

RPAD/RPUB 504: Data, Models, and Decisions I

Take-Home Final Exam, Fall 2005

Please turn in the exam on or before December 15, 2005 at 5:45 PM. Please sign the attached affidavit and return it as a cover sheet on your take-home final.

REMEMBER: The take-home final is to be completed by you and only you. Consulting with anyone (classmates, friends, spouse, etc.) regarding this exam is considered exam misconduct and is grounds for a grade of “F” in the course and additional disciplinary action through the University, including suspension or dismissal from your degree program.

I have worked on this exam alone. I have neither sought nor given help to anyone on this exam except for the course instructor or course TA.

Your Name

Date

The take home final will be evaluated for technical merit as well as clarity and crispness of presentation, including how you write-up your analysis.

Building a Database for the Natural Disasters' Assistance Program

As a result of the recent crises derived from natural disasters, the Governor of Mississippi wants to develop a database that can track refugees in the State Assistance Program after a major natural disaster. Knowing about the excellent reputation of Rockefeller College in information strategy and management, the Governor has selected your consulting company to design and implement this integrated database. Currently, the Department of Emergency Response uses an old paper-based system and some of the data is captured in disparate spreadsheet files. They have provided you with sample data from the legacy system. Someone from the department's technical staff has prepared the data in a set of MS Excel files, which they have conveniently imported into Access for you. The Governor noted that these tables do not have the necessary flexibility. According to him, the new system for the State Assistance Program must be relational and minimize the amount of "double entry" that often results in paper-based systems. In addition, the plan is to have a backup of all data in a remote site; therefore, they want also to minimize the necessary storage space (they want the Access file to be as small as possible).

The Governor is very interested in keeping track of the refugees, but also of the program staff members who are helping them (mainly social workers and doctors). To that end, he wants the system to keep track of the name, SSN, address, telephone numbers, and e-mail address for each refugee in the State Assistance Program. Due to their unique situation, each refugee may have up to four types of postal addresses: Permanent, Temporary, Alternative Contact, and Other. Some refugees used to live together or work together so they may have the same permanent address, and each refugee may have more than one type of address (for instance, an address in a Temporary Camp and a permanent address). Refugees will provide a home telephone number. The Department of Emergency Response will request (but does not require) each refugee to provide at least one additional telephone number. Additional telephone numbers may include a cell number, an office number, or an "other" number. It will be important to record what type of alternate telephone number has been provided. Refugees must also provide a contact e-mail address. The intention of having a unique e-mail address is to send all formal communication only through this e-mail.

The program staff will include four types of roles: (1) Social Workers, (2) Doctors, (3) Temporary Camp Managers, and (4) Recovery Zone Managers. The system should be able to record a unique ID, first name, middle name, and last name for all staff members. In addition, it is important that the system keep track of the certifications of social workers and who they are helping (refugees). Some social workers have several certifications and there are several of them with the same certification. A social worker can be helping several refugees, but also a refugee can be being helped by more than one social worker. For doctors, the system will also include their relationships with refugees as well as their specialty (e.g., cardiology, pediatrics, etc.). A doctor can also be helping more than one refugee and a refugee may need to see several doctors with different specialties. For temporary camp managers, in addition to the information common to all staff, the system should be able to keep track of which temporary camp they are responsible for. In some cases, there would be more than one manager for a temporary camp. The system should also provide the necessary flexibility for situations in which a temporary camp manager is responsible for more than one temporary camp. Finally, the recovery zone

managers are normally responsible for a recovery zone, but the system should be flexible enough to allow a manager being responsible of several recovery zones (sometimes this is necessary).

Most refugees are now in a Temporary Camp and each Temporary Camp is included in a Recovery Zone. There are four temporary camps: (1) Lutcher, (2) Thibodaux, (3) St. Bernard State Park, and (4) Jean Lafitte. The three recovery zones are East, West, and South. The governor is interested in tracking the Temporary Camp and Recovery Zone for each refugee, because in that way he can partially assess the performance of the Temporary Camp and the Recovery Zone managers. He wants the database to be flexible enough to be able to add more temporary camps or recovery zones when necessary. The following table shows the relationships between Temporary Camps and Recovery Zones in the sample data you are given.

Temporary Camp	TC Manager	Recovery Zone	RZ Manager
Lutcher	Brian M. Rosembloom	West	Natalie G. Rassel
Thibodaux	Ron T. Hall		
St. Bernard State Park	Donna L. Burke	East	Angelica Sullivan
Jean Lafitte	Nadia Levine	South	Tom R. Larsen

Your assignments are:

- (1) To write a 1 page memo to the Governor and the Department of Emergency Response explaining your design.

Your memo should include as an attachment an entity-attribute-relationship diagram of your database *that is as close to Third Normal Form as possible*. (You may print out the “Relationship” map from Access or you may draw this by hand.)

An appendix to the memo should also contain at least four *queries* that can reproduce the original tables that the Department of Emergency Response gave you.

- (2) To create a working version of your database using Access and the sample data provided.

Please submit the database file using one of four methods:

1. On a CD-ROM.
2. Via e-mail as a Zip-compressed file. (The UAlbany mail system refuses to deliver Access files – i.e., those with the .mdb extension; it will deliver Zip files.)
3. On a USB flash memory drive. Bring it to class with you – I will transfer the file to my laptop and then give back the drive.
4. On a floppy disk – but only as a desperate last resort (floppies are too unreliable).

Helpful Hint #1

The tables they gave you are not appropriate, given what you have been asked to accomplish. You will have to re-configure some of the data to fit your data model. You will have to build new tables in other cases, based on the information provided above.

Helpful Hint #2

The tables you have been given can sometimes be edited or merged to create linking tables for many-to-many relationships. For instance, you could create a linking table by copying a table that contains both the primary keys that you need to use and then delete the unneeded columns of information.

Helpful Hint #3

You can copy data from an existing table into a new one by (1) copying the information you wish to move into a new table; (2) double clicking on the “Create table by entering data” option in the “Tables” object; (3) select the SAME number of fields and columns in the blank table; and (4) paste into the new table. You will be able to save the table after you paste in the information.

Helpful Hint #4

It is always possible to put in an AutoNumber field in a table using “Design”.