



AMIT ACADEMY
for Computer Education

**Subject – Desktop Application
Development (VB.NET)**

Unit-5

Libraries and MDI

**AMIT ACADEMY FOR COMPUTER EDUCATION
Nr Vardayini Mataji Temple, Rupal,
Gandhinagar-382630**

**Email – amitacademy1117@gmail.com
Mobile No – 8460467193**

YouTube Link –

<https://www.youtube.com/@ankitramijoinar>

Instagram Link –

<https://www.instagram.com/amitacademy17/>

Facebook Link –

<https://www.facebook.com/aramitacademy/>

Design and Develop by Assistant Professor Ankit Rami

Any Query Contact - 8460467193



⇒ What is Library Function in VB.net

- A visual basic supplies many function that we can use in our program. A function performs an action and returns a value. The expression to operate upon, called the argument must be including in parentheses. Visual basic contents numerous library function that provide a quick and easy way to carry out many mathematical operations, manipulate string and perform various operation. These library function are prewritten routines that are included as an integral part of the language. These many be used in place of variable with in an expression or a statement.
- A library function is accessed simply by starting its name, followed by weather information must be supplied to the function, enclosed in parenthesis. A numeric quantity or a string that is passed to function in this manner is called an argument. Once the library function has been accessed, the desired operation will be carried out automatically. The function will than return to the desired value.
- In visual basic, library functions are divided into four different categories. They are called string function, numeric function, date and time function and miscellaneous function.

⇒ String Library Function in VB.net

- A string is nothing but a collection of characters. In very simple terms, String may be defined as the array of characters. When it comes to an understanding variable, Integer is the very first thing we learn about. An integer is the data type that stores the integer value, in the same way, char is the data type that stores single character and similarly, a string is the data type that allows the storage of the set of characters in a single variable.
- We can also store the string in a char array but the simple way to store any string is by making the use of string data type. We can perform several functions on the strings that we will see later. The ability to process string values helps a lot to create complex applications. Now in the next section, we will learn how to implement string.



- Declaration and Initialization of VB.Net

Dim Str as String

- **Dim**: It is the keyword used while declaring any variable.
- **Str**: It is the name of the variable that will hold the string value.
- **String**: It is the keyword that is used to state that the value that Str will hold should be a string.

String Function in VB.net

1. Asc function

This string function in VB.Net is used in order to get the integer value of the first letter of the string. Its integer value is actually the integer value of that character.

Ex- Dim Str as String

```
Str="A"
```

```
Msgbox(Asc(Str))
```

Output- 65

2. LCase Function

This function will convert all the characters of the string into a lowercase character. If the character is already in lowercase that it will ignore the character else will convert that into lowercase.

Ex- Dim Str as String

```
Str="ANKIT"
```

```
Msgbox(LCase(Str))
```

Output- ankit



3. UCase Function

This VB.Net String function will turn all the lowercase characters of the string into uppercase. It works exactly the reverse as the Lcase function does.

Ex- Dim Str as String
Str="ankit"
Msgbox(UCase(Str))

Output- ANKIT

4. Len Function

This String function in VB.Net will return the numbers of characters in a string. The value returned will be an integer value so it has to be stored in the integer variable.

Ex- Dim Str as String
Str="ankit"
Msgbox(Len(Str))

Output- 5

5. StrReverse Function

This function will be used to reverse the value of the string. It sounds the same as swapping the characters to revert the string.

Ex- Dim Str as String
Str="ABC"
Msgbox(StrReverse (Str))

Output- CBA



6. Left Function

This function will return the specific characters from left as requested by mentioning any number. If we will use this function to get the first four characters from the string from the left end then we have to mention the number 3.

Ex- Dim Str as String

```
Str="Ankit"
```

```
Msgbox(Left (Str,3))
```

Output- Ank

7. Right Function

This function will return the specified number of characters from a string from the right side. The way the Left function has worked, it will work similarly. The only difference will be that it will select the characters from the right.

Ex- Dim Str as String

```
Str="Ankit"
```

```
Msgbox(Right(Str,3))
```

Output- kit

8. Join Function

This VB.Net String function is used to join two substrings. Here in this example, we will create an array of string and then add the value in the array with a comma(,).

Ex- Dim Str as String

```
Str="Ankit"
```

```
Msgbox(Join(Str,"Rami"))
```

Output- Ankit Rami



9. Split Function

This String function in VB.Net is used to split the string. Though there is various delimiter that could be used with function and here we will just separate it with space.

