

GATESHEAD COLLEGE

# Assignment 1

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**David Hanney - Student**

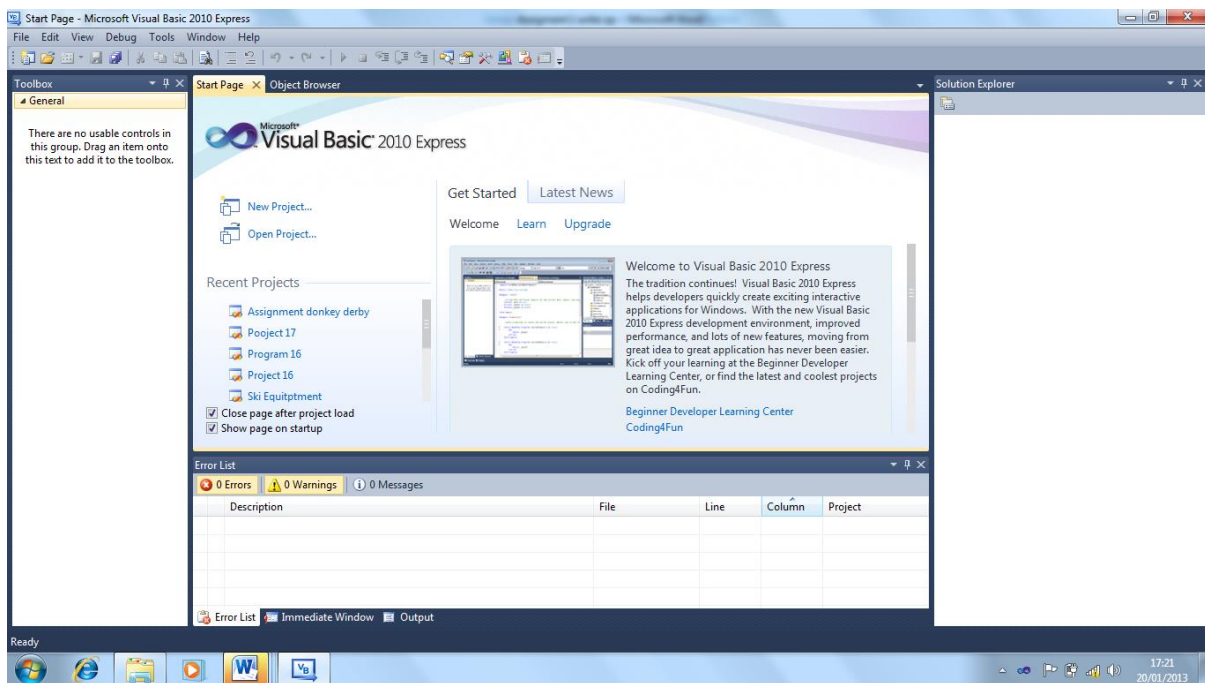
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# Integrated development Environments

IDE our integrated development environments are used in programs they offer editing creating and putting together and debugging all in one program they are several different programs that fall in to this category including C++ Visual basic and Java.



Microsoft Visual Basic an example of an IDE.

# Programing Languages

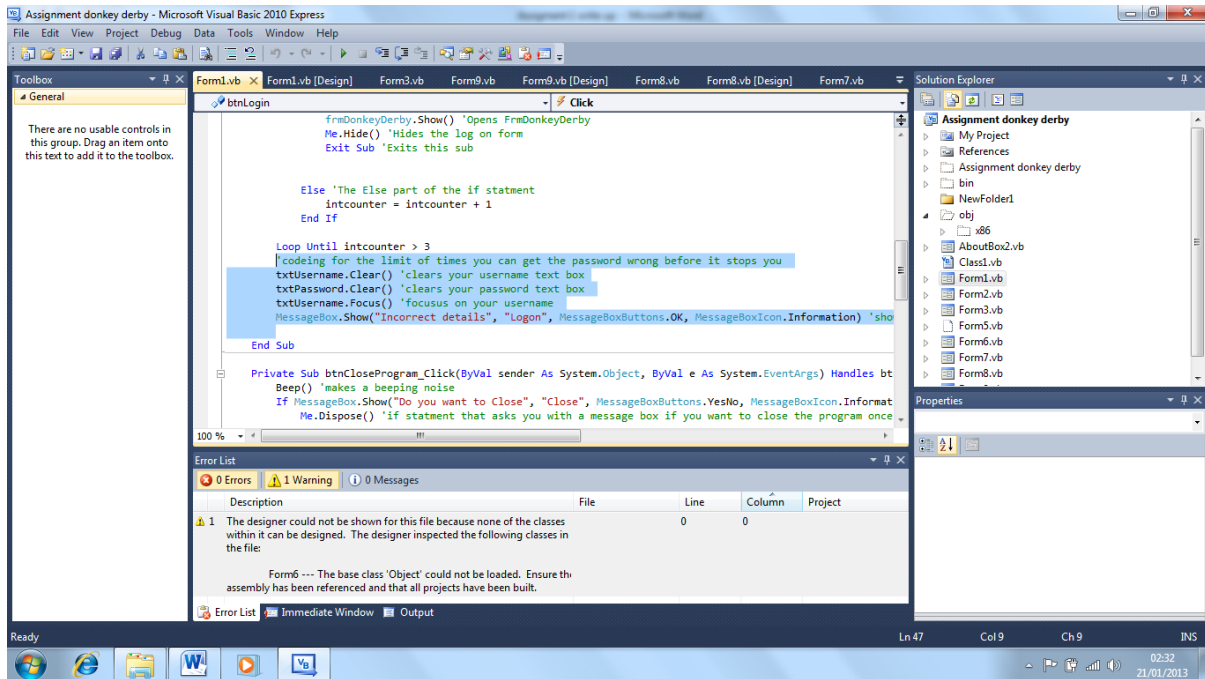
Programing languages are the languages used to right codeing and range from first generation that is binary machine code to fifth generation that is used to code AI.

They are three main paradymes that programing languages use. These are

Procedural Programming that specifies an exact order of operations or an exact sequence that the code should execute in.

Object orient programming is programming were the code is separated in to objects our code chunks this type of code allows the code for a specific object to be repeated as it is needed.

They is also Event driven that is explained in detail further on.

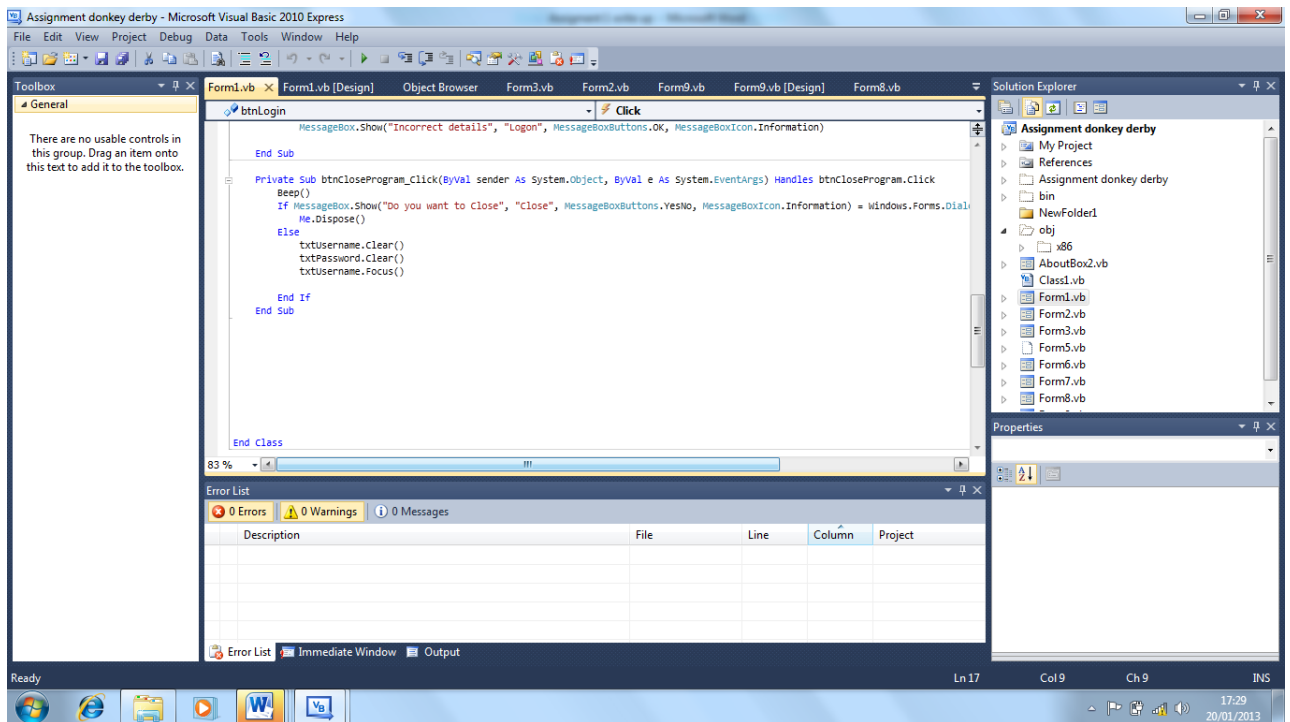


A simple program in programming language

## Event driven programming

Event driven programming is a programming style where coding is set to activate to respond to events carried out by a user of the program for example if a user clicks the quit button then the event driven programming will turn off the program.

