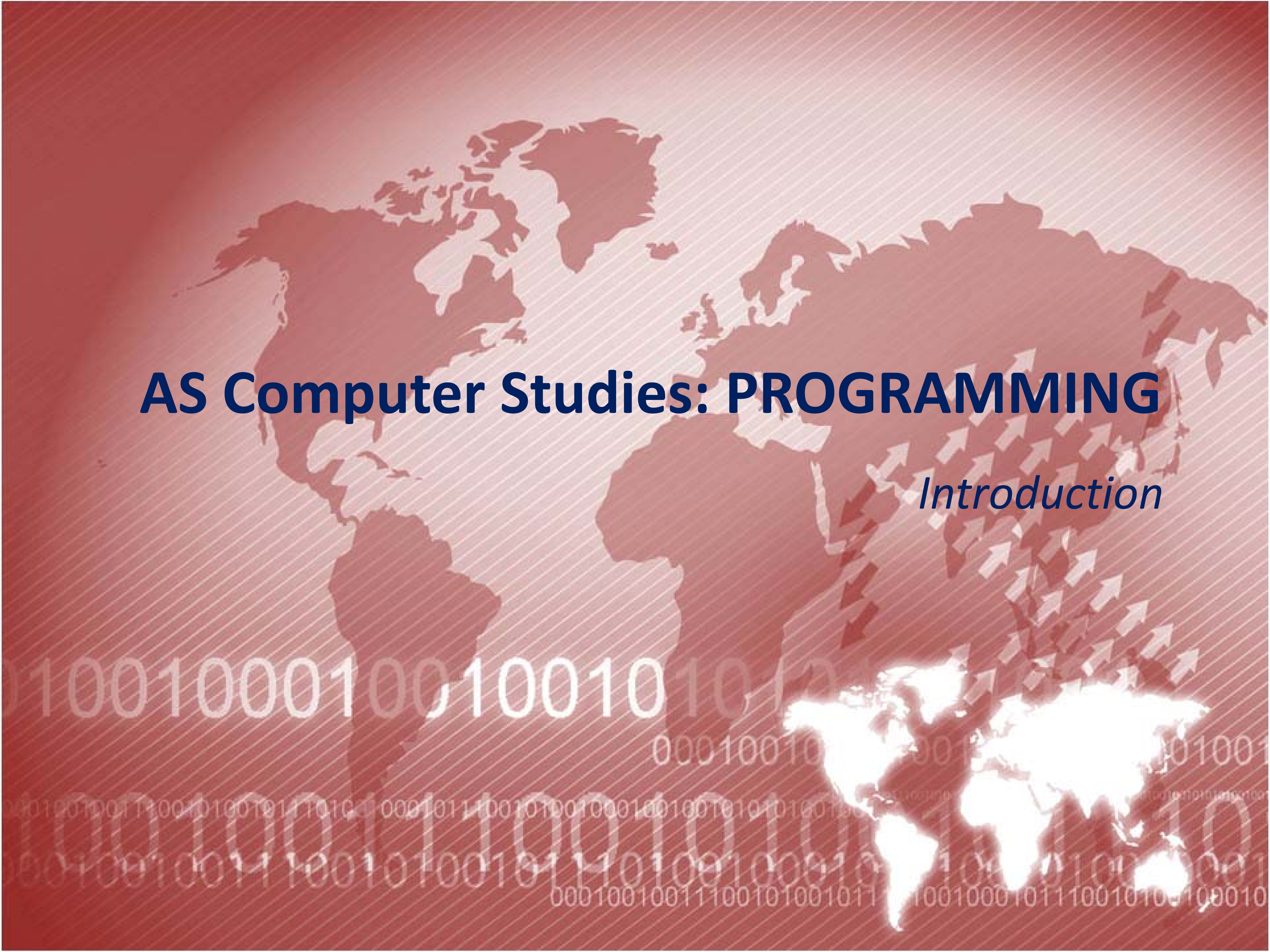


AS Computer Studies: PROGRAMMING

Introduction

Objectives

- Become familiar with the term “**Programming Language**”
- Become familiar with **the integrated development environment (IDE)**.
- Understand the ‘**house style**’ of the course, including commenting.
- Begin using **console commands**

