



Faculty of Computer Studies

Supplementary Material
Information Technologies and Computing : Level 2
Special Topics in Computer Science: Database Management
Systems

CS490

October 2008 Offer Notes

*Prepared by the Faculty of Computer Studies
Information Technology and Computing
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1. Introduction

CS490 is a special topics course, where the selected topic can vary. Therefore, there could be several course guides for CS490, each specializing in a different selected topic. For each selected topic, there are several offer notes, one for each term the selected topic is on offer. The offer notes you are reading are for the **October 2008** offer of the Database Management Systems special topic.

The purpose of the **CS490 October 2008 Offer Notes** is to encapsulate all important material that is specific to the offering of the **first** term of the **2008/2009** academic year. This includes details of the software that will be used this term, the course calendar, the weekly study guides, the TMA and the project. It does not include the general course plan, its prerequisites, objectives, assessment details, or descriptions of the learning materials. This information is included in the **CS490 Course Guide**.

2. Software

This term, we will be using:

Title: Oracle 9i ®

Category: Database Management System

Version: 9i.

How it can be obtained: included with the course materials.

Documentation: included with the student copy of the Oracle 9i CD.

Title: Oracle Developer Suite ®

Category: Database Development Tools

Version: 10g.

How it can be obtained: Through the Oracle Academic Initiative (OAI) Program (should be arranged by your branch and local course coordinator)

Documentation: included as online help

Title: Microsoft Excel ®

Category: Spreadsheet Program

Version: Any late version will do.

How it can be obtained: Purchased independently by the student.

Documentation: included with the software as a user manual and online help.

Title: Design feedback tool

Category: Database design training software

Version: latest as found in the website

How it can be obtained: from the author Website at <http://jerrypost.com/dbdesign/> after obtaining a password form your instructor.

Documentation: included in the website and in Jerry Post, "Database Management Systems", 3rd Edition, McGraw Hill/Irwin, pp. 70-76.

Title: Microsoft Access ®

Category: Database Management System (used as an alternative to Oracle and the Database Design feedback tool).

Version: latest available.

How it can be obtained: Purchased independently by the student.

Documentation: included with the software as a user manual and online help.

3. Course Calendar

Week & Study Guide	Start	Text Ch.	Text Readings	Pages			Assigned Work	Assessment		
				from	to	total		Item	Due	%
Module 1: Introduction and System Design										
1	4 Oct	1	Introduction	1	25	25	Ch 1: Exercises 7 & 9			
2	11 Oct	2	Database Design + App.	29	76	42	Ch 2: Exercise 13			
3	18 Oct	3	Data Normalization	77	105	29	Ch. 3: Exercises 1 & 8			
4	25 Oct	3	Data Normalization + App.	106	142	29				
Module 2: Queries										
5	1 Nov	4	Queries	143	163	21	Ch 3: Exercise 14			
6	8 Nov	4	Queries	163	181	19	Ch 4: Exercises 1, 5, 9 & 13			
7	15 Nov	5	Advanced Queries	182	196	15	Ch 4: Exercises 17, 21 & 25			
8	22 Nov	5	Advanced Queries + App.	197	220	19	Ch 5: Exercises 2, 5, 14 & 21	Quiz1	<u>Wk 8</u>	15%
Module 3: Applications										
9	29 Nov	6	Forms and Reports	221	247	27	Project	TMA1	<u>29 Nov</u>	15%
10	6 Dec	Eid Al-Adha Holiday								
11	13 Dec	6	Reports and Applications	247	262	16	Project (Including review questions 6.3, 6.4, 6.5, 6.6, 6.8, 7.2, 7.4, 7.6, 7.10, 7.14)			
12	20 Dec	7	Transactions	265	281	17				
13	27 Dec	7	Transactions	281	294	14		Proj	<u>27 Dec</u>	20%
Module 4: Advanced Topics										
14	5 Jan	8-10	Data Warehouses & OLAP, DB Administration, Distributed DBs	329 360 380	356 380 393	28 21 14	Optional exercises: (Ch 8: 4, 10. Ch 9: 8. Ch 10: 8)			
15	12 Jan	1-7	Study Period							
16	19 Jan	----	Start of Final Exam Period					Final	TBA	50%

4. Weekly study guides

All Weekly activities below are supposed to take place before the tutorial session meets. Also, you should complete study guide 0 before the first tutorial meeting.