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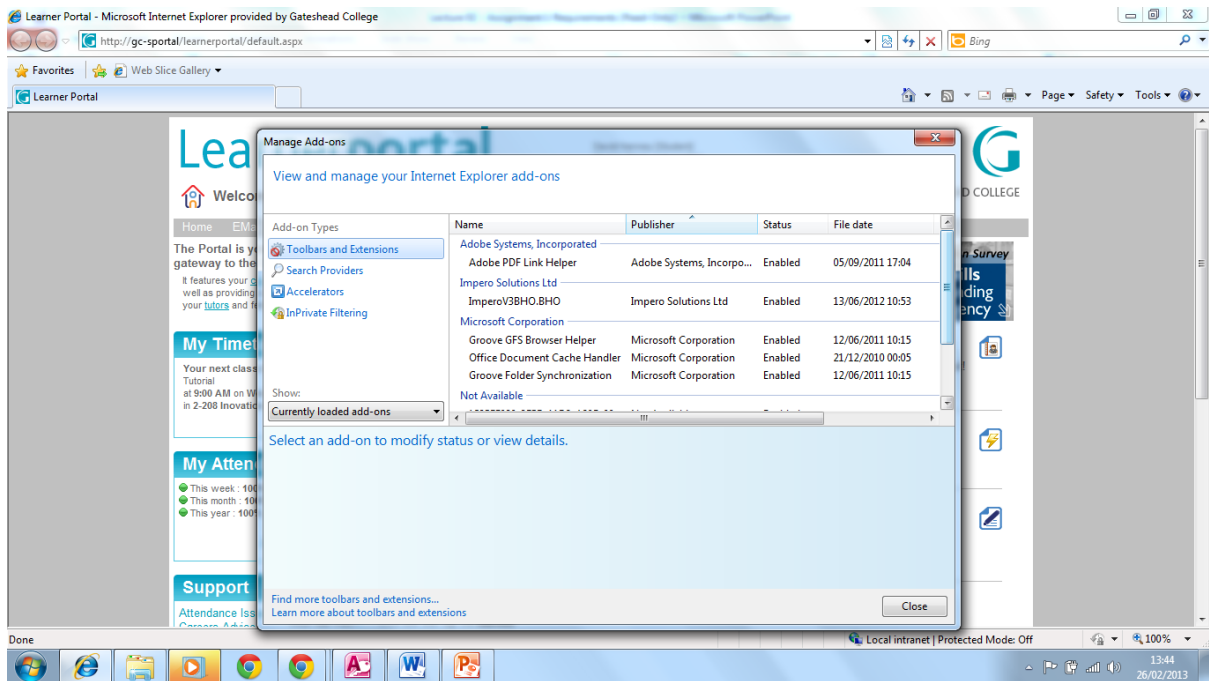
An example of an Event Driven program a quit buttons code that activates once a button is clicked and shuts down a program.

## Service Oriented

Service oriented programming is programming that provides a service to the user and is ready to use and allows maximum flexibility and depth.

An example of service orient Program would be add ons for the internet such as internet tools bars such as the Adobe pdf link helper

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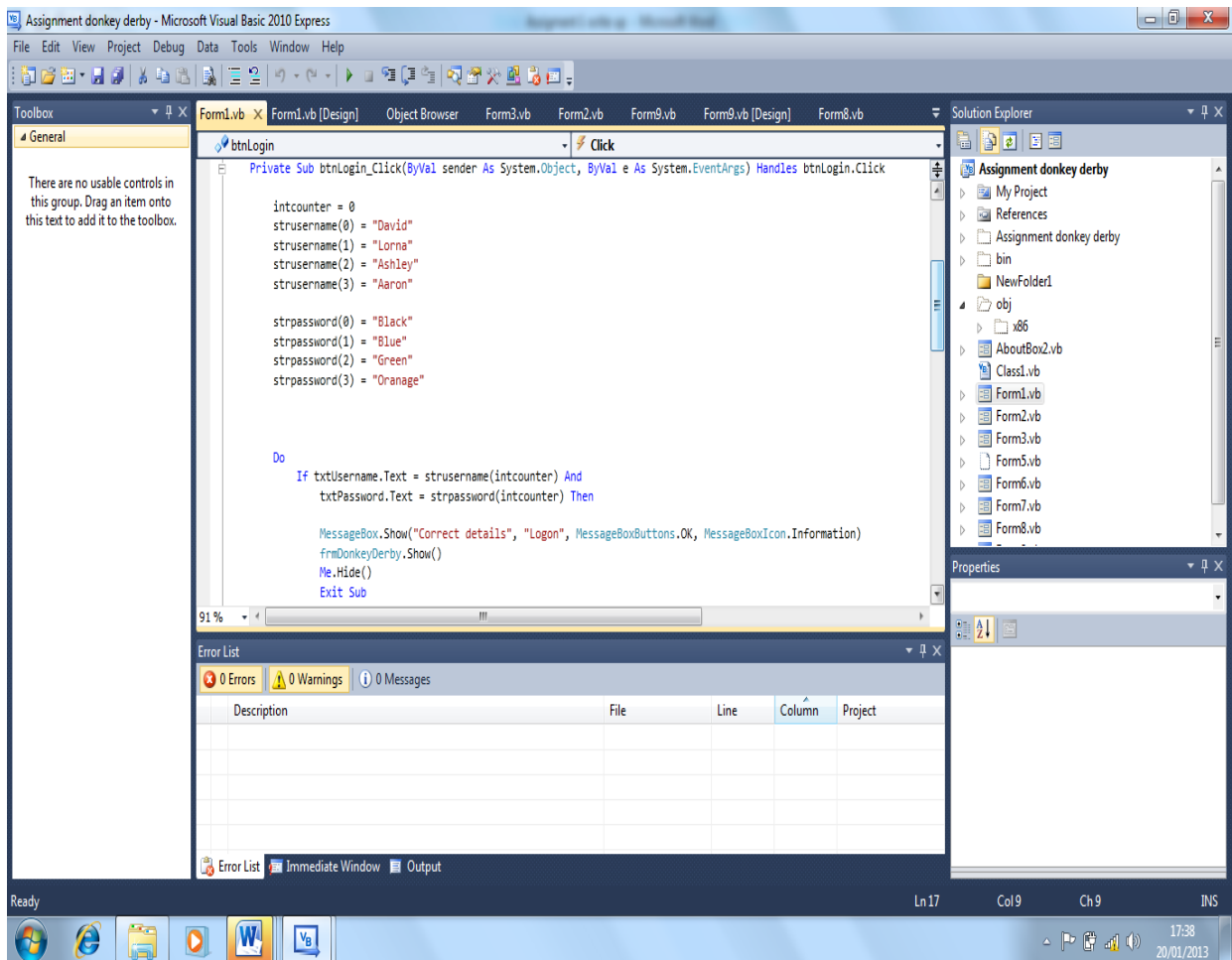


An example of a service orient programming tools bars and extensions used by internet explore

## Events

Events in programming are when a certain event is activated when certain conditions are met for example when you click on a button and it carry's out a certain function in the system. Eg Login in by checking the username box and login in by the pushing of a button

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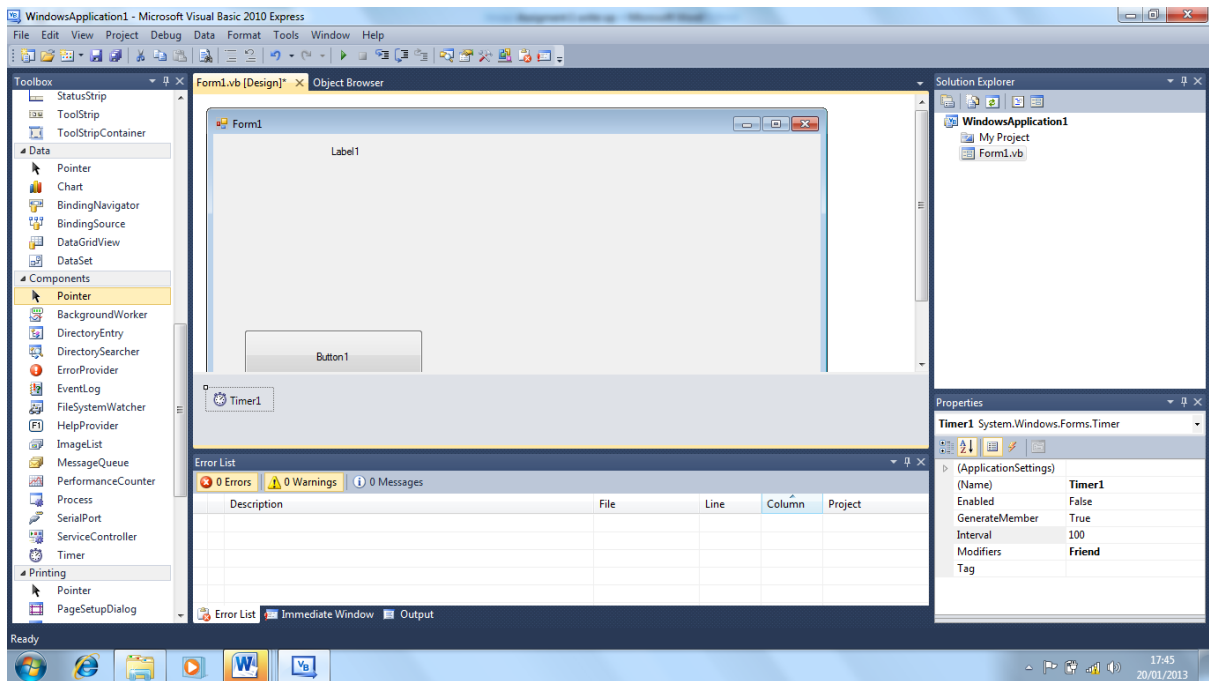


An extract from part of the event for logging in to a system that check's entered information against set properties then if its right logs in.

## Time driven

Time Driven programs are carried out by timers that can be placed on the system that will activate after a set amount of time that has been specified by the programmers an example of a time driven program would be a system logging you out if you leave it Idle for too long.