Computer Programming

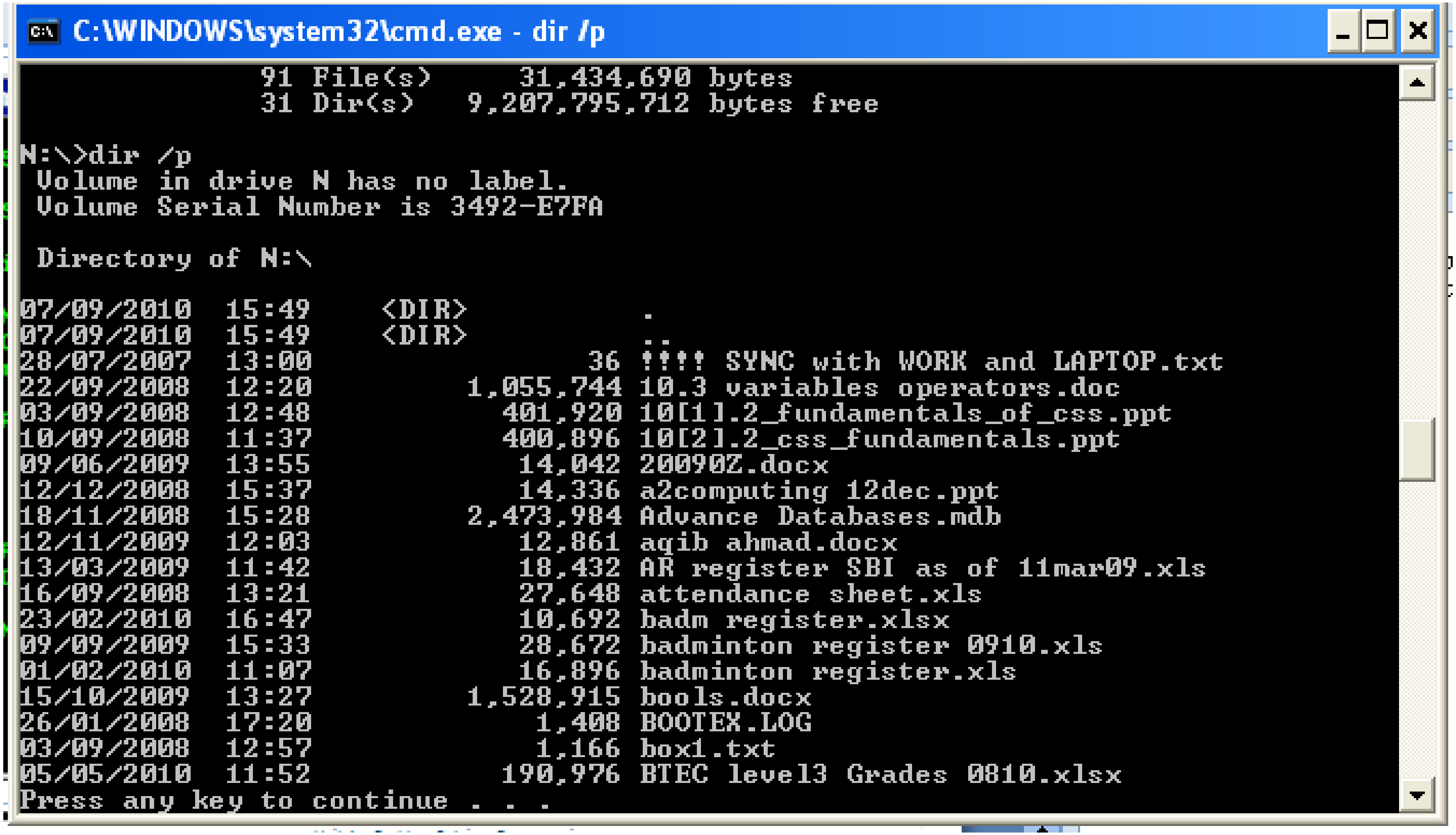
Computer Programming:

- "…is creating a sequence of instructions to enable the computer to do something "
- "…is the process of writing, testing, debugging/troubleshooting, and maintaining the source code of computer programs. This source code is written in a programming language."