Module 1: Introduction and System Design

[Weekly Study Guides](#)

Study Guide 0: Week 0 (before course starts)

Review	Ch. 1 pages 1–25, Key Terms and Review Questions
Start doing	Exercises 7 & 9 of Chapter 1
Read	The Course Guide, the Oct. 08 Offer Notes and the Study Calendar
Make Sure	You have access to the e-learning system and all learning materials, and have secured all required software

Study Guide 1: Week 1

Must Read	Ch. 1 pages 1–25
Complete	Key Terms & Review Questions & Exercises 7 & 9 of Chapter 1
Read	The Course Guide, the Oct. 08 Offer Notes and the Study Calendar
Install	Oracle [®] or MSAccess [®] Software and a spreadsheet program
Lab exercises	Ch.1 of the Oracle 9i workbook

Study Guide 2: Week 2

Must Read	Ch. 2 pages 29–63 and 70–76 and the TMA
Check	Your understanding of the key terms on page 63
Do	Review Questions on page 63 and Exercise 13 of Chapter 2
Lab exercises	Ch.2 of the Oracle 9i workbook

Study Guide 3: Week 3

Must Read	Ch. 3 pages 77–105
Check	Your understanding of the key terms covered on page 130
Start on	Project
Form	Project Team for the end-of-term project
Lab exercises	Ch.3 of the Oracle 9i workbook

Study Guide 4: Week 4

Must Read	Ch. 3 pages 106–130 and 139–142
check	Your understanding of the key terms on page 130
Do	Review questions on page 130 and Exercises 1 & 8 of chapter 3
Work on	Project
Lab exercises	Complete Ch.3 of the Oracle 9i workbook

Module 2: Queries
Weekly Study Guides

Study Guide 5: Week 5

Must Read	Ch. 4 pages 143–163
Check	Your understanding of the key terms covered on page 175
Do	Exercise 14 of Chapter 3 & review questions on page 175
Review	All materials related to Normalization
Work on	Project
Lab exercises	Ch. 4 of the Oracle 9i workbook

Study Guide 6: Week 6

Must Read	Ch. 4 pages 163–175 and 179–181. End-of-term project
Do	Exercises 1, 5, 9 and 13 of Chapter 4
Work on	Project
Lab exercises	Complete Ch. 4 of the oracle 9i workbook

Study Guide 7: Week 7

Must Read	Ch. 5 pages 182–196
Check	Your understanding of the key terms you covered on page 206
Answer	Review questions you covered on page 206
Do	Exercises 7, 21 & 25 of Chapter 4
Prepare	For the Quiz
Work on	Project
Lab exercises	Ch. 5 of the oracle 9i workbook

Study Guide 8: Week 8

Must Read	Ch. 5 pages 197–205 and 211–220
Check	Your understanding of the remaining key terms on page 206
Answer	Remaining review questions on page 206
Do	Exercises 2, 5, 14 and 21 of Chapter 5
Complete	TMA
Prepare	For the Quiz
Work on	Project
Lab exercises	Complete Ch. 5 of the oracle 9i workbook

Quiz Date: During Week 8
TMA Cut-off-Date: 29 Nov 2008

Module 3: Applications
Weekly Study Guides

Study Guide 9: Week 9

Must Read	Ch. 6 pages 221–247
Check	Your understanding of the key terms on page 262
Start on	Review questions Chapter 6 on page 262
Hand-In	TMA
Work on	Project
Lab exercises	Ch. 6 of the oracle 9i workbook

Study Guide 10: Week 10

Eid El-Adha Holiday

Study Guide 11: Week 11

Must Read	Ch. 6 pages 247–262
Complete	Review questions of Chapter 6 on page 262
Work on	Project
Lab exercises	Complete Ch. 6 of the oracle 9i workbook

Study Guide 12: Week 12

Must Read	Ch. 7 pages 265– 281
Check	Your understanding of the key terms you covered on page 294
Answer	Review questions you covered of chapter 7 on page 294
Complete	Project
Lab exercises	Ch. 7 of the oracle 9i workbook