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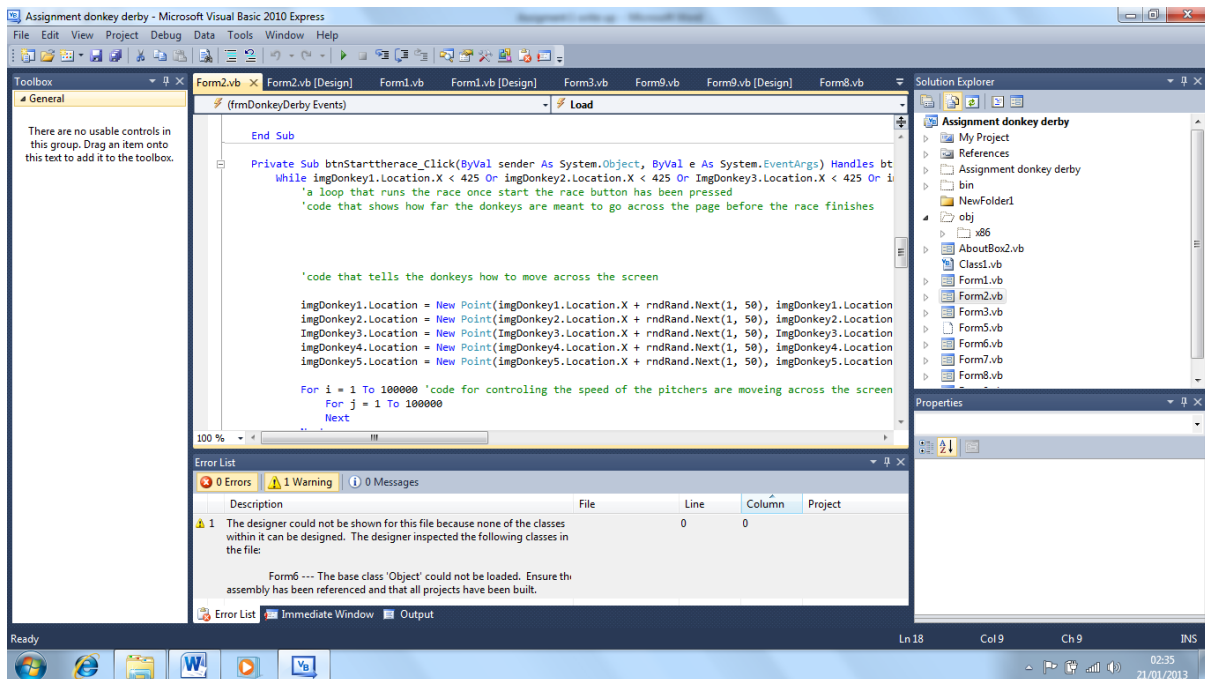
A timer that is used to run a time driven program

## Event loops

Event loops are event driven parts of the program that have been set to loop themselves until a certain condition are met by **either** the users input of the system codeing. An example of a loop would be the system repeating itself a certain number of times on the log on screen if the wrong details were entered.



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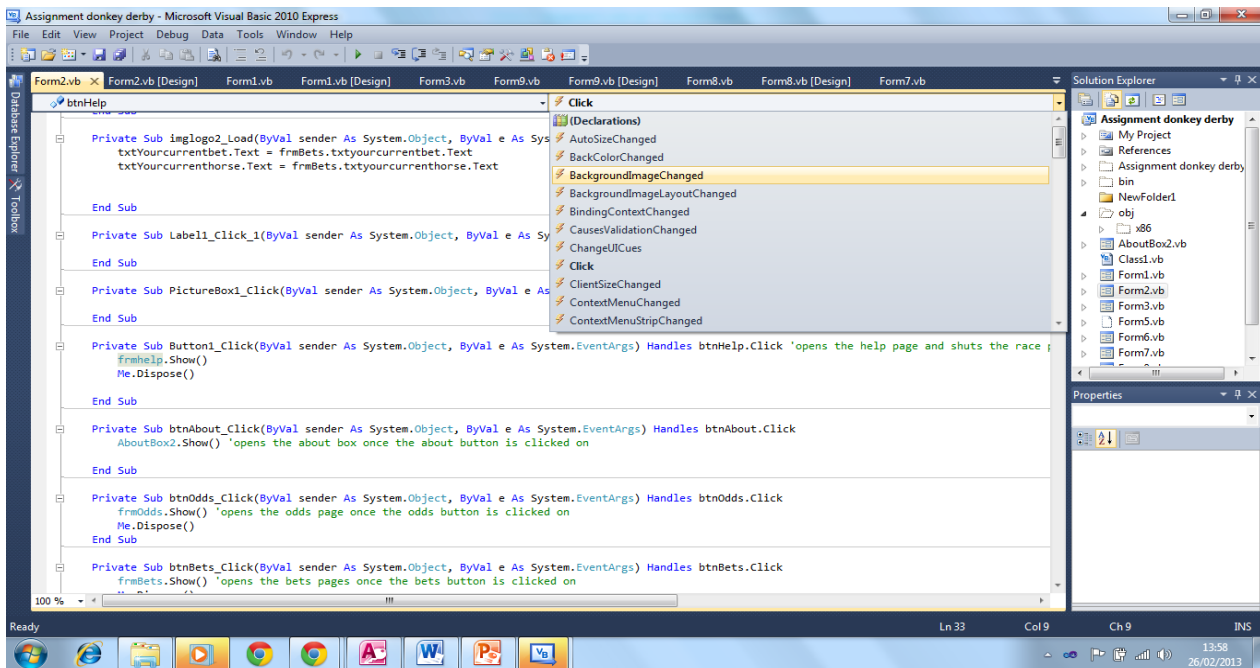


The start of a loop that runs the donkey race in game.

## Event handlers

Event handlers are the parts of the program that handle the execution and control of the events present in the system for example an event handler can be used to execute the order to restart a system that might crash if it has been coded to do that to the system.

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This is a screen shot of the event handlers the open drop down box shows these and each event handler in VB is denoted by a lightning bolt the current event handler for this piece of code is Click

## Triggers Functions

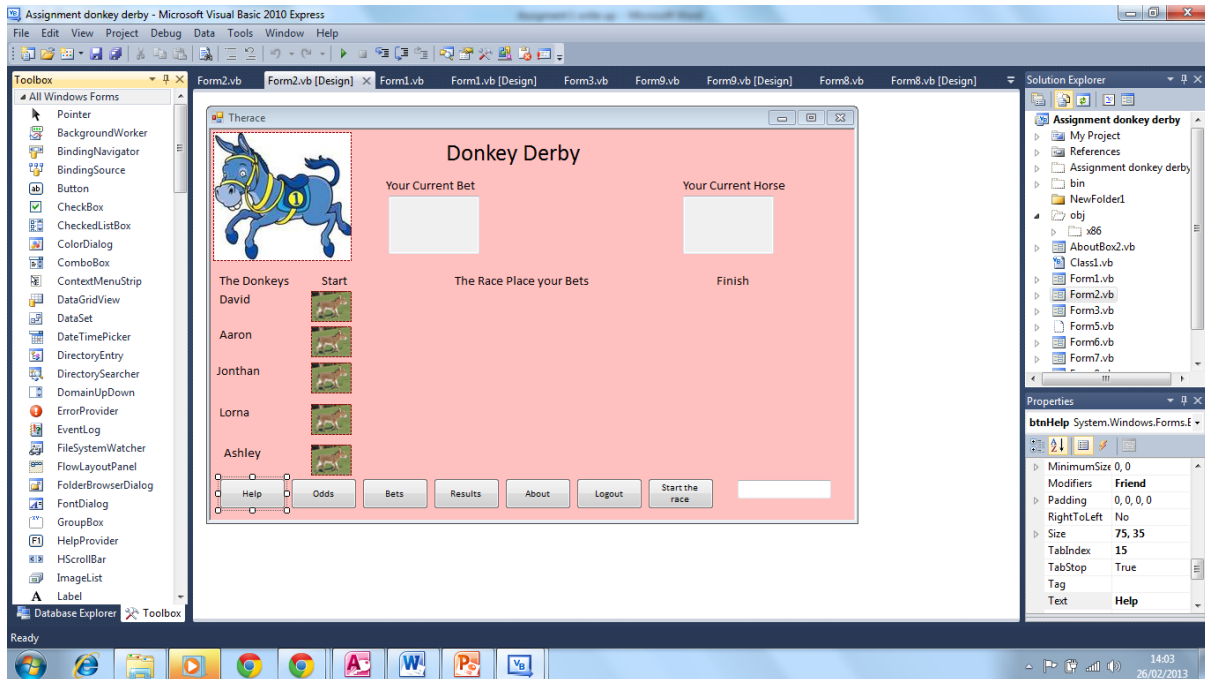
Triggers are a part of a system that are used to set events in motion they activate the code once certain conditions have been met for example a program that is coded to show a winner it will only show the winner once the end of the race triggers the running of that code.