Ex- Dim Str as String

```
Str="I am Ankit Rami"
```

```
Msgbox(Split(Str))
```

Output- {"I", "am", "Ankit", "Rami"}

⇒ Numeric Function in VB.net

- Numeric Functions provides various function to be operated on integer or numeric variables to get required result.
- All numeric functions that are available VB.NET are implemented as the constant and static methods of Math Class, which is inherited from the Object class. For using any of Math methods from the Math class, you should use the methods with the word "Math.", or import the whole class using the keyword "imports" in VB.NET, and "using" in C#.
- Need to Import Library

```
Imports System.Math
```

Numeric Function in VB.net

1. Round() Function

The Round function is used for rounding numbers to the number of digits you want. It will replace number to its most nearest by rounding off it.

Ex- Dim n1 as integer = 10.4

```
Msgbox(Round(n1))
```

Output- 10



2. Ceiling() Function

This function returns the smallest integral value that is greater than or equal to a Number.

Ex- Dim n1 as integer = 10.8

```
Msgbox(Ceiling(n1))
```

Output- 10 Print Smaller Down Integer

3. Floor() Function

This function returns the largest integer value that is less than or equal to a numeric value.

Ex- Dim n1 as integer = 10.3

```
Msgbox(Floor(n1))
```

Output- 10 Print Larger Upper Integer

4. Log() Function

This function returns the base e logarithm of the double value.

Ex- Dim n1 as double = 10

```
Msgbox(Log(n1))
```

Output- 2.30258509299405

5. Min() Function

This function compares two numbers and returns the smallest one.

Ex- Dim n1 as integer = 5

```
Dim n2 as integer = 10
```

```
Msgbox(Min(n1,n2))
```

Output- 5



6. Max() Function

The function compares two numbers and returns the biggest one.

```
Ex- Dim n1 as integer = 5  
      Dim n2 as integer = 10  
      MsgBox(Max(n1,n2))
```

Output- 10

7. Pow() Function

The function returns the particular number which is raised at a specific power. For example, if the parameters are a and b, the output will also return a^b .

```
Ex- Dim n1 as integer = 5  
      Dim n2 as integer = 2  
      MsgBox(Pow(n1,n2))
```

Output- 25

8. Sqrt() Function

The function returns the square root of a particular number.

```
Ex- Dim n1 as integer = 144  
      MsgBox(Sqrt(n1))
```

Output- 12

⇒ Date and Time Function in VB.net

- In VB.NET, we use the Date and Time function to perform various operations related to date and time. Sometimes we need to display the date and time in our application or web application, such as when the last post edited, upgradation of new software version or patch-up details, etc.



- In Date Time class, Date datatype stores date values, time values or date, and time values. Furthermore, to perform the date and time function, we need to import the System.DateTime class. The default value of Date Time is between 00:00:00 midnight, Jan 1, 0001 to 11:59:59 P.M., Dec 31, 9999 A.D.

- Need to Import Library

Imports System.**DateTime**

- Most of the software's you write need implementing some form of date functions returning current date and time. Dates are so much part of everyday life that it becomes easy to work with them without thinking. VB.Net also provides powerful tools for date arithmetic that makes manipulating dates easy.

Date and Time Function in VB.net

1. Now() Function

It is used to return the current date and time of the local system.

Ex- MsgBox(Date.Now)

Output- 10/11/2023 11:14:29 AM

Format (MM/DD/YYYY HH:MM:SS AM/PM)

2. Date() Function

It is used to return the date component of the DateTime Object.

Ex- MsgBox(Date.Now.Date)

Output- 10/11/2023

3. Day() Function

It is used to return the day of the month represented by the DateTime object.

Ex- MsgBox(Date.Now.Day)

Output- 11



4. Month() Function

It is used to return the month name of the Datetime object.

Ex- `MsgBox(Date.Now.Month)`

Output- 10

5. Year() Function

It is used to return the year of the date represented by the DateTime object.

Ex- `MsgBox(Date.Now.Year)`

Output- 2023

6. Hour() Function

It is used to return the hour of the component of the date represented by the DateTime object.

Ex- `MsgBox(Date.Now.Hour)`

Output- 11

7. Minute() Function

It is used to return the minute component by the DateTime object.

