Communication Technical Engineering Department

2nd Stage

Visual Basic - UOMU0207036

Lecture 1 – Introduction to Visual Basic

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Objectives

- Visual Programming Language (VPL) is any programming language that lets users **create programs** by manipulating program elements graphically rather than by specifying them textually.
- VPL are widely used for the rapid development of graphical applications. This subject will introduce students to the fundamental principles of the term **Event-Driven Programming**.
- An additional aim of this subject is to give students an understanding of the main ideas of **Human Computer Interaction (HCI).**

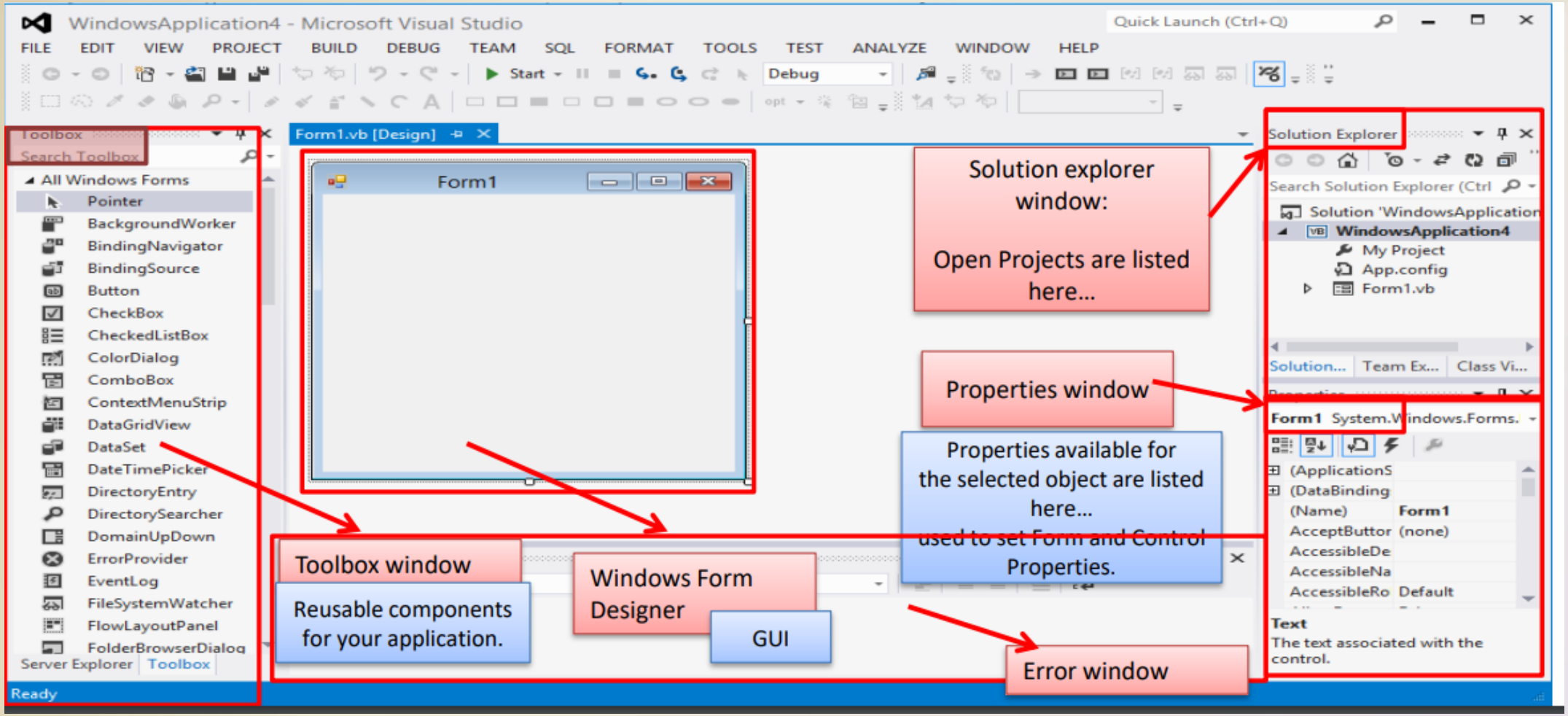
Objectives

- Visual Basic and VB.NET
  - VB was initially introduced in 1991
  - First directly supported programmable Graphic User Interface (GUI)
  - Visual Basic.NET (VB.Net) is an OOP language based on VB 6.0 working
  - **.NET 4 Framework** represents a platform for developing (C#, **VB**. NET, C++, F#)
  - The **.Net framework** helps to write variant types of applications such as (windows applications, Web applications, and Web services)
  - VB is also termed an event-driven (Clicking a button or menu, Opening or Closing a form, Moving the mouse over the top of an object such as a text box, Moving from one text box to another)