## Ease of development

The Ease of development of a IDE is that the development programs are built to show tool tips about codes and mainly provide a representation that allows you to select were you want certain things to go on the program it also allows

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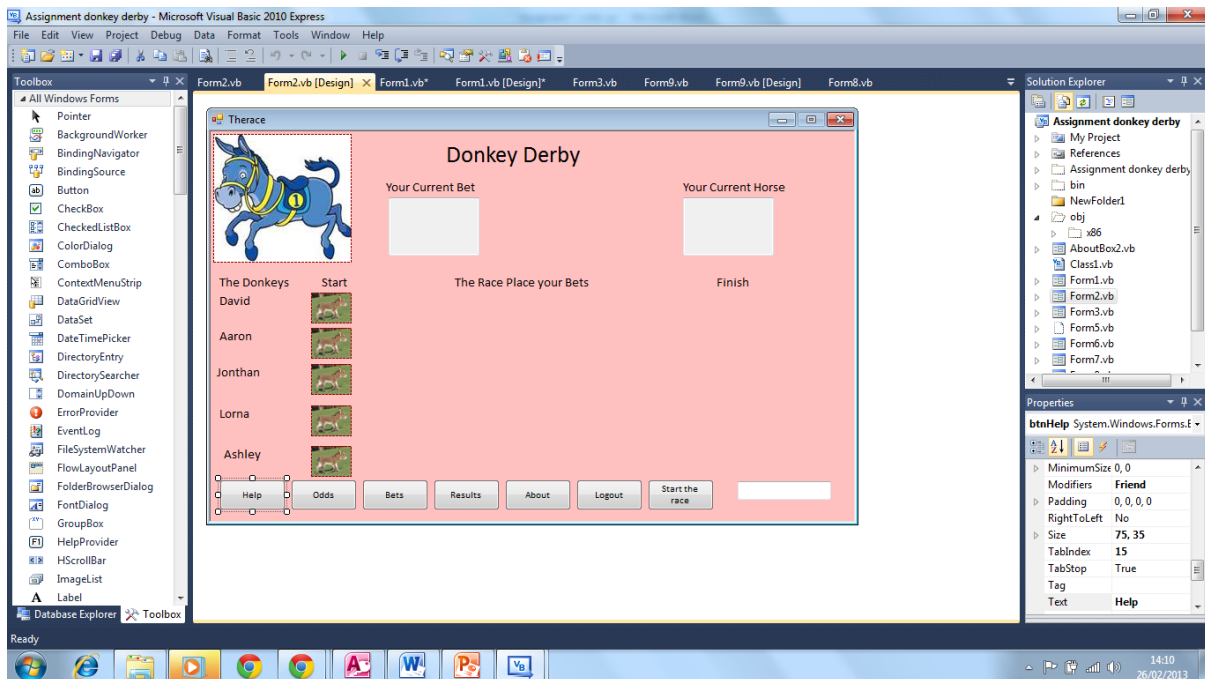
you to preview your work without publishing it and provides error checking and debugging to help locate problems.



This is an example of the IDE Visual basic they features shown on this are the tool box that has all of the options for what you want to drop on to the program the solution explorer that acts as the my documents and file searching application in the project tool bars and shortcuts at the top for example the ability to open the file toolbar our save and open projects by clicking the one button while there is also a properties box that allows you to edit the properties of each object for example the text is contains.

## Flexibility

Flexibility is the ability to allow the program to carry out a range of tasks at once it also allows the programmer to change the use of the program quickly and easily to try a new idea to sort a problem out to implement a new requirement.



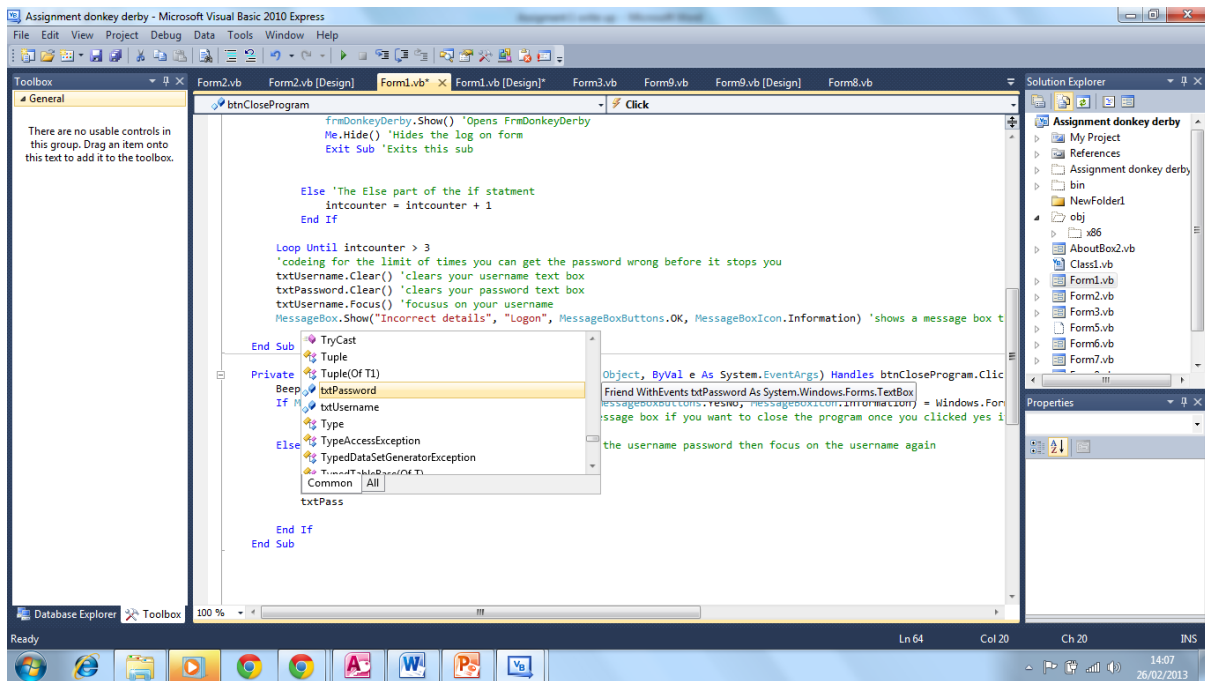
This screen shot shows the flexibility of the IDE by showing that they is the property's box that allows you to easily edit multiple feature of the current selected object such as the background colour text size font and text colour

Another example of the flexibility of the IDE is the ability to copy and past objects that can be resued multiple times for example the buttons

## Simplicity of programming

The simplicity of programming is the programs aiding programmers and allows the use of an easy to understand and utilise a programming language it also provides tool tips and shortcuts to certain functions to allow quick coding with minimal chance for mistakes. This includes intellisens that is shown in a example below that shows you the how to write the code while you are busy typing it up by providing a list of options

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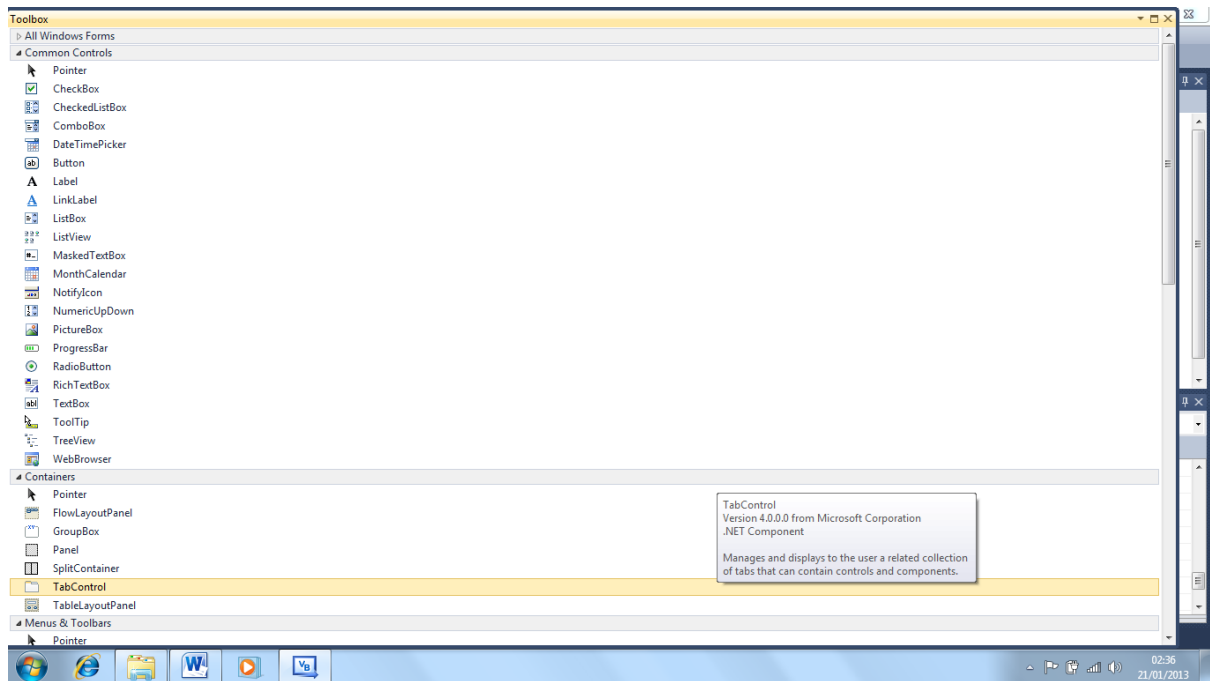


## Toolboxes and controls

Toolboxes and controls are provided in a toolbox on the screen they provide little icons and a name of the function and allow you to instantly place that function on to the program with minimal problems allows you to quickly design your program with the **necessary** infrastructure that are required with minimal effort and allow for easy standardisation.

Controls are usable **infrastructure** that you put on the program these help ease of development as they are already created and can be used for many functions and allow you too simply code in what the particular function you want it to carry out.