Project Cut-off-Date: 27 Dec 2008

Study Guide 13: Week 13

Must Read	Ch. 7 pages 281 – 294
Check	Your understanding of the key terms covered on page 294
Answer	Remaining review questions of chapter 7 on page 294
Hand-In	Project
Prepare for	Final Examination

Module 4: Advanced Topics
[Weekly Study Guides](#)

Study Guide 14: Week 14

Skim	Ch. 8–10 pages 329–356, 360–380 and 380–393
Check	Your understanding of the key terms on pages 326, 356 & 393
Do (Optional)	Optional Exercises 8.4, 8.10, 9.8 and 10.8
Prepare	For Final Examination
Lab exercises	Optional: Do Ch. 8–10 of the Oracle 9i workbook

4. Tutor Marked Assignment

This section includes the TMA that is assigned in this offering of the course. The TMA contains a series of exercises to be done according to the suggested schedule in the calendar and the weekly study guides. These exercises are to be done **individually by each student**. In solving the TMA, you may wish to keep a couple of points in mind:

- The suggested exercises represent a minimal set of problems to solve. You gain experience by solving as many problems as you can and discussing your solutions with your instructor and your colleagues. In most cases, you can test your answers using the appropriate course software. Try to solve more problems from the text.
- It will be very helpful to always check your understanding of the end-of-chapter key terms and to answer all end-of-chapter exercises.

Important Dates

Quiz Date: During Week 8
TMA Cut-off-Date: 29 Nov 2008
End-of-term Project: 27 Dec 2008

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Tutor Marked Assignment (TMA)

Cut-off date **29 Nov 2008**, Total Marks 75, Weight: 15%.

IMPORTANT NOTE: You must submit your assignment electronically through the e-learning platform for the course. You should submit an **RTF main report** in addition to all the required files for the exercises. Each exercise must have an entry in the .rtf main report and should refer to any exercise files included as required. Place all your files plus your .rtf main report in a single compressed directory. The additional files required for the exercises are as follows:

Exercise	Submission Format	Marks
1.7	MS Excel Sheet	7
1.9	.mdb file	4
2.13	(List in RTF main report)	4
3.1	(Draw in RTF main report)	6
3.8	(Draw in RTF main report)	14
3.14	Relationships in .mdb file	2
4.1	Queries in .mdb file	2
4.5	Queries in .mdb file	2
4.9	Queries in .mdb file	4
4.13	Queries in .mdb file	4
4.17	Queries in .mdb file	4
4.21	Queries in .mdb file	4
4.25	Queries in .mdb file	4
5.2	Queries in .mdb file	4
5.5	Queries in .mdb file	4
5.14	Queries in .mdb file	4
5.21	Queries in .mdb file	2

In all, students are expected to submit 3 files: 1 Excel Sheet file and one database (.mdb) file and the .rtf main report file. Students using **Oracle** should submit Oracle reports in place of the .mdb files.

Some of the assigned problems have been modified from those in the text. The version stated here will be the one used for marking purposes. The questions are based on **Chapters 1-5** of the text book. These exercises are also listed in the course calendar and divided among the weeks of the course. The marks allocated to each question are given in parentheses () and additional comments or clarifications of the problems are sometimes added between brackets [].

Exercise 1.7 (7 marks)

A company is considering a new system for tracking employee evaluations. On talking with users, you learn the potential benefits include less time spent to determine raises; a reduction of one full clerical position; elimination of printing 3,000 pages of reports four times a year; and better merit decisions, which should [eliminate] the \$250,000 per year EEO [Equal Employment Opportunity] lawsuits. Costs include the initial development costs (\$35,000); new hardware (\$12,000); new software (\$10,000); and annual maintenance costs estimated to be \$4,000. There will also be some annual training costs of about \$6,000. [Assume that all annual costs are paid at the end of each year and that all annual benefits are also received at the end of each year.] Prepare a feasibility study for this project. Examine the alternatives under different interest rates (2, 5, 8, & 10 %) and different expected lifetimes of the project (1, 3, 5, & 10 years). Are there additional benefits and costs that should be considered? [Hand in your answer and an MS Excel ® sheet containing the feasibility study with all its underlying formulas]

Exercise 1.9 (4 marks):

Install the Pet Store database or find it on your local area network if it has already been installed. Print out (or write down) the list of the tables used in the database. Use the Help command to find the version number of Microsoft Access that you are using. [Hand in the .mdb file containing the database you just installed and write the version number in the .rtf main report]

Exercise 2.13 (4 marks):

Extend the Pet Store class diagram to include scheduling of appointments for pet grooming. Identify all primary keys. [List the new tables in your .rtf main report.]