Ex- `MsgBox(Date.Now.Minute)`

Output- 23

8. Second() Function

It is used to return the second of the DateTime object.

Ex- `MsgBox(Date.Now.Second)`

Output- 29



9. DayOfWeek() Function

It is used to return a particular day of the week represented by the DateTime object.

Ex- MsgBox(Date.Now.DayOfWeek)

Output- 3 because in this week today Wednesday.

10. DayOfYear() Function

It is used to return a day of the year represented by the DateTime object.

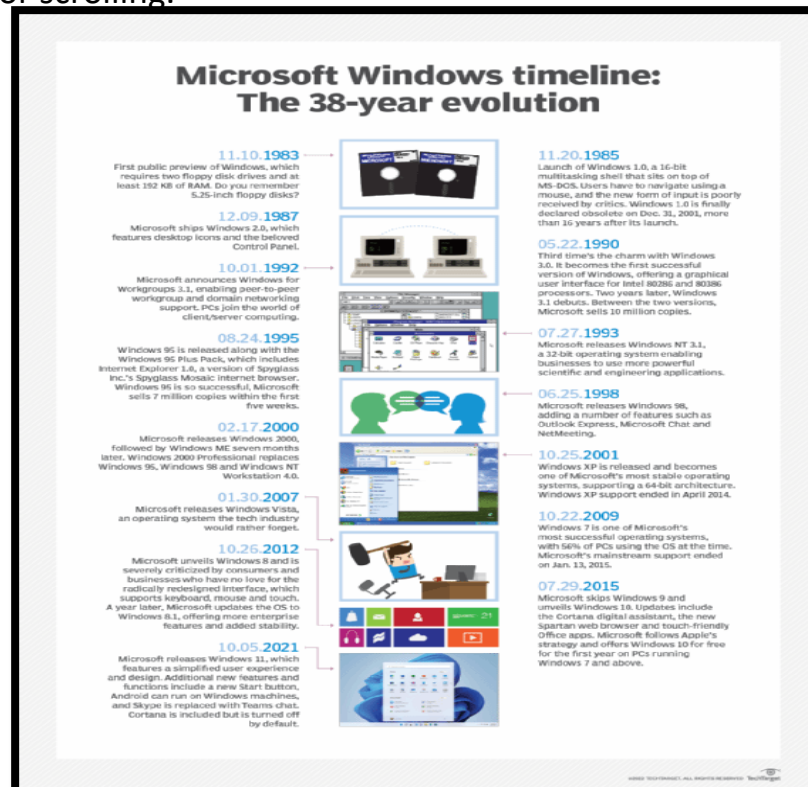
Ex- MsgBox(Date.Now.DayOfYear)

Output- 284 because out of 365 Day Year.

⇒ Concept of MDI in VB.net

What is Multiple Document Interface (MDI)?

- Multiple Document Interface (MDI) is a Microsoft Windows programming interface for creating an application that enables users to work with multiple documents simultaneously. Each document is in a separate space with its own controls for scrolling.



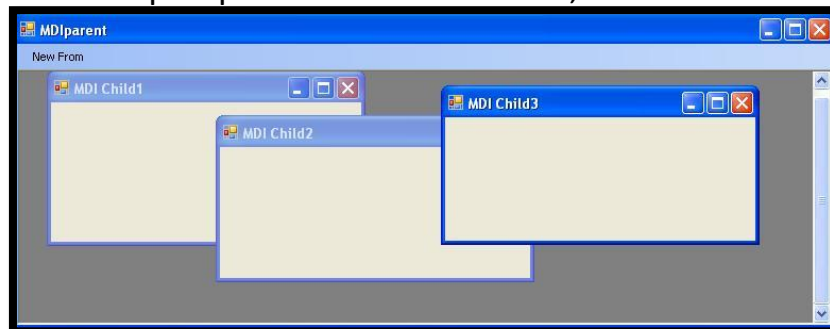
Design and Develop by Assistant Professor Ankit Rami

Any Query Contact - 8460467193



What is the purpose of Multiple Document Interface?