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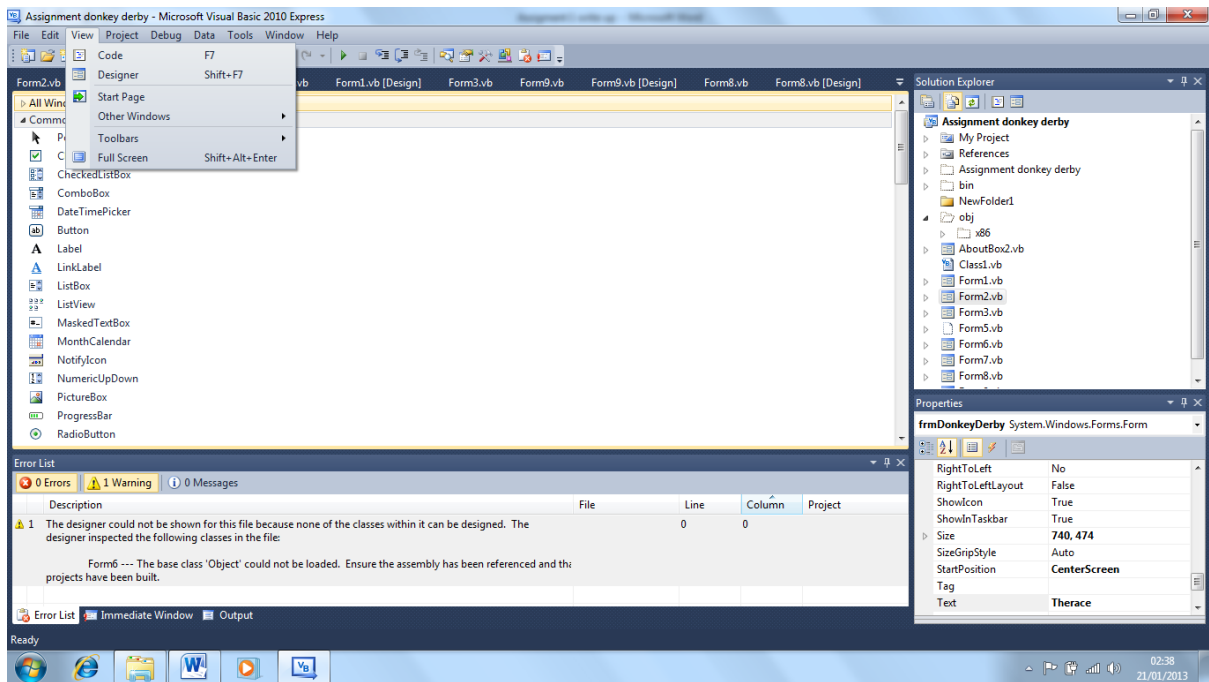


Screen shot of visual basics toolbox

## Toolbars

Toolbars help in the simplicity as that provide an always present bar that allows you to select the programs help feature and groups common controls together to allow easy access to them.

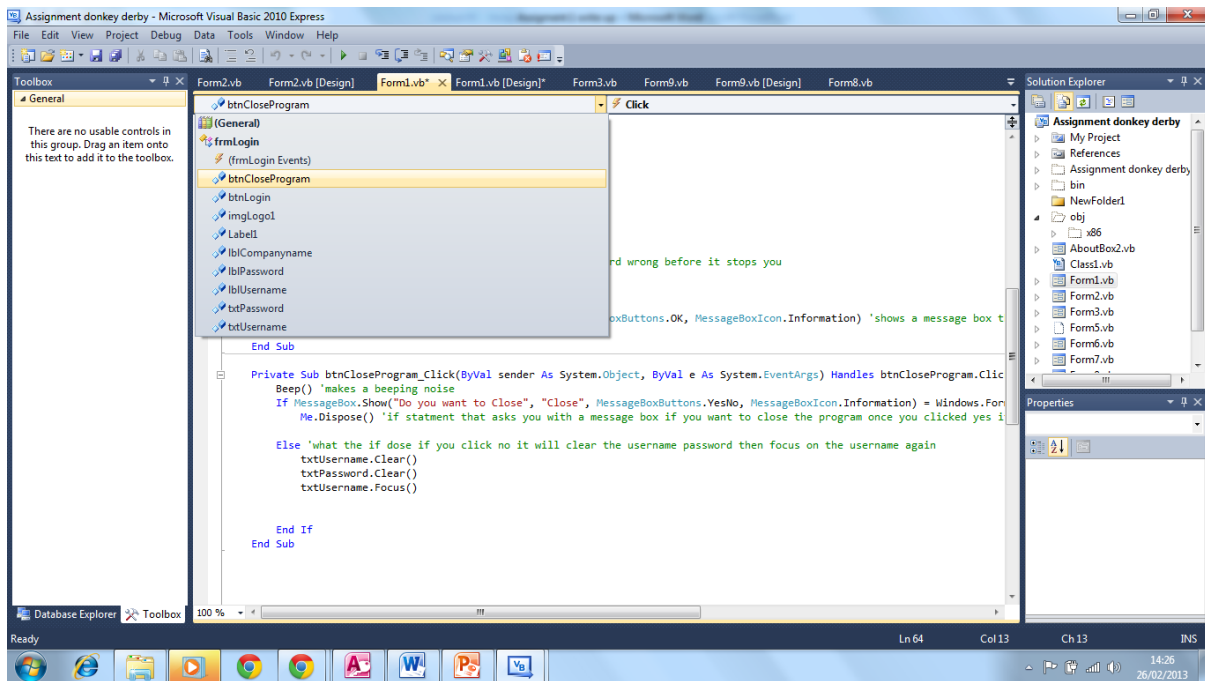
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The view toolbar in visual basic

## Event handlers

Event handlers are provided by the system to allow you to set up complicated systems and they are used to help handle the events that are placed in your system



This screenshot shows the range of the event handlers that can be used in to allow you to choose what will handle the event this feature is shown in VB by the two boxes the currently chosen event handler is the close button on the program

## Triggers

Triggers are used in the development to allow you to decide when you want certain bits of code to activate and to allow you to dictate what events are meant to happen and in what order.

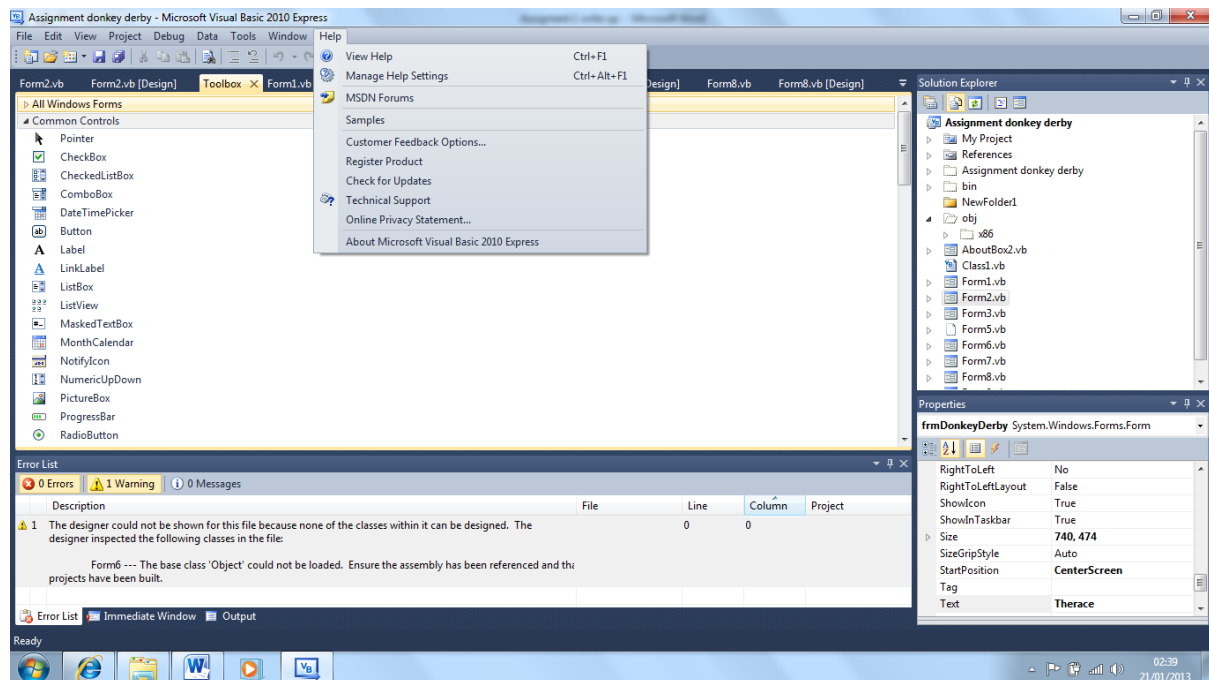
## Help menus

Help menus are menus that provide help on the building of the system and are provided to allow you to get help on constructing your system to find out what different controls do they can also be used to help you by giving you the



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option to view the help once you reach a certain point of the system or if you have put in invalid coding.

