

## PROOF OF CONCEPT: OPERATIONAL DATABASE DEVELOPMENT PROJECT

LDO is a small local dental office that has been in business for twenty years. They offer high quality general dental care for about 500 patients. They have *three dentists, five hygienists, and three office staff*. The dentists and office staff have been with the office many years but there is a large turnover among hygienists. The dentists are thinking about expanding their office because of increased demand for their services, more than they can currently accommodate. The office staff is concerned about their ability to provide good customer service and keep up with the increased work. Currently all record keeping is done manually. The office staff has convinced the dentists that a computerized system will allow them to handle more *customers* without adding more office staff. LDO would like you to prepare a proposal for a system, which would meet these needs.

When a person becomes a patient of LDO, they select a dentist. When patients have an *appointment*, they may see their dentist and have a *procedure performed* (e.g., they might have a tooth extracted, their teeth whitened, or a routine check-up). Only *hygienists perform tooth cleanings*, however. *A patient has a separate appointment for a cleaning which is performed by which ever hygienist is available. A patient may schedule more than one visit on the same day (e.g., a patient may have a cleaning performed at 11:00am and a checkup at 11:30am on the same day). When a dentist is on vacation, or sick, the other dentists see his or her patients.*

During some visits dentists must *administer drugs to the patient*. For example, most patients have Novocaine when having teeth filled. Some patients want nitrous oxide (commonly called laughing gas) in addition to Novocaine. Sometimes dentists may give patients antibiotics if they have an infected tooth. The office is required to know not only *specifics about the drug given (e.g., brand, dose) but also from which supplier they received the drug. A supplier usually provides LDO different drugs, and LDO has multiple suppliers for every drug they keep in stock. Drugs are received in batches or lots (one batch is for only one drug)*. That is, they might receive 12 doses of Novocaine, 25mg each. All drugs in one batch have the same expiration date and same dose. Different drugs come in different forms (e.g., generally Novocaine is administered by shot, nitrous oxide is a gas, but some antibiotics might be a pill or a shot although they are usually different doses).

For record-keeping purposes, the office needs to know which hygienist performed a cleaning. While every patient has a specific dentist, the office needs to know which dentist saw a patient for each appointment. Additionally, in case a recall is required for a drug, LDO must know for every patient who received the drug, who was the supplier and what was its expiration date. LDO must also keep careful records of the drugs that they destroy (because they are past expiration date or for other reasons).

LDO strongly suspects that there may be other valuable information that they could obtain from an information system, but at this time they don't know what those might be. An important consideration in selecting a consulting firm to develop an information system is that the consulting firm helps them see other benefits they could obtain from such a system. Your proposal should meet all the requirements LDO has defined above. In addition, you are to propose one extension to this system that would provide business value to LDO. In your proposal, make absolutely clear the basic system (that which satisfies the above requirements) and extension (your suggestion).

1. Executive summary. A one-page document summarizing the business problem and the benefits to be obtained from your solution.
2. Make a list of business rules with your assumptions.
3. Entity Relationship (ER) diagram
4. Relational Data Model/Schema

5. Create a MS Access database with physical modeling (based on above and below requirements)
6. A form suitable for entering data on the topic of your choice. Include a screen shot of the form in your documentation
7. A report that includes subtotals and a grand total of things. Please provide a screen shot of this report.

Optional items = not required

8. A main form which organizes your application and from which (via buttons) the other forms and reports may be started. Provide a screen shot of the form.
9. A form built from a view/query (the view/query should have the following restrictions):
  - a. query must include join of at least two tables
  - b. query will not include all attributes of base tables
  - c. query will not display all records of base tables
  - d. provide a screen shot of the form and include the script of the query creation

### **HOW MUCH DATA?**

It is necessary to load sample data only into those tables utilized by the forms and reports above. Approximately 15-20 records per table should be sufficient to demonstrate the functionality of your forms and reports.

### **PLEASE SUBMIT 4 FILES**

- a) MS Access database
  - b) ER diagram file
  - c) Relational Data Model/Schema file
  - d) MS Word document that includes, the following items
1. Executive summary. A one-page document summarizing the business problem and the benefits to be obtained from your solution.
  2. Make a list of business rules with your assumptions.
  3. Screen shot of Entity Relationship (ER) diagram (e.g. Individual 1\_Data Modeling Part A).
  4. Screen shot of Relational Data Model/Schema (e.g. Individual 1\_Data Modeling Part B).
  5. A list of tables with columns etc.
  6. A form suitable for entering data on the topic of your choice. Include a screen shot of the form in your documentation
  7. A report that includes subtotals and a grand total of things. Please provide a screen shot of this report.
  8. A main form which organizes your application and from which (via buttons) the other forms and reports may be started. Provide a screen shot of the form (optional)
  9. Screen shot of form and the script of the query creation (optional)

**Rubric (total 150 points)**

	Grade	%	Missing (0 pt)	Poor 20%	Fair 40%	Good 60%	Very good 80%	Excellent 100%	Any additional comment
Criteria									
Uploaded single solution file to the course website (- 10 points for neach missing file) PLEASE SUBMIT 4 FILES MS Access database ER diagram file Relational Data Model/Schema file MS Word document that includes, the following items <ul style="list-style-type: none"> <li>• Executive summary. A one-page document summarizing the business problem and the benefits to be obtained from your solution.</li> <li>• Make a list of business rules with your assumptions.</li> <li>• Screen shot of Entity Relationship (ER) diagram</li> <li>• Screen shot of Relational Data Model/Schema</li> <li>• A list of tables with columns etc.</li> <li>• A form suitable for entering data on the topic of your choice. Include a screen shot of the form in your documentation</li> <li>• A report that includes subtotals and a grand total of things. Please provide a screen shot of this report.</li> <li>• A main form which organizes your application and from which (via buttons) the other forms and reports may be started. Provide a screen shot of the form (optional)</li> <li>• Screen shot of form and the script of the query creation (optional)</li> </ul>									
	In an editable format (e.g. MS Word, Excel, Power Point) (- 10 points)								
20	Executive summary. A one-page document summarizing the business problem and the benefits to be obtained from your solution.								
20	Make a list of business rules with your assumptions.								
20	Screen shot of Entity Relationship (ER) diagram (e.g. Individual 1_Data Modeling Part A).								
20	Screen shot of Relational Data Model/Schema (e.g.) Individual 1_Data Modeling Part B).								
20	A list of tables with columns etc.								
10	It is necessary to load sample data only into those tables utilized by the forms and reports above. Approximately 15-20 records per table should be sufficient to demonstrate the functionality of your forms and reports.								
20	A form suitable for entering data on the topic of your choice. Include a screen shot of the form in your documentation								
20	A report that includes subtotals and a grand total of things. Please provide a screen shot of this report.								
	A main form which organizes your application and from which (via buttons) the other forms and reports may be started. Provide a screen shot of the form ( <b>optional</b> )								
	Screen shot of form and the script of the query creation ( <b>optional</b> )								
			<b>0</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10 pt</b>	
	Formatting Requirements (Professionally formatted (e.g. file name, authors' names, page number, & Quality of images))								

	Grammar, spell check, length of paragraph & sentences, etc. Writing POOR (Unclear writing - displayed confusing instructions; missing information_ GOOD (Clear writing - displayed, but could have arranged instructions better) VERY GOOD (Structured writing - displayed clear, logical thinking, and deep analysis)								
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