Programming Language:

- "A programming language is a vocabulary and set of grammatical rules for instructing a computer to perform specific tasks"
- "A set of rules symbols and special words used to construct a computer program."
- **You will be using VISUAL BASIC.NET 2008 to write CONSOLE APPLICATIONS.**

A Console Application



```
              91 File(s)     31,434,690 bytes
              31 Dir(s)   9,207,795,712 bytes free

N:\>dir /p
 Volume in drive N has no label.
 Volume Serial Number is 3492-E7FA

 Directory of N:\

07/09/2010  15:49    <DIR>          .
07/09/2010  15:49    <DIR>          ..
28/07/2007  13:00                36 !!!! SYNC with WORK and LAPTOP.txt
22/09/2008  12:20         1,055,744 10.3 variables operators.doc
03/09/2008  12:48           401,920 10[1].2_fundamentals_of_css.ppt
10/09/2008  11:37           400,896 10[2].2_css_fundamentals.ppt
09/06/2009  13:55            14,042 20090Z.docx
12/12/2008  15:37            14,336 a2computing 12dec.ppt
18/11/2008  15:28         2,473,984 Advance Databases.mdb
12/11/2009  12:03            12,861 aqib ahmad.docx
13/03/2009  11:42            18,432 AR register SBI as of 11mar09.xls
16/09/2008  13:21            27,648 attendance sheet.xls
23/02/2010  16:47            10,692 badm register.xlsx
09/09/2009  15:33            28,672 badminton register 0910.xls
01/02/2010  11:07            16,896 badminton register.xls
15/10/2009  13:27         1,528,915 bools.docx
26/01/2008  17:20             1,408 BOOTEX.LOG
03/09/2008  12:57             1,166 box1.txt
05/05/2010  11:52           190,976 BTEC level3 Grades 0810.xlsx
Press any key to continue . . .
```

HOUSE STYLE (this will make sense soon)

- One statement (piece of code) per line.
- **indentation for each line (1 tab in) and additional tabs in to show code within iterations (loops).**
- Variable names - NO spaces, and always in lowercase
- **Naming conventions of variables**
- One variable - one purpose
- **Declare each variable or similar grouped items on their own line**
- ALL variables should be initialised with data
- **Option Explicit ON should be used (can be set as Default in VB.Net)**