- MDI enables users to boost productivity by opening more than one file at once. For example, when opening an Excel spreadsheet, they may be able to open another file, such as a Word document.
- The user can see and work with different documents, such as a spreadsheet, a text document or a drawing space, by simply moving the cursor from one space to another. This feature enables users to work simultaneously on different documents without having to close out of one application before starting up another.
- Each document is displayed within a separate child window within the client area. MDI applications can be used for a variety of purposes. An MDI example is working on one document while referring to another, viewing different presentations of the same information, viewing numerous websites simultaneously and performing any task requiring various reference points and work areas simultaneously.
- An MDI application is like the Windows desktop interface with multiple viewing spaces. However, the MDI viewing spaces are confined to the application's window or client area. MDI is useful because it saves time and reduces errors.
- Single Document Interface (SDI) and MDI differ significantly. The former enables users to view only one window at a time. While MDI, on the other hand, enables users to see all windows at once.
- MDI enables users to open more than one file at once. It was developed to enable people working with large amounts of data to easily view several documents simultaneously. The main advantage of MDI is that it makes it easier to manage files because they can be viewed side by side. For example, comparing two versions of the same spreadsheet is often helpful when working with multiple spreadsheets. With MDI, this becomes much simpler.



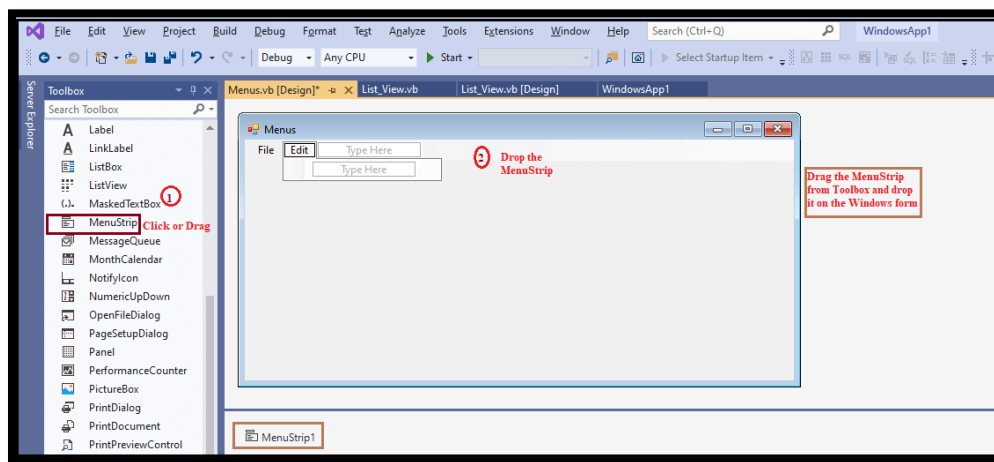
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⇒ MenuStrip(Menu) Control in VB.net

- A menu is used as a menu bar in the Windows form that contains a list of related commands, and it is implemented through **MenuStrip** Control. The Menu control is also known as the VB.NET MenuStrip Control. The menu items are created with ToolStripMenuItem Objects. Furthermore, the ToolStripDropDownMenu and ToolStripMenuItem objects enable full control over the structure, appearance, functionalities to create menu items, submenus, and drop-down menus in a VB.NET application.



MenuStrip Control Properties in VB.net

| Properties | Description |
|-------------------------|--|
| CanOverflow | The CanOverflow property is used to authenticate whether the control supports overflow functionality by setting values in the MenuStrip control. |
| Stretch | The Stretch property is used to obtain a value that specifies whether the menustrip stretches from end to end in the MenuStrip control. |
| GripStyle | The GripStyle property obtains or sets the visibility of the grip that uses the reposition of the menu strip control. |
| ShowItemToolTips | It is used to obtain or set the value that determines if the ToolTips are displayed for the MenuStrip Control. |
| DefaultSize | The DefaultSize property is used to get the default horizontal and vertical dimension of the MenuStrip in pixel when it is first created. |