Exercise 3.1 (6 marks):

A local retail firm is building a website and wants you to create a database to track information requests. The company wants to collect basic customer data, and then record when potential customers return to track their comments by topic. The topic is a predefined list of items (which managers can change) that potential customers will choose via a selection box. Define the normalized tables needed for this project. Create the class diagram and list of normalized tables for this case.

Name			
Phone			
E-mail			
Address			
City, State ZIP Code			
Country			
Date/Time	IP Address	Comment	Topic

Exercise 3.8 (14 marks):

A local pizza shop wants a database to track customer orders and deliveries. The basic order form is shown here, along with a simple form the driver fills out when the pizza is delivered. Drivers are encouraged to write down comments about the delivery or the order that might be useful to drivers who deliver next time. Tips have to be recorded because they are reported to the IRS. Create the class diagram and list of normalized tables for this case.

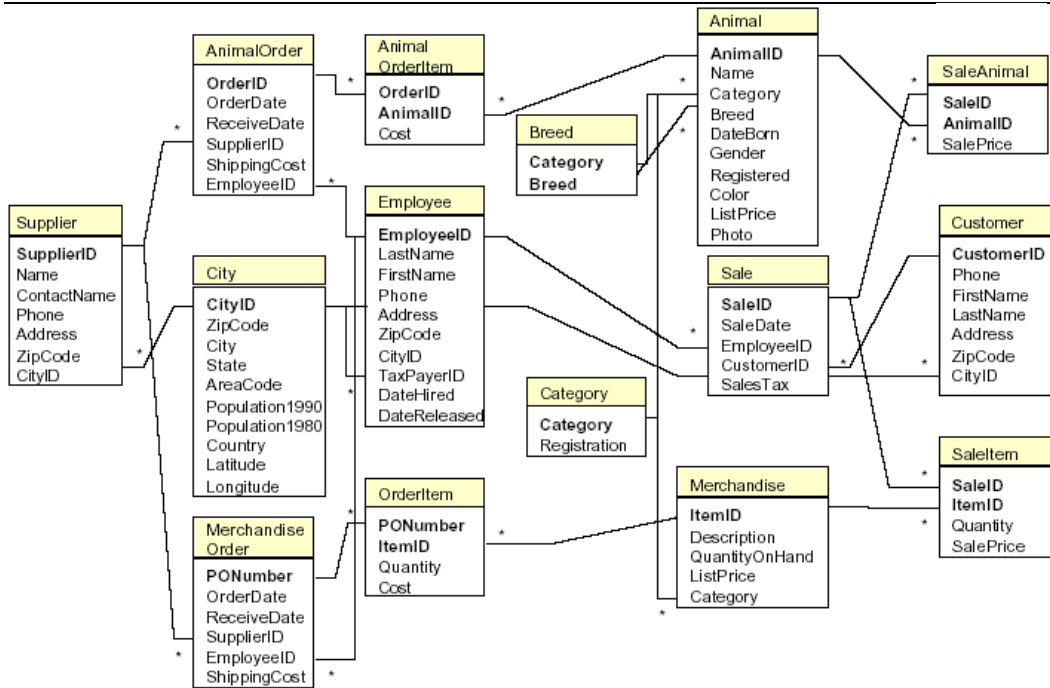
Pizza Order		
Customer		Order Date/Time
Phone		Employee
Address		
<i>For each pizza:</i>		
Crust type		
Size		
Base Price		
Specialty pizza		
Item	Cost	Custom Toppings Comments (e.g., half/half)
Topping Cost		
Tax		
Discount/Coupon		
Total		

Delivery Time		
Employee		
Directions		
Payment Method	Credit Card #	Expiration
Driver Tip		
Comments (e.g., Dog)		

Exercise 3.14 (2 marks):

Sally wants to add pet grooming services for outside pets. Define the tables necessary to schedule appointments, assuming two workers will be dedicated to this area. [Add the new tables to Sally's Pet Store Database and integrate it with its schema. Submit the new modified database file, showing the new relationships in addition to listing the new tables in your report. Note that some of the new tables will have to be partially filled in-advance with available dates and times in the week for each employee for each day (week or month in advance?) and then the rest entered by a clerk.]

