

Analysis of the Central District Clinic



Project 4 will require the creation of a database system to support the operation of a fictitious health clinic in downtown Seattle ... by studying how an organization functions it is possible to understand how it can be most effectively supported with IT

The Central District Clinic

- ❖ The Central District Clinic (CDC) is a fictitious walk-in health clinic offering lab tests for drugs, HIV, AIDS, and other STDs
- ❖ It is staffed by volunteer health professionals and a volunteer receptionist ... no need to be concerned with the database issues of billing or payroll
- ❖ The lab testing is not performed on-site, but is contracted with Seattle labs and hospitals
- ❖ The goal of our effort is to provide all the database facilities needed to support all aspects of the client processing and testing

Databases and business systems are best developed by considering how an organization operates

Consider The Operation Of The CDC

- ❖ Starting with a client entering ...
 - ❑ The receptionist gathers contact information from the client and enters on the client record; if a client has visited before the data is verified
 - ❑ The receptionist queues the client to see one of the health professionals working that day
 - ❑ (After waiting long enough to read last year's *STD Weekly*) the client sees the health professional who fills out a chart with a brief medical history and orders the tests to be run
 - ❑ The client's specimens are labeled
 - ❑ At the end of the day the specimens for each test are grouped and compared against a manifest listing all of the tests of that type ordered that day and sent out

Operation (Continued)

- ❑ The results are returned and recorded in each client's record
 - + The outcomes are: positive, negative, failed or inconclusive, and exceptional
- ❑ A letter is composed to be sent to the client reporting the result of the test(s)
- ❑ A mailing label is affixed to the envelope, the letter is verified and it is mailed to the client
- ❑ Quarterly, summary statistics are compiled reporting on the clinic's activities including the number of clients and statistics on the number of positive cases of different diseases
- ❑ The past quarter's records are archived

Needs Analysis

- ❖ Review the operation of the clinic to determine what tasks need to be supported by the database system ... use the verbs as short hand
 - ❑ Enter client data
 - ❑ Queue client for health professional
 - ❑ Fill out chart
 - ❑ Order tests
 - ❑ Label Specimens
 - ❑ Specimens compared to manifest
 - ❑ Results recorded in client record
 - ❑ Reply letter composed
 - ❑ Quarterly statistics compiled
 - ❑ Records archived


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Enter Client Data

- ❖ Need a table and form for capturing client data

Client ID	Prefix	First Name	Middle Name	Last Name	Suffix
1	Mr	Thomas	Wright	Jones	Jr.
2	Ms	Emily	Bronte	Smith	

Address	City	State	ZIP	Home Phone	Work Phone	Birthdate
123 1st Avenue	Seattle	WA	98100	(206) 555-1212		11/22/33
333 Columbia S	Seattle	WA	98000	(425) 543-1000	() 543-3333	12/12/50



Client ID

Prefix

First Name

Middle Name

Last Name

Date

Birthdate

Address

City **State** **Zip Code**

Home Phone

Work Phone

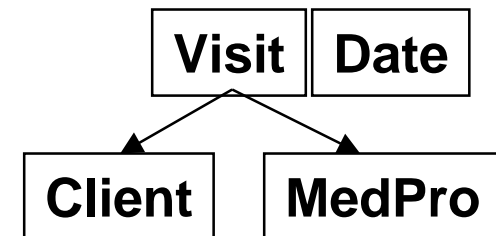


Queue Client With Med Professional

- ❖ The reference to medical professional implies that the volunteers at the clinic should be recorded ... what data should be saved?
 - ❑ Contact Information
 - ❑ Medical license information
 - ❑ Home office or hospital
- ❖ Define a table and a form for capturing the data

Further Attention To Queuing

- ❖ What does queuing really mean?
 - ❑ Associating a client with the medical professional that will see him or her
 - ❑ Such associations are phenomena that can and should be recorded in a database ... the phenomenon is a client “seeing” a medical professional, which is called a Visit
 - ❑ What is the relevant Visit data?
 - + Client, but only the key is needed
 - + Medical Professional, key only
 - + Date of visit



Visits : Table			
	Field Name	Data Type	
🔑	VisitID	AutoNumber	Automatically generated key
	MedProID	Number	Field for MedPro key
	ClientID	Number	Field for Clients key
	Date	Date/Time	Date of visit; default is current day

A Fundamental Idea

- ❖ Notice that the database design contains tables for “things” such as the Clients table and the table for the medical professional’s information
- ❖ These tables represent information about entities
- ❖ The Visits table is different in an important way ...
- ❖ It represents information about a relationship between entities, namely that the Client and the MedPro are connected or associated by a visit
 - ❑ Pairing the keys of the related entities is the mechanism
- ❖ The relational database model (that’s the set of concepts on which modern databases like Access are built) represents information about entities and relationships



Fill Out Chart

- ❖ During the visit the medical professional will ask the client questions and discover information ... where will this information be recorded?
- ❖ Visits -- it represents the event of the client seeing the medical professional, making it a logical location
- ❖ What information will be gathered ...
 - ❑ History -- what is the relevant past medical data?
 - ❑ Symptoms -- what's wrong now?
 - ❑ Notes -- observations about the patient, comments
 - ❑ Tests requested

Order Tests

- ❖ Ordering tests can be thought of as the final action of a visit by a client to a medical professional
- ❖ What activities are created by ordering a test
 - ❑ Collecting specimens ... not an IT task
 - ❑ Labeling specimens
- ❖ The label must ...
 - ❑ Uniquely identify the patient, but respect privacy
 - ❑ Must specify the test to be run
 - ❑ Must identify the CDC

Creating the tracking number
is a task initiated by Ordering

**Central District Clinic
123 Yesler Way
Seattle WA 98100
Hep B: CDC09A00BD0**

Test

Tracking Number

Compare To Manifest

- ❖ A manifest is a list of things that are supposed to be in a package
- ❖ When the specimens are sent to the lab at the end of the day, there must be a separate list of all the specimens collected for each test ...
 - ❑ What information is on the list?
 - ❑ How is this information created?
- ❖ A manifest for a given day for a given test can be created by selecting all those records that have the proper date and have that test checked ... derive a new table

FIT 100 CDC Database Design

- ❖ The three primary tables have been formulated:
Clients, MedPros and Visits
- ❖ The concept of representing entities and relationships
in tables has been introduced
- ❖ To be continued ...