

NATIONAL UNIVERSITY OF IRELAND, GALWAY
OLLSCOIL NA hÉIREANN

SEMESTER II, SUMMER 1999 EXAMINATION

SECOND YEAR SCIENCE (INFORMATION TECHNOLOGY)

CT208 APPLICATION SOFTWARE PROGRAMMING

Prof. D. Bell
Dr. G. Lyons
Dr. S. Redfern

Time allowed: THREE hours

Answer any FOUR questions
All questions to be answered in Visual Basic
All questions carry equal marks

- Q.1.** (i) What are properties and methods in Visual Basic (VB)? Identify which of the following are properties and which are methods of the list box control, and briefly explain their use: Name, Clear, AddItem, Text.
(ii) Explain the difference between event procedures and general (or non-event) procedures.
(iii) Briefly describe the use of the Grid control.
(iv) What will the following event-handling function of a text box do, and would you foresee any problems when the function is executed?

```
Private Sub UserText_Change()  
    t$ = UserText.Text  
    t$ = "hello " & t$  
    UserText.Text = t$  
End Sub
```

- Q.2.** (i) Briefly explain each of the following VB string-handling functions:

```
Len(a$)  
Left$(a$, x)  
Right$(a$, x)  
Mid$(a$, x, y)  
InStr(a$, b$)  
InStr(x, a$, b$)
```

- (ii) Write a VB application that uses a multi-line text box to allow the user to type in text. The application should provide a search facility allowing the user to enter a short word or phrase, and should then inform the user of how many times (if any) that word or phrase appears in the text box.

- Q.3.** (i) Explain the following types of errors that can occur in VB: syntax errors, run-time errors, and logic errors. Explain the terms Debug Window, Break Mode, and Breakpoint. What role does the debug window have in the debugging process? Outline the general structure of a procedure that incorporates run-time error handling.
- (ii) What is the *common dialog* control used for? Write the VB code necessary to (a) use a common dialog control to allow the user to select a font, (b) apply that font to the text contained in a text box.
- Q.4.** (i) What is the difference between a modal dialog box and a modeless dialog box? Explain, using fragments of code, how a form's Show and Hide methods are used in VB.
- (ii) Describe the use of the VB Timer control, referring to the properties Interval and Enabled in your answer. Write a VB "stopwatch" program that provides an on-screen countdown from a user-specified number of seconds down to 0. When 0 is reached, the user should be informed that the stopwatch has finished.
- Q.5.** (i) Describe the use of the VB Data Control for manipulating external database files. Refer to the terms Data-Bound Control, Table, Field, and Record in your answer.
- (ii) Present a VB program that uses a data control to connect to a table in a database which has the following fields: Name, Address, Date_of_Birth, Salary. When it starts up, the program should automatically populate a listbox with the names of the employees stored in the table.
- Q.6.** Write short answers (with examples/ code fragments where appropriate) to four of the following questions:
- (a) Present a VB application whose form receives pairs of mouse clicks and which draws boxes on the form: a pair of mouse clicks should be used to delimit the opposite corners of a box. (Hint: use the form's MouseDown event).
- (b) What are Windows Dynamic Linked Library (.DLL) files? Briefly describe **why**, and **how**, Visual C++ can be used to write DLL export functions which can then be called from a Visual Basic application.
- (c) What are VB Class Modules? Briefly explain how they provide some of the features of Object Oriented Programming (OOP).
- (d) Write a single VB procedure which writes the contents of a listbox out to a sequential access text file.
- (e) What is the Keypress event of a text box control used for? Write the code that could be used in a Keypress event handling procedure for restricting the information typed into the text box to the upper-case alphabetic characters A-Z. (Hint: the Asc(a\$) function returns the ASCII code of its single-letter string argument).
- (f) Explain the following three VB terms: Access keys; the tab order; the focus.