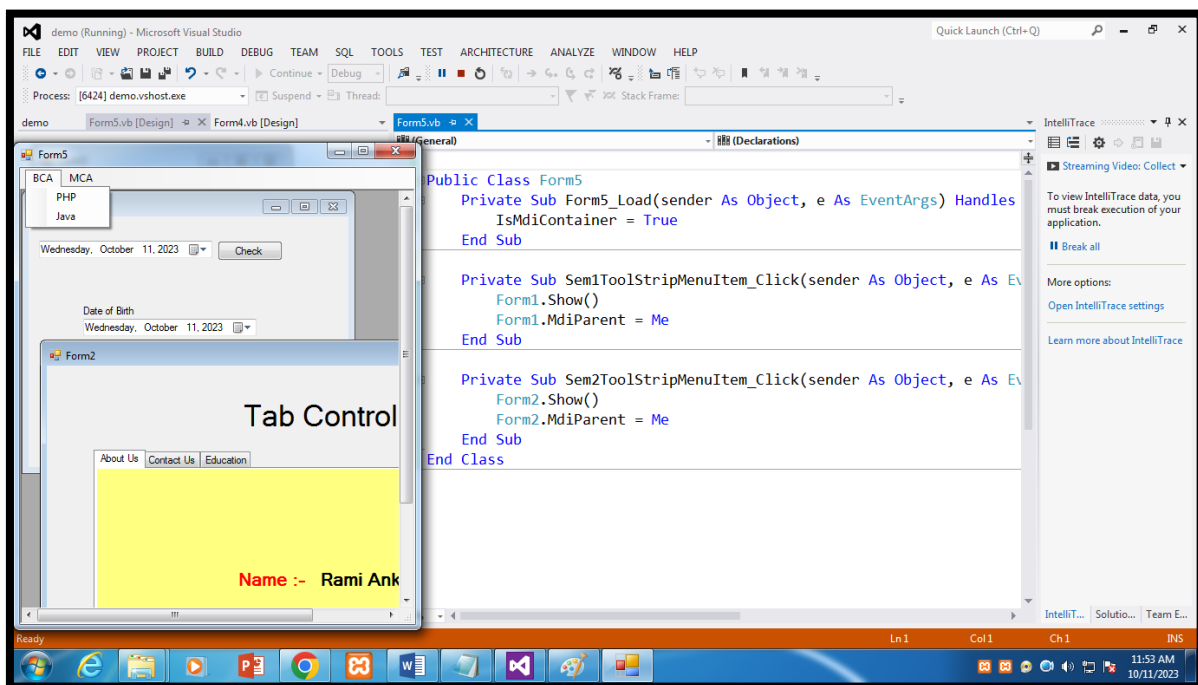
MenuStrip Control Methods in VB.net

| Method | Description |
|--------------------------------------|--|
| CreateAccessibilityInstance() | It is used to create a new accessibility instance for the MenuStrip Control. |
| ProcessCmdKey() | The ProcessCmdKey method is used to process the command key in the MenuStrip Control. |
| CreateDefaultItem() | The CreateDefaultItem method is used to create a ToolStripMenuItem with the specified text, image, and event handlers for the new MenuStrip. |
| OnMenuActivate() | It is used to initiate the MenuActivate event in the MenuStrip control. |
| OnMenuDeactivate() | It is used to start the MenuDeactivate event in the MenuStrip control. |

MenuStrip Control Events in VB.net

| Events | Description |
|-----------------------|--|
| MenuActivate | When a user uses a menu bar control with a mouse or keyboard, a MenuActivate event occurs. |
| MenuDeactivate | The MenuDeactivate event occurs when the MenuStrip control is deactivated in the Windows form. |

Ex- MenuStrip Control



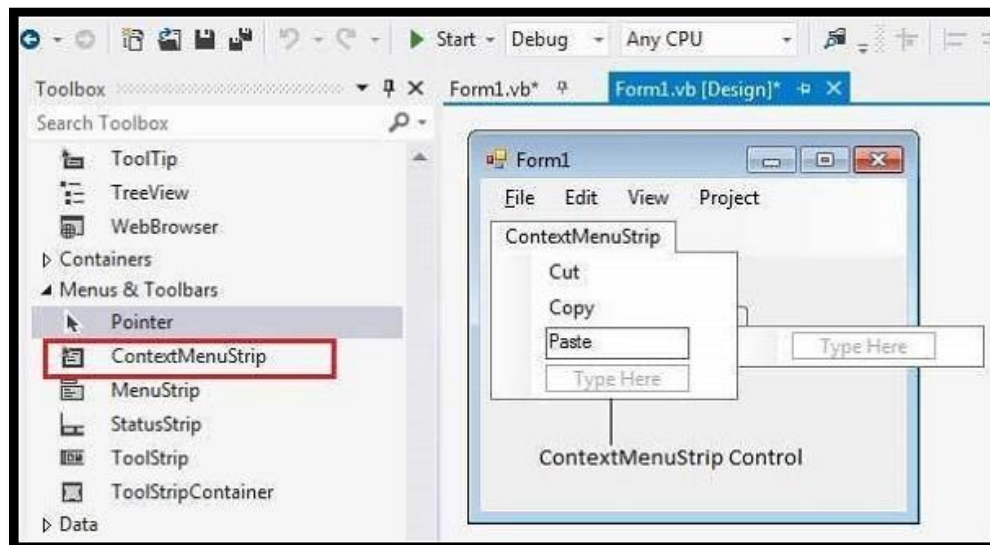
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⇒ ContextMenuStrip Control in VB.net