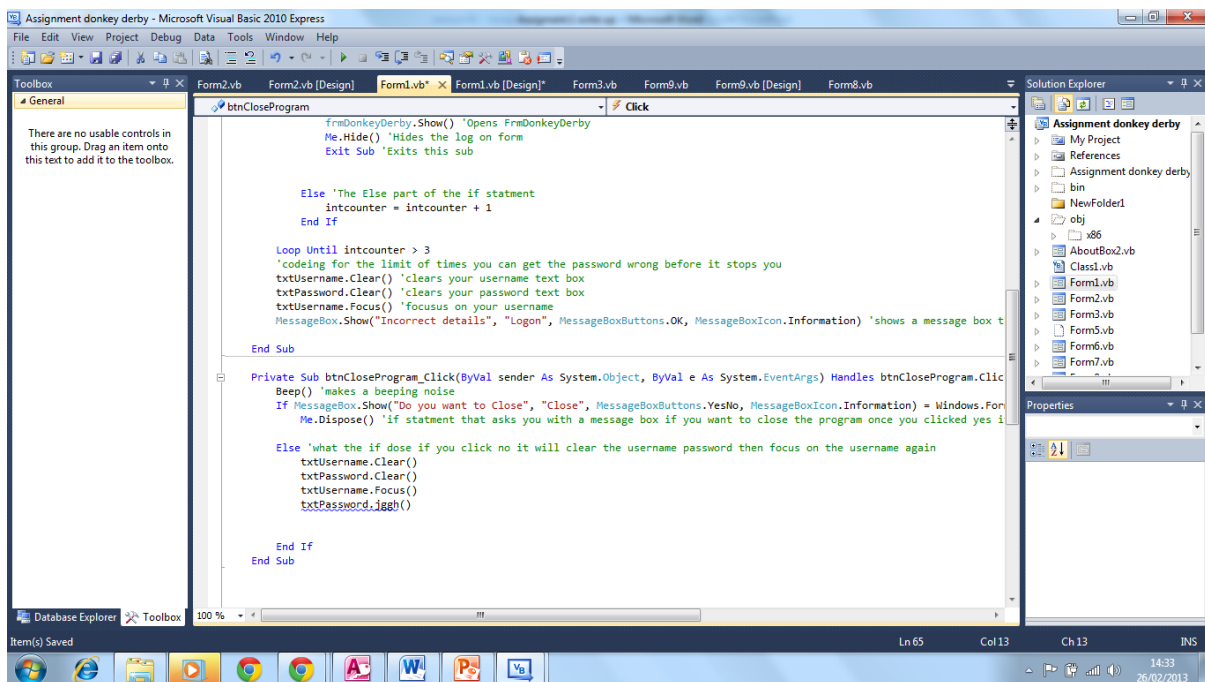


Help menu in visual basic

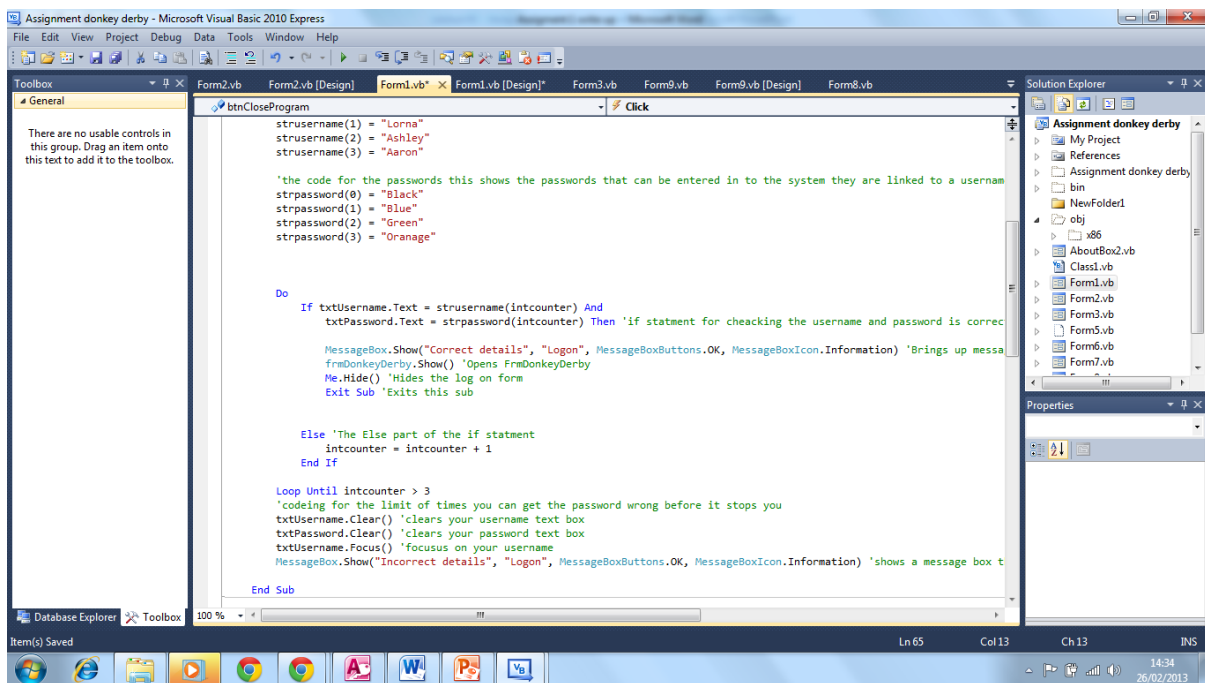
## Debugging tools

Debugging tools are used to check your code this allows you to see if the system works to your specifications and will also enable you to locate any broken code they system also will highlight any code that is wrong or does not work with a blue line if it has been typed wrong in the code view or will highlight code that does not work in yellow when running in debugging mode it also provides an explanation of the problem and provides solutions or access to further help pages.

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Debugging in visual basic showing code that is incorrect by having it underlined this is debugging for the coder.



This screenshot shows a code that flags up an error to the uses by resetting the password if they have three wrong attempts this is done by running the code that checks and giving you an error message in a message box if it is incorrect

## **IDE overview**

The IDE allows you to create your program by designing it exactly how it will look once it had been published it also help by providing all the tools necceary to build the program from labels and text boxes to buttons and the ability to enter code to make a fully functioning program in one place with plenty of assistance.

## **The features of an event driven language that make it suitable for creating a GUI**

The features of an event driven language that make it suitable for creating a GUI are that the graphical user interface can be created from scratch and the language can be set to run of certain elements of the GUI for example a button click straight from that button being clicked on.

Events driven languages are already included in IDE development programs allows the creating of a GUI using them.

Event driven languages have trigger functions that allow certain functions of the GUI to be set to trigger the coding.

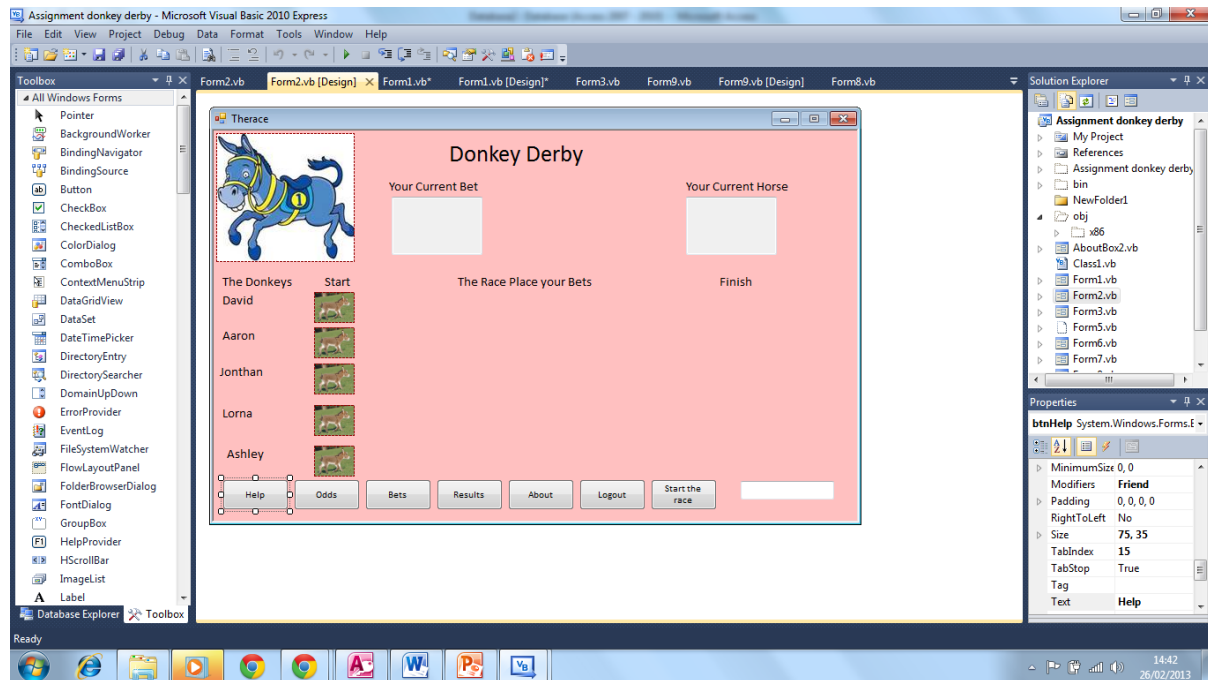
Event driven languages run using Events and events are used by Graphical user interfaces when a user clicks something.

They can also be set to loop a certain part of the system that allows the creation of a game that can be played out in graphics on the GUI.

They ease of development allow the user to combine that with the ease of development a GUI to make an effective program in the shortest time possible.

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Being time driven allows them to activate the GUI and a certain point of the GUI after a certain amount of time allows the system to run on its own and just show information to the user.



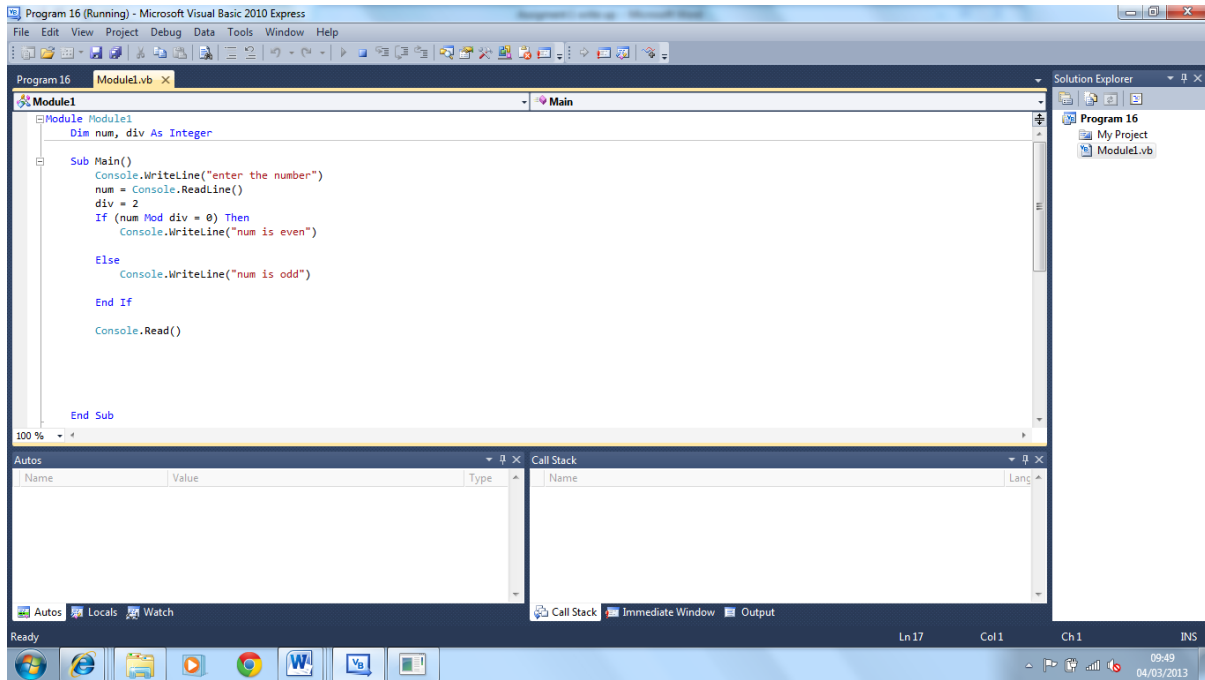
I have implemented event driven features as on this GUI the buttons activated navigation and action events by for example starting the race by clicking the start the race story I have also implemented a loop by the donkeys looping constantly until they reach a certain location on the GUI this allows the game to automatically run and play out they also have the ease of development and the user can see were things will appear in the finished product as it works on drag and drop as I dragged and dropped the images and buttons on.

