

NATIONAL UNIVERSITY OF IRELAND, GALWAY
OLLSCOIL NA hÉIREANN

SEMESTER II, SUMMER 2000 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) List the main differences between Visual Basic and C. What does the term *4th Generation Language* mean?
- (ii) Explain the difference between a user activated event and a non user activated event. When would you use a form's Load event?
- (iii) Briefly describe the use of the Timer 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 single VB subroutine which accepts a string as an argument, and sends to the printer the number of occurrences of each alphabetic letter (upper or lower case) in that string.

- 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) Present a VB application which provides a multi-line text box for the user to type in. Provide menu controls allowing the user to turn on/off the text's **bold** and underline properties. Provide the user with check boxes as an alternative way of changing these two text properties.
- 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) Present a VB application that maintains a disk file of names, addresses, and telephone numbers. The application should provide the user with options for adding entries to the file and exiting the program. The application should use a modal dialog box to request for a name to search for, and to display the details of that person from the file, if a match is found.
- 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) What causes the *keypress* event of a *text box* to occur, and what is its *KeyAscii* argument used for? Write code that could be used in a keypress event procedure in order to automatically capitalise the first letter typed in, and automatically ensure that all subsequent letters are lower case.
- (e) What is *Visual Basic for Applications* (VBA), and what are some of the benefits of using it? Briefly explain the process of **macro recording** followed by **VBA code editing** in Excel or Word.
- (f) Present a VB application that constantly informs the user of the position of the mouse pointer, relative to the **top left** corner of the main form.

CT208 VB Information Page - attach to exam paper

Object	Important Properties	Important Events & Methods
Check Box	Value	Click
Clipboard		GetText; SetText; Clear
Combo Box	Sorted; Text; List(index); ListCount; SelStart; SelLength; SelText	AddItem(item, index); RemoveItem(index); Clear
Command Button	Caption	Click
Common Dialog	FileName; Filter; Color; Flags; FontBold; FontItalic; FontStrikeThru; FontUnderline; FontName; FontSize; Copies; FromPage; ToPage	ShowOpen; ShowSave; ShowColor; ShowFont; ShowPrinter
Form	Caption; BackColor; AutoRedraw	Show; Hide; Load
Frame	Caption	
Grid	Rows; Cols; FixedRows; FixedCols; Row; Col; Text; ColWidth(index)	KeyPress(KeyAscii As Integer)
Image	Picture	
Label	Caption; AutoSize; WordWrap	
List Box	Sorted; List(index); ListCount; Columns; MultiSelect; Selected(index)	AddItem(item, index); RemoveItem(index); Clear
Menu item	Caption; Enabled; Checked	Click
OLE Container	Class; SourceDoc; SourceItem	Update; SaveToFile; ReadFromFile
Option Button	Value	Click
Printer		Print; EndDoc
Scroll Bar	Value; Max; Min; LargeChange; SmallChange	Change; Scroll
Text Box	Text; MultiLine; ScrollBars; BackColor; ForeColor; FontBold; FontItalic; FontStrikeThru; FontUnderline; FontName; FontSize; SelStart; SelLength; SelText	KeyPress(KeyAscii As Integer); Change
Timer	Interval; Enabled	Timer

Miscellaneous Object Events:

GotFocus; LostFocus; Enabled; Visible; TabIndex; MouseUp(Button As Integer, Shift As Integer, X As Single, Y As Single); MouseDown(Button As Integer, Shift As Integer, X As Single, Y As Single); MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)

Miscellaneous Object Methods:

SetFocus; Move(x, y); Line (x1,y1) - (x2,y2)

Miscellaneous Object Properties:

Width; Height; Left; Top