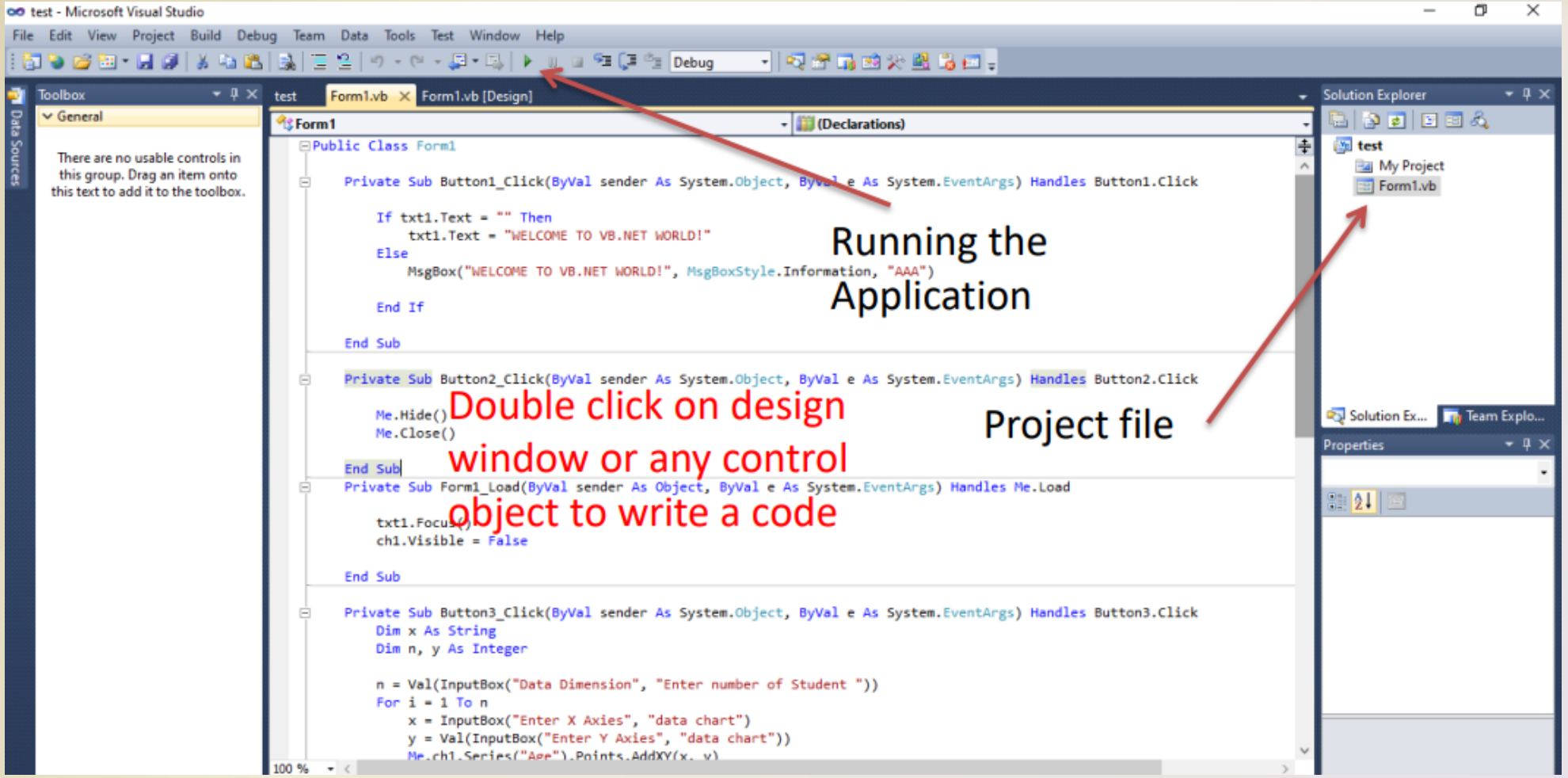
Introduction

- In order to work with VB, you need to understand "object" terminology as defined below.
  - **Object A thing** – like forms and controls you place on forms such as buttons, text boxes, and icons.
  - **Property of Objects** – e.g. Text, Name, BackColor, Font, and Size. Refer to a property by the notation ObjectName.PropertyName (use the .dot notation).
