

**OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY**

SEMESTER 11 EXAMINATIONS 1999

Third Evening B.A (Economic and Social Studies)

(CT225) Programming Languages 2

**Prof. D. Bell
Dr. G. Lyons
Ms. S. Hughes**

Time Allowed: TWO HOURS

Candidates are required to answer Question One in SECTION A and two other questions from SECTION B

Using the relations in Figure 1 give the SQL commands necessary to do the following:

- (a) Show the price of each house, its street and city.
- (b) Show the house price of all houses available in Galway.
- (c) Show the houses ID for all houses that are currently on offer by Murphy real estate.
- (d) Jones & Sons have changed their telephone number to 123123. Make the necessary changes in the database.
- (e) Show the price, the number of bedrooms and bathrooms for all houses that are not in the Dublin area.
- (f) Show the house price and the year built of all houses that are on offer for a price, which exceeds the average price of all houses for sale.
- (g) How many houses are for sale at a price above 100,000.
- (h) Give the house identification number and price for those houses that have 3 or more bedrooms, are less than 2000 square foot in area, and are built in the period 1960-1970.
- (i) There is a shortage of houses in the Galway area. As a result the prices of all houses have increased by 20%. Make the necessary changes.
- (j) Give the average price of houses on the books for each agent.
- (k) The data administrator has received a request to add a mobile phone column (max of 20 Characters) to the Agent Table. Facilitate his request.
- (l) Write the SQL commands to create the Agent table and the House table.
- (m) Murphy real estate has recruited a new agent John Jones with ID number 10. As of yet he has not been assigned a telephone number. Add this row to the Agent table.
- (n) Agent S. Smith has left his agency to start his own business.
- (o) Show the agentID, the agent name, for the agent with the lowest surname.
- (p) List the highest and lowest priced house and the average price house for all houses in the Dublin area.
- (q) All agents who have no houses on their books have been made redundant and should be removed from the database. Make appropriate changes.
- (r) For each agent with two or more houses for sale, compute the total value and the total square footage for all houses on the books of the agent.
- (s) What is the total value of all houses currently for sale based on the selling prices indicated in the database.
- (t) Define a view that will show the listing of agents in descending order, the prices and cities where the houses are situated.

(40 Marks)

SECTION B

- (2) (a) What is meant by the term normalisation? State the rules for the different forms of normalisation.
- (b) Is there any situation where you should not normalise data? Explain your answer.
- (c) Indicate how the following document would be represented in a normalised relational database. Clearly outline the step involved:

STUDENT REGISTRATION DETAILS

Computer Training Ltd.
10 Park Green
Dublin 5
Telephone: 01- 456456

Name:	John Jones	I.D.:	92565546
Address:	3 Hunters Run	Date:	23/3/99
	Dublin 4		
Telephone No.:	01-4565456		

Course Code	Description	Price	Exam Cost	Total
VB1	Visual Basic 1	250	50	300
PC1	P.C Applications	200	40	240
C++1	C++ 1	210	50	260
				800
			VAT @ 21%	168
				968

(30 Marks)

- (3) (a) In relation to the Internet, what is meant by the following:
- Information Overload
 - IP Addresses
- (b) In relation to the Internet, discuss the problems associated with each of the following:
- DNS Names
 - Bandwidth
- (c) What is TCP/IP? Explain your answer with appropriate examples.

(30 Marks)

- (4) (a) What are the main types of database structures? Clearly explain your answer paying particular attention to the operations of searching, deleting and updating.
- (b) What is meant by the term *data independence* when applied to relational databases?
- (c) In relation to databases, describe with examples what is meant by indexing.

(30 Marks)