## Evaluate the suitability of event driven programs for non-graphical applications

They are both advantages and disadvantages of using event driven programming for a non-graphical application.

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Advantages are once again its ease of use allowing a user to make an application in the quickest amount of time possible also the familiarity of the language will allow the user to be able to make both types of programs.



The screenshot shows the Microsoft Visual Basic 2010 Express IDE. The main window displays the code for a console application. The code is as follows:

```
Module Module1
    Dim num, div As Integer

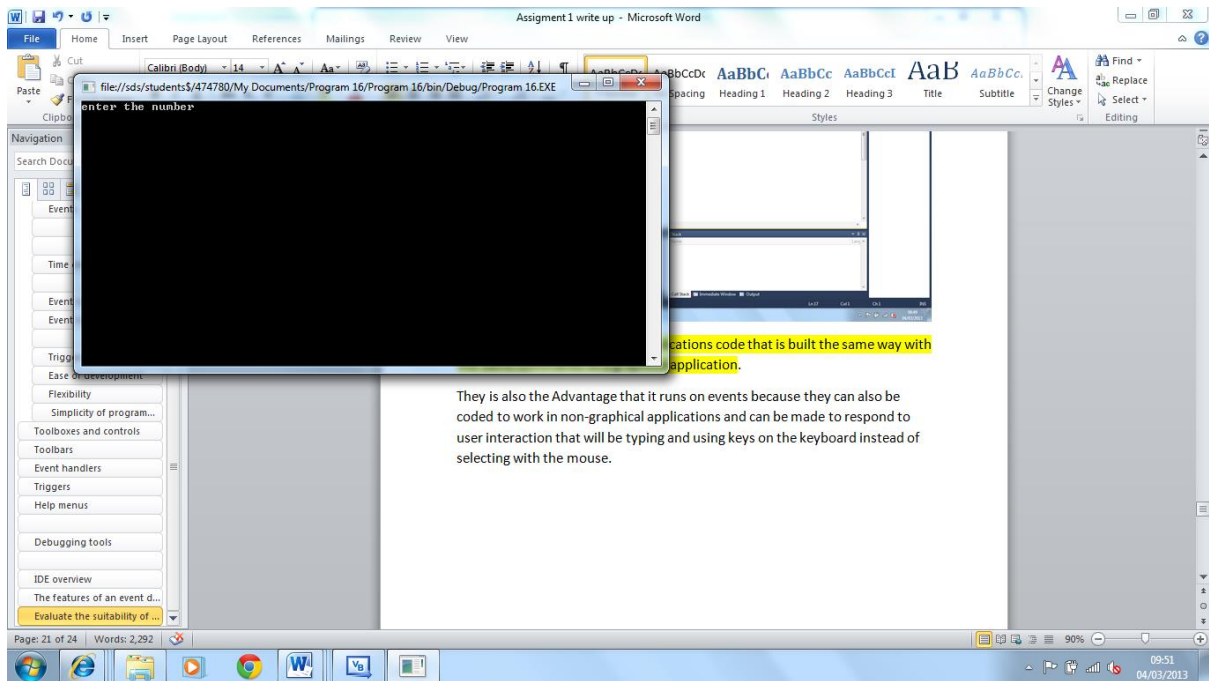
    Sub Main()
        Console.WriteLine("enter the number")
        num = Console.ReadLine()
        div = 2
        If (num Mod div = 0) Then
            Console.WriteLine("num is even")
        Else
            Console.WriteLine("num is odd")
        End If
        Console.Read()
    End Sub
End Module
```

The IDE interface includes a menu bar (File, Edit, View, Project, Debug, Data, Tools, Window, Help), a toolbar, a Solution Explorer on the right showing the project structure (Program 16, My Project, Module1.vb), and a bottom status bar with tabs for Autos, Locals, Watch, Call Stack, Immediate Window, and Output. The status bar also shows the current line (Ln 17), column (Col 1), character (Ch 1), and the current language (INS).

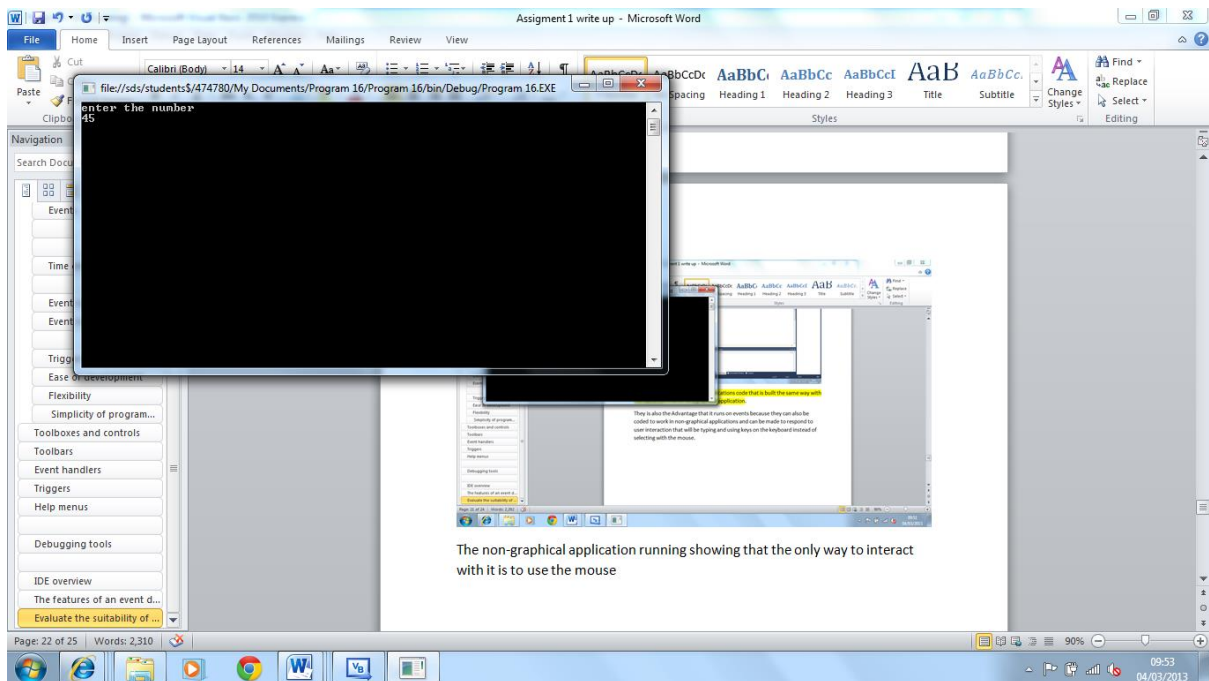
VB showing the non-graphical applications code that is built the same way with the same commands as a graphical application.

They is also the Advantage that it runs on events because they can also be coded to work in non-graphical applications and can be made to respond to user interaction that will be typing and using keys on the keyboard instead of selecting with the mouse.

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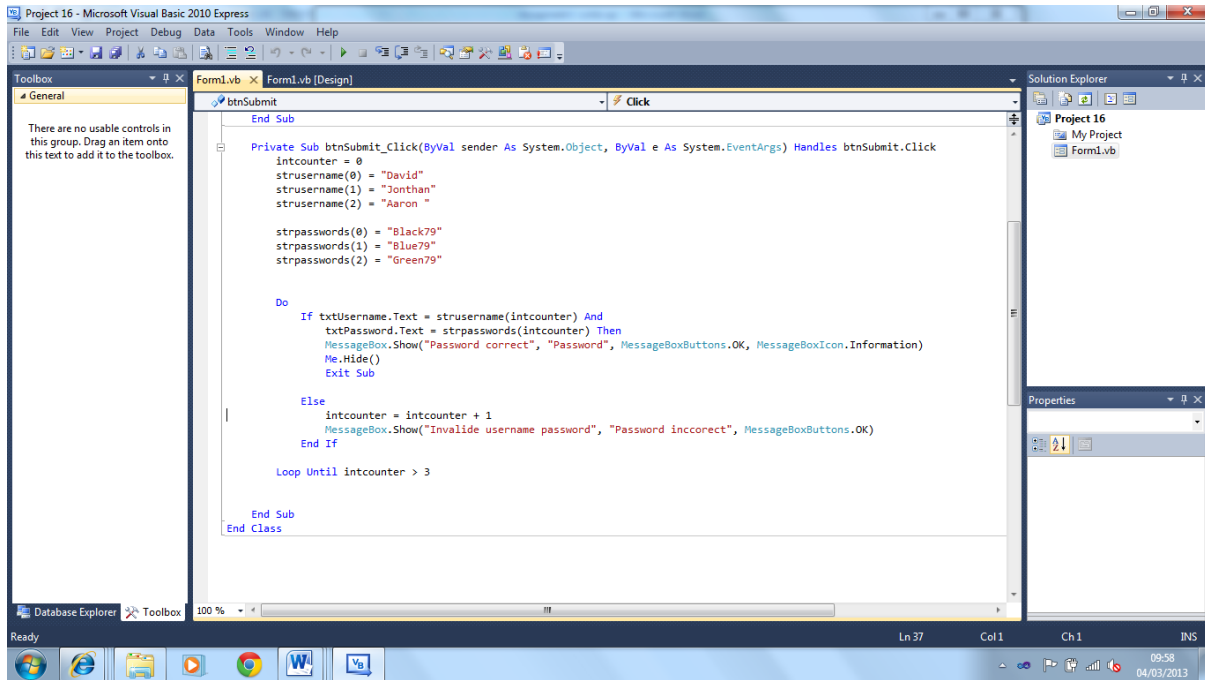
The non-graphical application running showing that the only way to interact with it is to use the keyboard