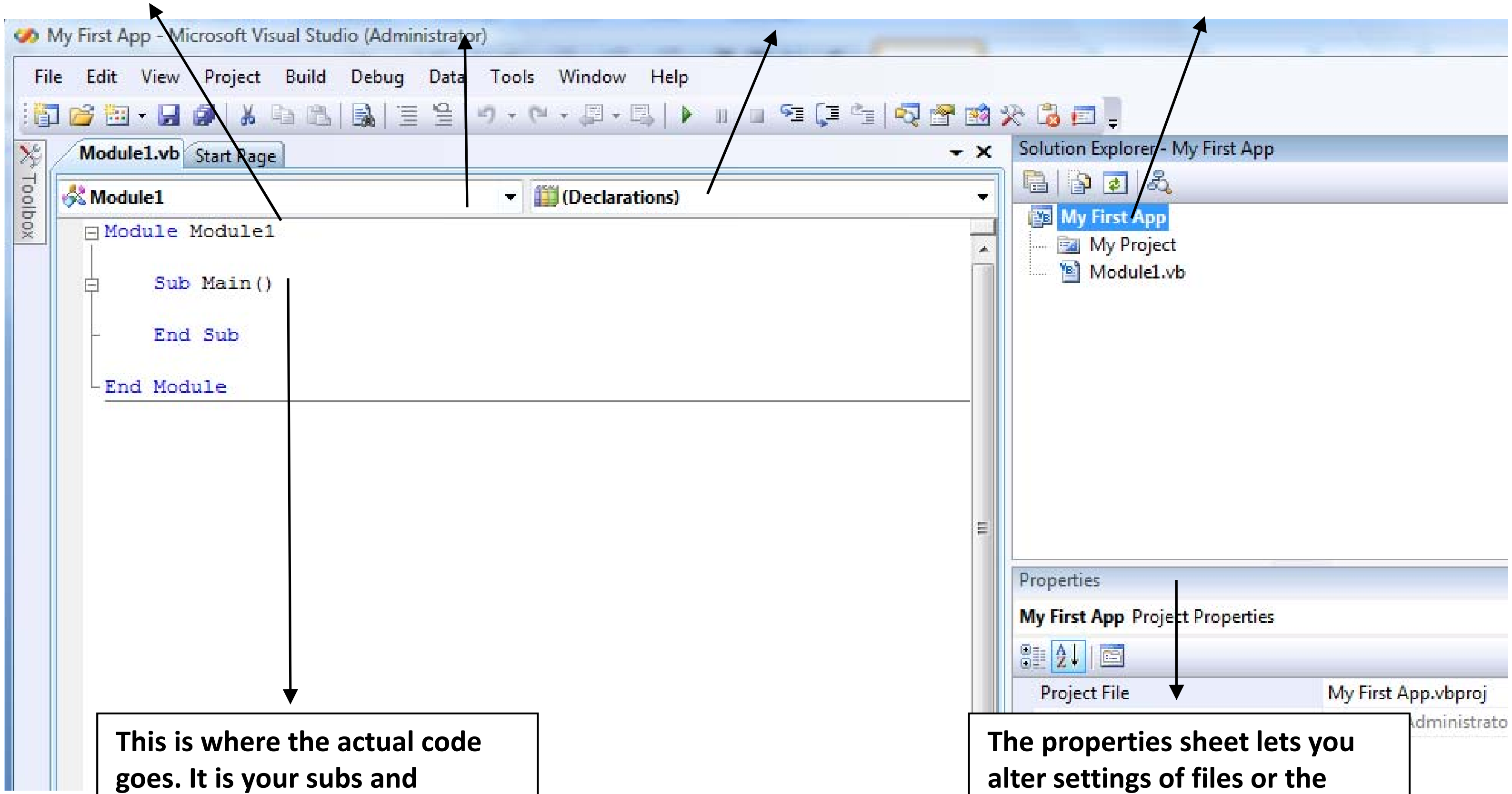
THE IDE

The start of your module code. VB stores code in different containers of code, making it easier to manage a project.

Module browser. It allows you to select different modules within your code, or access the “general” section of code (see later).

This is a declarations browser. It shows all the functions / segments of code, have been written, for you to jump to quickly.

This is the solution explorer. It lets you browser the physical files of your project and create new ones quickly.



```
Module Module1

    Sub Main()

    End Sub

End Module
```

