
- Accounts should include
 - patient name
 - patient date of birth
 - patient address + zip
 - unique identifier/account number
 - insurance carrier + info
 - Primary Care Physician info
- Transactions should include
 - account number
 - patient name
 - patient address + zip
 - insurance carrier + info
 - physician name
 - visit date
 - diagnostic code / condition