Use the following schema to answer the remaining questions. Include all answers as queries in a database file (.mdb in MS access ® or appropriate Oracle ® reports):

**Exercise 4.1 (2 marks):**

List the cats born in May

Exercise 4.5 (2 marks):

List the items that have fewer than 10 units in stock.

Exercise 4.9 (4 marks):

Which employees ordered merchandise from suppliers in Tennessee in April?

Exercise 4.13 (4 marks):

To what state did we sell the most merchandise (by value) in July?

Exercise 4.17 (4 marks):

Did the store sell more female or male animals in the fourth quarter?

Exercise 4.21 (4 marks):

Which cats were pre-ordered: Sold before they were ordered?

Exercise 4.25 (4 marks):

During the third quarter, which items have been ordered the most times in more than 5-unit quantities?

Exercise 5.2 (4 marks):

On average, which sold in less time: male cats or female cats?

Exercise 5.5 (4 marks):

List the employees and their total merchandise sales expressed as a percentage of total merchandise sales for all employees.

Exercise 5.14 (4 marks):

Which cat products with a quantity on hand greater than 500 have not been sold in the month of July?

Exercise 5.21 (2 marks):

Write a query to create the following table categorizing customers based on sales. Make sure that you define the primary key.

Category	Low	High
Weak	0	200
Good	200	800
Best	800	10,000

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End-of-term Project

Cut-off date 27 Dec 2008, Total Marks 100, Weight: 20%.

This group project consists of two questions: question 1 consists of 10 review questions from chapters 6 & 7 and question 2 is complete database project.

Question 1: Hand in your answers to the following review questions on pages 262 and 294 in the textbook (20 marks, 5-8 hours)

Review Question 6.3 (2 marks)

What are the primary form types?

Review Question 6.4 (2 marks)

What are the main controls you can use on forms?

Review Question 6.5 (2 marks)

Explain the differences between a check box and an option button.

Review Question 6.6 (2 marks)

What is the purpose of subforms?

Review Question 6.8 (2 marks)

What are the primary sections of reports?

Review Question 7.2 (2 marks)

What is the purpose of data triggers?

Review Question 7.4 (2 marks)

What is the purpose of form events?

Review Question 7.6 (2 marks)

What is a transaction and why do they have to be defined by developers?

Review Question 7.10 (2 marks)

What is an ACID transaction?

Review Question 7.14 (2 marks)

What is the program logic for using a database cursor to alter data?

Question 2: Group Database Project (80 marks, 20-40 hours)

This project is based on Chapters 1-7 of the text book and Chapters 1-7 of the workbook.

Preliminary Comments:

The purpose of this question is to give you real training in database design, normalization and implementation of a complete case. You will read and understand all the aspects of the scenario given below, and then will produce a database design for it. A complete database implementation is also required; Students are required to create all the components of a complete application in Oracle or Access, including all its tables, forms and reports. A complete and correct design in the form of a UML class diagram and a set of normalized tables, form, and reports is expected of the students. Students should be able to complete all parts of this project once they have completed chapters 1-7 of the textbook and have done all the exercises in chapters 1-7 of the Oracle 9i workbook that accompanies the text. Access users should refer to the user manual and on-line help that come with the system.

An important advice: Designing and implementing a database system is an error-prone activity and it takes lots of TIME and active discussions to come up with a good final design, and to implement it, supply it with sample data, and test it. You should keep this in consideration and budget enough time to allow to the design to evolve. Do not put the project off until the week before the deadline. To have any chance at completing this part of the TMA, most students will have to put in 10 to 20 hours of time.

Class projects are slightly different from real-world applications, but they have many features in common. One of the most challenging aspects is that any project contains a level of uncertainty and ambiguity. When you start a real-life project, you never know exactly what the project is going to involve. As you talk with users, you encounter contradictions, uncertainty, and confusion over terms and goals. In real-life, you resolve these problems through experience and discussions with managers. With class projects, you do not have direct access to the managers and users. The instructor can answer some questions, but students will need to make their own interpretations, assumptions and decisions.