Same program after something has been typed in

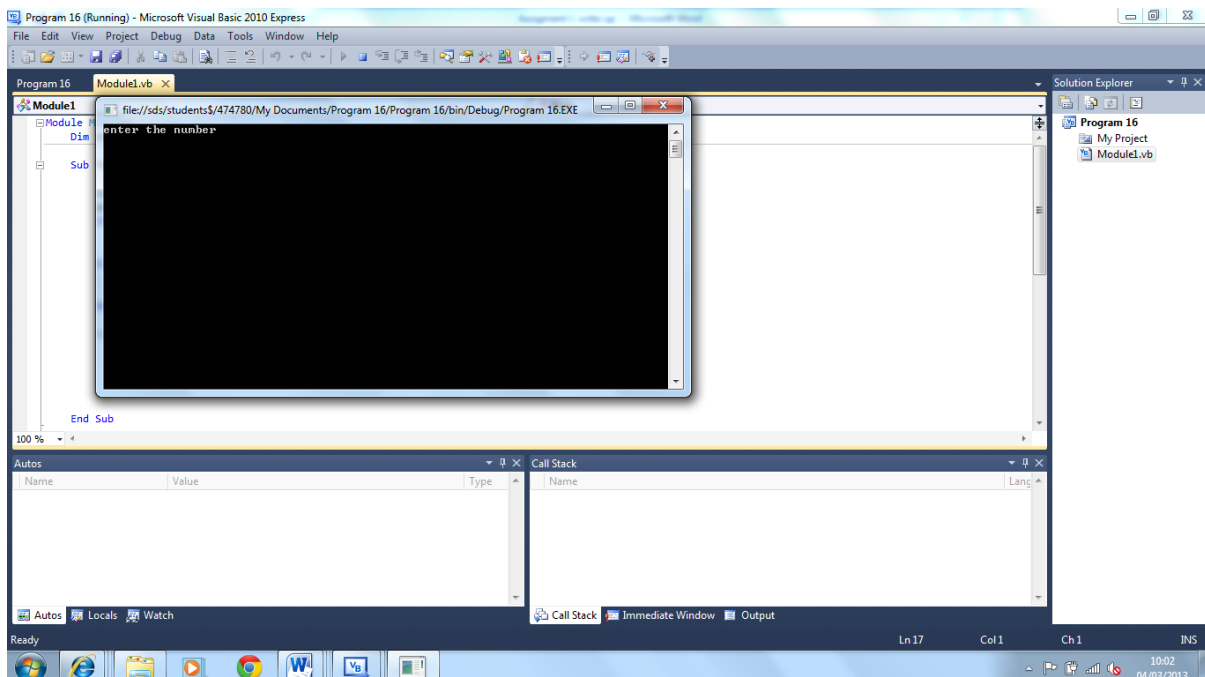
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Loops are also another advantage that can be used in the event driven programming in a non-graphical application that allow the creation of looping programs that will allow the system to constantly carry out reparative tasks.

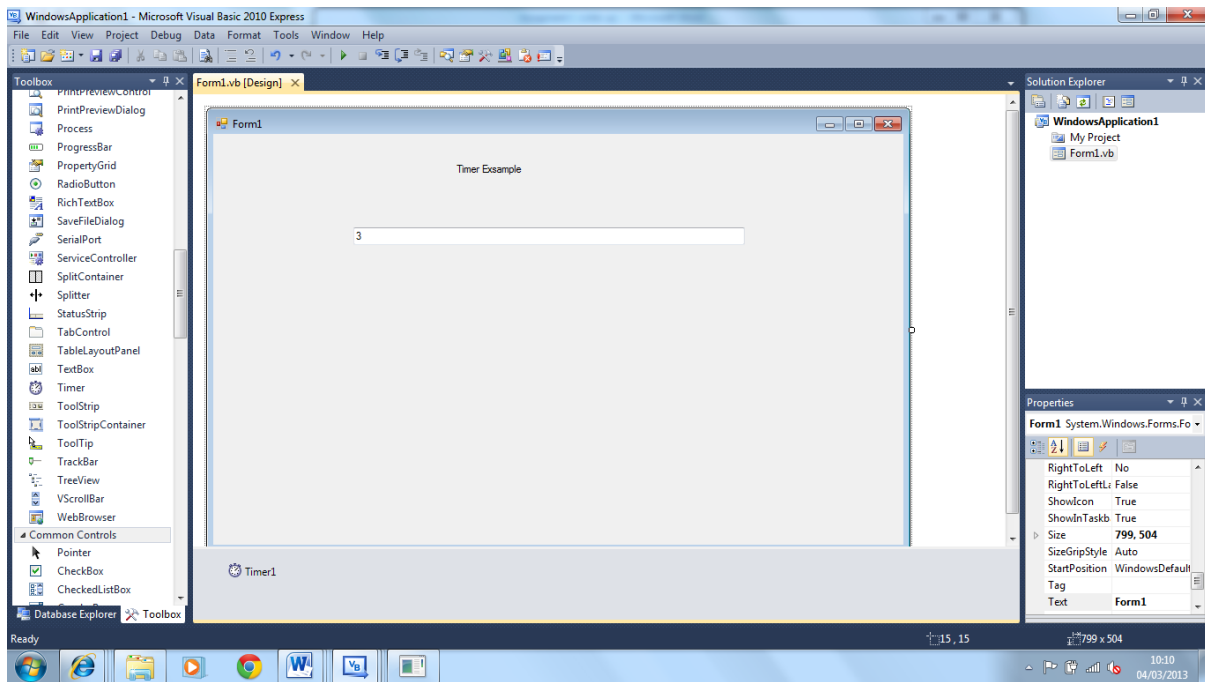


### Screen shot showing the example of a VB loop

However they are disadvantages as the time driven function will have be coded in separately as they will be no timer function available for the non-graphical application.



## Non graphical application showing no timers



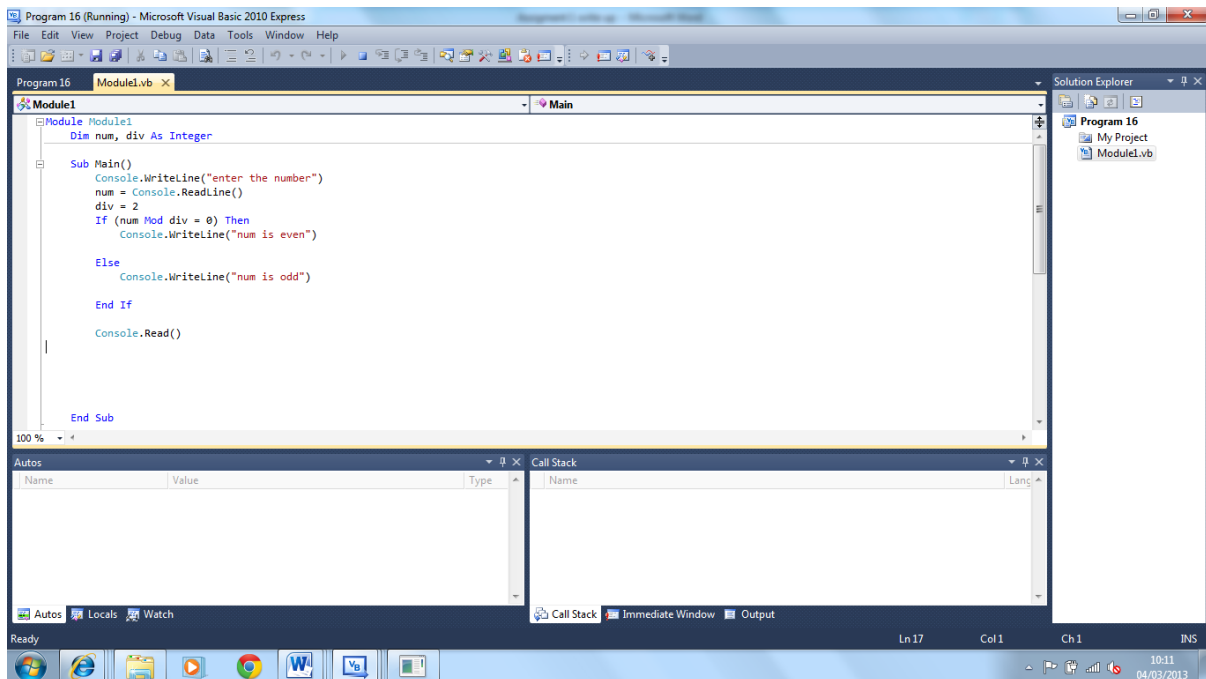
## Graphical application showing the timer function at the bottom

All events have to be manually separated they is not **separating** events via different items on the interface since they is only one interface that does not contain separate items.

Move functions and function that effect the graphics and open up other areas of a graphical program become obsolete on a non-graphical application meaning that the screen can become clogged in the coding section.



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Codeing window of the non-graphical application the only design window present for them

They for in my finial conclusion while event driven languages are suitable for creating a non-graphical application but are not the best language to use and they will not be as effective to create these programs as effectively as they are to create a GUI.