  - **Methods** – these are the actions that objects exhibit, e.g. Show or Hide forms and methods to Print or Close forms. Example Me.Close will close the current form.
  - **Event** – Events are actions usually triggered by the system user such as clicking a button;
  - **Class** – it is a sort of template for an object.

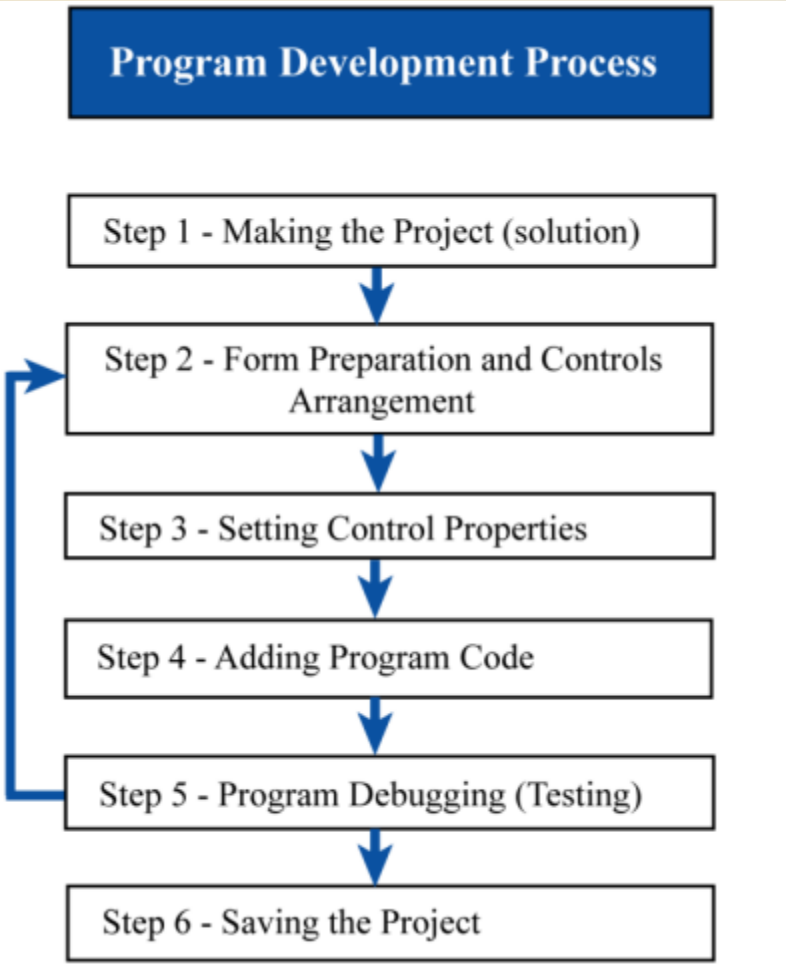
VB .NET Environment (IDE)