When you first read the case, try to focus on the big picture. Identify the environment, goals, and objectives of the proposed system. You should take notes on the company and jot down additional questions. Additional research of the industry and similar firms will help identify terms, goals, and potential problems. When you begin to make a list of all the forms and reports the company might use, you need to identify the overall purpose of each form and report. You should be able to describe the purpose of each form and report in one sentence. Give a name for each form and report, but avoid using its title — describe its purpose in your own words. You should make this list and keep it handy so you always remember the overall purpose of the application.

Remember that you will have to rework the normalization several times before the project is complete. Every time you change the primary keys, you first have to delete relationships. Try to develop a good normalized list before you begin creating forms and reports, but leave yourself enough time to go back and change the tables if you find problems. In many cases it pays to start small and add tables and features slowly. Start with an initial set of tables and keys that you are certain are correct. Add columns and tables as you need them. If your initial

tables are correct, you should be able to add new columns and tables without altering the existing design.

RMN Auto Sales

RMN, a local used-car dealer needs a database to track the cars purchased and sold. Most cars are bought at auction, but a few are picked up from other dealers. The company pays cash at the auctions and brings the cars back to clean them up. When the cars are sold, the company generally finances the sale. Customers rarely have good credit, so the company prices the cars so that buyers cover the original purchase cost of the car with a down payment. The rest of the purchase price is financed, but even if the customer stops paying on the loan, the company has not lost any money. Consequently, a key aspect of the company's profitability is finding cars at low prices.

Purchases

The company has buyers that travel the state to attend various auctions looking for good deals. To get the best prices, the company is willing to pick up cars that other buyers do not want. In particular, the cars often need minor repairs. These repairs and costs are estimated at the time of the purchase by the buyer, and then actual costs are recorded as the work is done. The repairs generally involve simple body work to repair scratches and dents or cosmetic work on the interior. The company does not purchase cars that need major repairs. Consequently, all work is performed by the dealer at a small shop. The cost of the repair includes the materials and the labor costs—usually young workers just out of high school working for low wages to gain experience. Figure 1 shows the basic form the buyers fill out when a car is purchased. The individual problems spotted are numbered, but not in any particular order. Remember that the buyer is looking at dozens of cars at a time and needs to quickly record basic data about the car during an initial inspection before the bidding begins. The book value is the average price for the vehicle as listed in the industry guide books, but the owners never allow the buyer to pay that much. At some point, the buyers would like a portable version of the database so they can fill out this form and have it calculate totals while at the auction.

Purchase					
Date		Seller/Dealer		TaxID	
Location					
Auction yes/no					
VIN		#	Problem	Est. Repair Cost	Actual
Make	Model	Year		
Color				
Miles				
Condition				
Book Price				
Price Paid				
(more vehicles)					

Figure 1

Sales

Sales of the cars are relatively traditional. A salesperson helps the customer select a car and negotiate the price. Figure 2 shows the basic form to record the sale. The employee commission is usually added to the form after the customer signs it, but sometimes employees list a lower-than-normal commission to help sell the car. Since RMN finances part of the price, customers are asked to list their current and last few employers—in case the company needs to repossess the vehicle.

Sale		Employee			
Date		Last Name, First Name			
Total Due		Commission			
Down Payment					
Financed Amount					
Customer		Phone		Employment	
Last Name, First Name					
Address					
City, State ZIP		Employer	Title	Super.	Phone Address Start
VIN		-----			
Miles		-----			
Condition		-----			
List Price		-----			
Sale Price		-----			
Style (sedan, SUV, ...)		-----			
Interior Color		-----			

Figure 2

Warranties and Payments

RMN also offers a variety of warranties as a major selling strategy. The warranties help to sell cars because people believe a warranty lowers the risk. Yet, because the cars are relatively sound to begin with, few warranty claims arise, so the company makes a solid profit on the warranties. Consequently, salespeople are encouraged to sell the warranties and receive a relatively high 25 percent commission on them. As shown in Figure 3, separate warranties are offered for various components. For instance, an exterior warranty covers the paint, while a drive -train warranty covers various engine and transmission elements. Note that each warranty only covers the listed items. Customers are given several options, including the length of the warranty and the level of the deductible. Of course, longer warranties and lower deductibles cost more. These values are specified in the warranty policies, but the salesperson needs to enter them on this form so everyone knows exactly which warranty was purchased. The customer also has the option of paying the warranty fees upfront as a lump sum, but most decide to finance them over time in the form of monthly payments. These values are entered by the salesperson using a chart—essentially the company charges a one percent per month interest rate for financing the warranty costs.