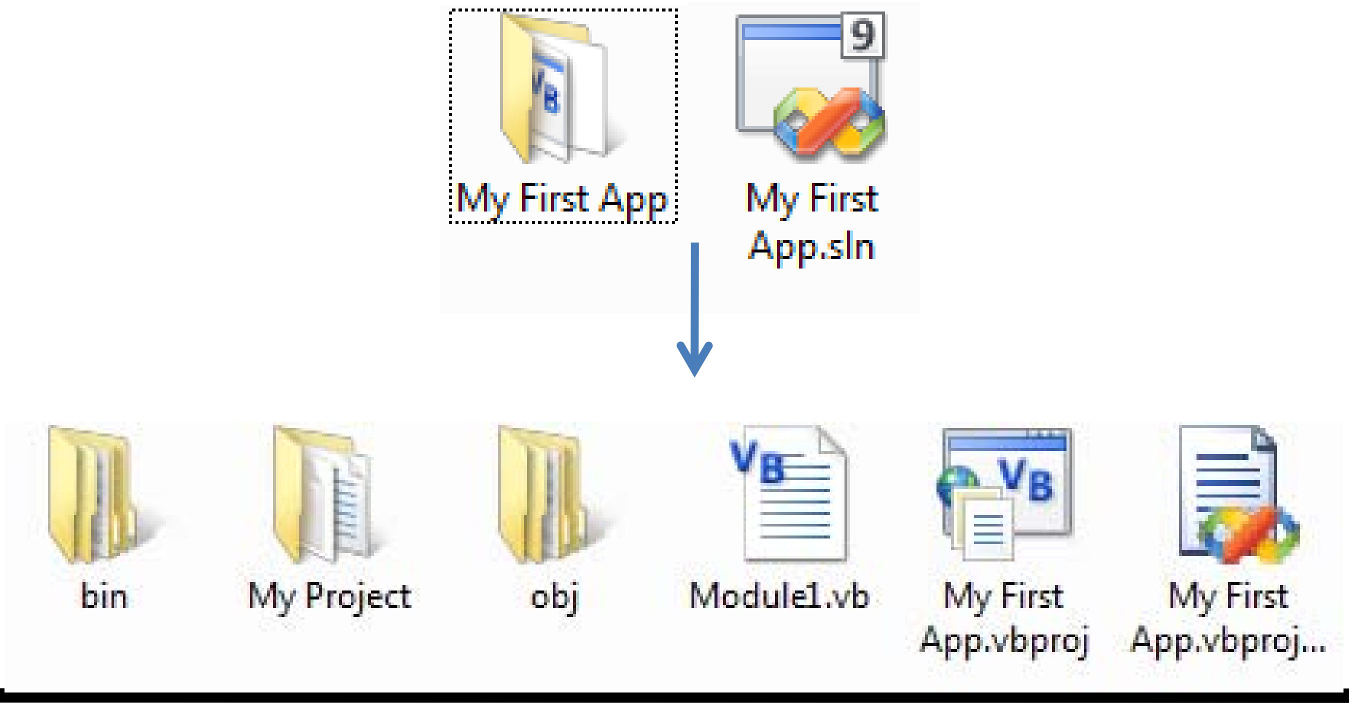
Project File: My First App.vbproj

This is where the actual code goes. It is your subs and functions within your module. Sub Main is where the program first looks when it runs.

The properties sheet lets you alter settings of files or the actual project. More useful when you are working with controls.

How files are saved

- **.VB files** – These are your modules, where all your code is kept.
- **.VBPROJ** files – These keep all your settings for your project.
- **Bin** folder – This is where VB places an executable file for your application (i.e. a program which can be used outside VB as a stand alone application).



Console Commands

Console Syntax	Description
Console.WriteLine("Message")	Displays a string of messages to the console and goes to the next line of the console.
Console.WriteLine(VARIABLE)	Display the contents of a variable on screen goes to the next line of the console.
Console.Readline()	Pauses the console, so you can see it on screen.
strName = Console.Readline()	Stores what is entered in the console, into the variable.
Console.clear	Clears what is in the console window
Console.Write(x)	Displays a message or variable but without a carriage return (i.e., the next message would be displayed on the same line)

What if things go wrong?

Execution Required	Key Combination
Step into the code line by line	F8
Step out of the code	CTRL+SHIFT+F8
Run up to the selected line (run-to-cursor)	CTRL+F8
Run / Continue running	F9
Insert a **break (stop) point**	Click on the grey bar to the left of the line of code.
Clear all break points	CTRL+SHIFT+F9
Error List (useful for seeing how commands will run before you write them in code)	View > Error List
Comments	‘ Place an apostrophe before you type, to leave a comment

Option Explicit
Creating, Saving, Running
Debugging
Using Console Commands

Demonstration

Using Visual Studio

Creating a ‘Hello World’ Application

Using Console Commands

Commenting and Debugging

Your Turn

- Attempt **TASK 1** of your **Programming Tasks** booklet.

- COMMENT YOUR CODE!
  - Eg to explain what some of the lines do – *‘outputs Hello World to the console’*

- Use your programming guide to help you.

- Remember: Programming needs **practice**, **practice**, and more **practice**. When you think you know it, **practice more**!

Objectives Review

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Plenary

- What have you learnt from today’s session?
- What have you found difficult?
- What do we need to do before moving on to real programming?
- What is an IDE?
- What is debugging?
- Describe some console commands.

Required Reading

- Each week you will be given **required reading**.
- If you fail to do this, you will 100% find the lessons which follow it EXTREMELY difficult.
- Before next lesson you should have read:
- **Pages 5 – 9 of your Programming Guide**.