Compiler Vs. Interpreter



Flow Chart For Programing Preparation



Identifiers

- Identifiers are names given to namespaces, types (enumerations, structures, classes, standard modules, etc.), type members (methods, events, constants, and properties), and variables.
  - An alphabetic or underscore character (_).
  - May be of any length
  - Start with character followed by alphanumeric and underscore characters.
  - Namespace declarations may use qualified identifiers which consists of two or more identifiers connected with the dot character (.), (e.g. Imports System.Reflection, Namespace ORelly.ProgVBNet)
  - It should not be a reserved keyword.

Variable and Constant

- VB.NET Variable and Constant
  - Variable has variant values could be changed during the program.
  - Constant has fixed value could never change during the program.
- VB.NET Variable: using Dim to allocate a memory space for the variables using bellow syntax
  - **Dim [Variable_Name] As [Defined Data Type]**

Name	Description
Dim	Used to declare and allocate space for one or more variables in memory.
Variable_Name	Defines the name of the variable that stores values.
As	A keyword that specifies the data type in the declaration statement.
Data Type	Defines the kind of data the variable can store, such as Char, String, Integer, Decimal, Long, etc.
Value	Assigns a value to the variable.

Variable and Constant

- There are some valid declarations of variables along with their data type definition, as shown below:
  - **Dim Roll_no As Integer**
  - **Dim Emp_name As String**
  - **Dim Salary As Double**
  - **Dim Emp_id, Stud_id As Integer**
  - **Dim result_status As Boolean = True // declaration and initialization**

Variable and Constant

- VB.NET Constant: const is a keyword that is used to declare a variable as constant. Syntax below used to declare the constant.
  - **Const constname As datatype = value**

Name	Description
const	a Const keyword to declare a variable as constant.
Constname	Defines the name of the constant variable to store the values.
As	A keyword that specifies the data type in the declaration statement.
Data Type	Defines a data type that allows variables to store data types such as Char, String, Integer, Decimal, Long, etc.
Value	Assigns a value to the variable.

Variable and Constant

- There are some valid declarations of constant along with their data type definition, as shown below:
  - Const intData As Integer = 20
  - Const name As String = "JavaTpoint“
  - Const topic As String = "VB.NET“
  - Const PI = 3.14

VB.NET Data Type

- In VB.NET, data type is used to define the type of a variable or function in a program. Furthermore, the conversion of one data type to another type using the data conversion function.

Data Type	Storage Allocation	Value Range
Boolean		True or False
Byte	1 byte	0 through 255 (unsigned)
Char	2 bytes	0 through 65535 (unsigned)
Date	8 bytes	0:00:00 (midnight) on January 1, 0001 through 11:59:59 PM on December 31, 9999
Decimal	16 bytes	0 through ±79,228,162,514,264,337,593,543,950,335 (±7.9E+28) with no decimal point; 0 through ±7.9228162514264337593543950335 with 28 decimal places
Double	8 bytes	-1.79769313486231570E+308 to -4.94065645841246544E-324 (negative) 4.94065645841246544E-324 to 1.79769313486231570E+308 (positive)

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Data Type	Storage Allocation	Value Range
Integer	4 byte	-2,147,483,648 through 2,147,483,647 (signed)
Long	8 byte	-9,223,372,036,854,775,808 through 9,223,372,036,854,775,807(signed)
Short	2 bytes	-32,768 through 32,767 (signed)
Single	4 bytes	-3.4028235E+38 through -1.401298E-45 for negative values; 1.401298E-45 through 3.4028235E+38 for positive values
String	Depends on implementing platform	0 to approximately 2 billion Unicode characters

Thank You ☺