VIN					Salesperson
Customer	Co-signer			Phone	
Warranty	Sale Date				
Total Cost					
Monthly Cost					
Warranty	StartDate	Length	Cost	Deductible	
Items Covered					

Warranty	StartDate	Length	Cost	Deductible	
Items Covered					

Figure 3

To provide documentation for situations when complaints arise, or when RMN has to repossess a car, the company records all of the payments made by the customer. Figure 4 shows the basic form. To provide faster lookups (on the paper forms), the clerk also updates the number of late payments and the average number of days late whenever a payment is late. The company uses date of birth, gender, and taxpayer number to obtain credit reports on the customer. Really bad customers are also reported to the credit bureaus. On average, the company sells 5-10 cars a week, and generally tries to keep no more than 50 cars on the lot at one time. However, if good deals pop up at auctions, the buyers are encouraged to purchase them, but then they hold off on buying the marginal cars.

Customer	Gender	Date of Birth	Taxpayer ID	
Number of late payments				
Average number of days late				
Pmt Date	Due	Paid Date	Amount	Bank Acct

Figure 4

Tasks:

1. Create the feasibility study (initial proposal).
2. Create a list of all of the forms and reports that the company might use (not limited to the ones shown here).
3. Create a normalized list of tables for each form and report.
4. Create an integrated list of normalized tables for the entire application. Draw the corresponding class diagram.
5. Create the basic tables in a DBMS along with all necessary relationships and integrity constraints. Enter sample data into the tables to test your design.
6. Evaluate the normalized tables and estimate the size of the database—both current size and estimated size in 3 years.
7. List the initial security conditions for the data tables. Create a list of user groups and identify their basic access needs.
8. Design the overall structure of the application. Outline the overall structure and the primary forms. Select a design scheme, including layouts, effects, and colors.
9. Build initial input forms.
10. Build initial reports.
11. Improve the forms and reports to make them easier to use.
12. Test your forms and reports with sample users.
13. Build additional forms and reports. Improve all of them. Test all of them.
14. Connect all of the forms and reports into an application. Test all the links. Test the forms and reports. Check for consistency.

Project Deliverables Checklist

Format: .rtf file + (MS access database file or Oracle reports)

Hand in the following by the cut-off date (**27 Dec 2008**)

Question 1 (Review questions):

- Your answers to the specified review questions

Question 2 (The project):

1. The following items:
 - The Team Members and each team member's contribution
 - Your Initial Proposal.
 - The feasibility study.
 - Your assumptions and system limitations.
 - A list of all of the forms and reports that the company might use.
 - A normalized list of tables for each form and report before the integration.
 - An integrated list of normalized tables for the entire application (the relational schema).
 - The corresponding class diagram.
 - Your evaluation of the normalized tables and your estimate of the size of the database after 3 years.
 - Your list of the initial security conditions for the data tables.
 - Your list of user groups and their basic access needs.
 - Your design of the overall structure of the application including:
 - An outline of the overall structure and the primary forms.
 - Your choice of a design scheme, including layouts, effects, and colors.
 - Your comments about how you made the forms easy to use.
 - Your comments about how you tested the application.

2. Access **.mbd** file or Oracle reports showing:
 - The implemented tables along with all necessary relationships and integrity constraints and sample data used to test your design.
 - All queries, forms, reports, and triggers implemented.

Sample Answer:

This is a long project and student answers will vary. The important points to remember

- This is a group Project. Students need to indicate clearly the role each group member played in it implementation.
- Students are allowed to use either Oracle or Access without losing any marks.
- All reasonable limitations are acceptable as long as the student documents them.
- Projects which fulfill all the requirements but which fail to run should receive no more than 50% of the total grade
- Please refer to the marking template (PT3 form) for a detailed breakdown of the marks.