- The ContextMenuStrip control represents a shortcut menu that pops up over controls, usually when you right click them. They appear in context of some specific controls, so are called context menus. For example, Cut, Copy or Paste options.
- This control associates the context menu with other menu items by setting that menu item's ContextMenuStrip property to the ContextMenuStrip control you designed.
- Context menu items can also be disabled, hidden or deleted. You can also show a context menu with the help of the Show method of the ContextMenuStrip control.

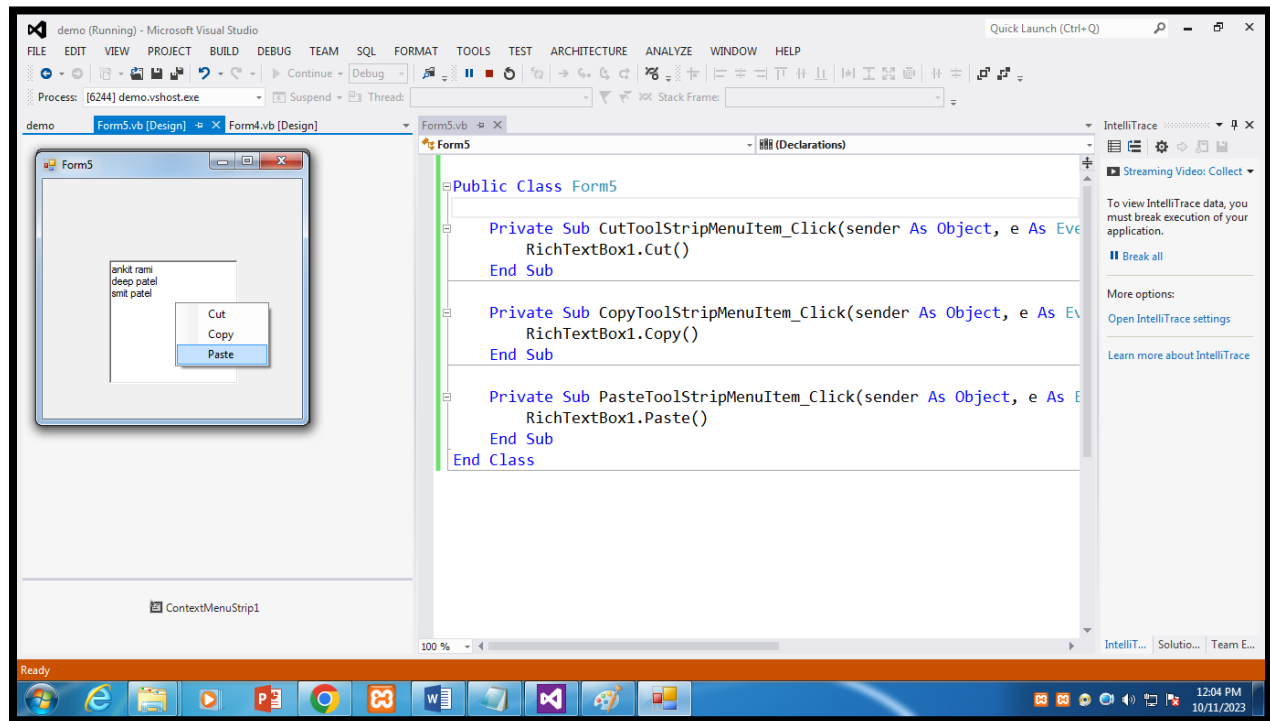


ContextMenuStrip Control Methods in VB.net

| Sr.No. | Property & Description |
|--------|--|
| 1 | SourceControl Gets the last control that displayed the ContextMenuStrip control. |



Ex- ContextMenuStrip Control



Reference Link for Context Menu Strip Using Step

<https://www.homeandlearn.co.uk/NET/nets4p4c.html>