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ASP.NET



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ASP.NET

ASP.NET is a web development platform which provides a programming model, a software infrastructure and various services to build up robust web applications for PC as well as or mobile devices.

It works on HTTP commands and policies to set a browser to server communication and collaboration.

.NET Framework

This framework provides support for software development and operating system supports in windows.

Features of .NET

1. Common Language Runtime (CLR):

When you create a VB.NET application your code is compiled into intermediate language also known as Microsoft intermediate



language (IL or MSIL) much same as byte codes in JAVA.

When you run the application, IL is translated into a binary code that your computer can understand with the help of JIT (Just in time compiler).

2. Language Interoperability: It means code written in a language can be used by another languages. This can be achieved because all .NET code is compiled to Intermediate Language Code (IL) whether you are developing in C#, VB.NET or J# or any other .NET languages.

3. Base class library: It is a library of functionality available to all languages using .NET framework. These classes have a number of features/functions like file reading, graphic functions, data base interaction, XML documentation.



4. Automatic memory management (Garbage collection): While developing applications, development have to keep a track on system resources like memory. Memory leaks are major reason in failure of applications. .NET takes this worry away from developer by automatically handling memory of its own.

5. Type safety: During program execution, the type checker ensures that all values and the references to those values have a valid type. For example: The type checker will ensure that only an integer will be assigned to an integer variable.

6. Managed multithreading support: The .NET Framework allows a single process to be divided into one or more sub-processes called application domains.



7. Multi-device support: .NET supports various programming such as PDA (Personal Data Assistant), mobile, Hand held PC's.

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ASP (Active Server Pages)

ASP.NET Web forms

Web applications are build using web forms. It includes object-oriented programming model for creating webpages, support for multiple browsers and devices, and clear separation between design and code phase.

Characteristics of a web forms

1. It is built on CLR, so it provides type safety, automatic garbage collection, reusability and extendibility.
2. It consist of rich set of server controls that can detect the browser and send proper mark-up language such as HTML.

3. It supports session, request, state management and caching facilities.

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ASP.NET server controls

It provides a rich set of controls to design web pages. These controls are small building blocks of the graphical user interface, which includes text boxes, buttons, checkboxes, list-boxes etc.

These controls also facilitate validation, data access, security and data manipulation.

These controls are categorized as follows:

- 1. Standard controls:** These controls are such as buttons, input fields and labels.
- 2. Data controls:** These controls enable us to connect to a database. These controls are such as grid view.

3. Validation controls: These controls help us to validate the data before we submit the data to server. For example: We can validate that contact should be a number.

4. Navigation controls: these controls help us to navigate from one page to another page. These controls are such as menus, tree view etc.

5. Login controls: These controls provide security solutions such as login boxes and wizard for creating users.

6. Rich controls: These controls are such as calendars, file upload and multistep wizards.

7. HTML controls: These controls are basic HTML elements that we can use on our web



pages by simply dragging and dropping the controls.

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.NET Types

There are two general categories of types

1. Value type
2. Reference type

1. Value type: It contain directly their data. Instances of value types are either allocated on the stack or in a structure. Variables that are of value types, each have their own copy of the data and therefore operations on one variable do not affect other variables.

2. Reference type: It store a reference to the values memory address. They are allocated on heap. They can be pointer types or interface types.

Meta data

The information about the code such as types and references the code contains are required at run time for execution. This is known as Meta Data or we can say that data about data.

ASP.NET Page lifecycle

When an ASP.NET page runs, the page goes through a life cycle in which it performs a series of processing steps. This includes initialization, restoring and maintaining state, running, instantiating controls.

1. Pre Init:

- Checks the IsPostBack property to check whether this is the first time the page is being processed.
- Create or recreate dynamic controls.
- Set a Master page dynamically.
- Set the theme property dynamically.

2. Init:

- This event fires after each control has been initialized.
- Each controls unique ID is set and skin settings have been applied.
- Use this event to read or initialize control properties.

3. Init Complete:

- In this event it makes changes to the view state that you want to sure persisted after the next post back.
- Use this event for processing task that requires all initialization to be complete.

4. On Pre load:

- Before the page instance raises this event, it loads view state for itself and all controls and then processes any post back data.

5. Load

- This is the first place in the page lifecycle where all values are restored. You may also call is valid method to validate the events.
- The On-load event method is used to set properties in controls and establish data base connections.

6. Control Post Back events

- Now ASP.NET calls any events on the page or its control that caused the post back to occur.
- This might be buttons click or drop-down selected index change event.

7. Load complete

- This event signals the end of load.

8. Pre-render

- It allows final changes to the page or its controls. This event takes place after all regularPostBack events have taken place.

9. Save State Complete

- Before this event occurs, view state has been saved for the page and for all controls.
- Any changes to the page or control will be ignored.

10. Render

- The render method generates the client-side HTML, DHTML and script that are important to display a control on the browser properly.

11. Unload event

- This event is used for clean up code. Clean up can be performed on

- 1.Object
- 2.Opened files
- 3.Opened Database connections

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DLL (Dynamic link libraries)

It is a collection of small programs that can be loaded when needed by larger programs. A DLL suffix given to a DLL file because these files are dynamically linked with the program that uses them during the program execution.

The advantages of DLL file is space saved in RAM because the files don't get loaded into the RAM with main program. When a DLL file is needed, it is loaded into RAM with main program.

For example: As long as user editing a document in MS-WORD the printer DLL file does not need to load into RAM.

Assembly

Assembly is a collection of types and resources that forms a logical unit.

Assembly will contain namespaces, classes, datatypes, it is similar to a traditional DLL or exe file, except that it contains additional information such as reference and type information.

In .NET namespaces are the part of assemblies. The .NET framework uses assemblies for several purposes

1. Security
2. Type identity
3. Reference scope
4. Version

5. Deployment

Assembly Manifest

Every assembly contains an assembly manifest, a set of meta data with information about the assembly.

1. This manifest contains the assembly name and version.
2. The culture or language of the assembly support.
3. Information on assembly attribute.
4. Information on data types.

Namespaces

Another way to organize your code in VB.NET is the use of namespaces. Namespaces are a way of grouping type names and reducing the chance of name collisions/conflicts.

AutoPostBack property

Autopostback is the mechanism by which the page will be posted back to the server automatically based on some events in the web controls.

OR

AutoPostBack property allows controls which cannot submit the Form (PostBack) on their own and hence ASP.Net has provided a feature using which controls like DropDownList, CheckBoxList, RadioButtonList, etc. can perform PostBack.

OR

Autopostback is a property that allows you to submit a ASP.NET page to server without clicking on any button.

Placeholder

The placeholder attribute specifies a short hint that describes the expected value of an input field (e.g. a sample value or a short description of the expected format).

Tooltip

Tooltip a message which appears when a cursor is positioned over an icon, image, hyperlink, or other element in a graphical user interface.

How to redirect from one page to another using asp.net and vb.net

```
Response.Redirect("URL of page")
```