

RS = 120

# ASP.NET

BY

## NAGARAJU

## NAresh TECHNOLOGY

### SRI RAGHAVENDRA XEROX

*Software Languages Material Available*

Beside Bangalore Ayyangar Bakery, Opp. C DAC, Ameerpet, Hyderabad.

Cell: 9951596199



Date  
09 March 2015

190

## Web Sockets (w.app)

Mr. NagaRaju Sir

ASP .Net → Active Server pages

→ ASP .Net today (2014) is a free web framework for building great web sites and web applications using HTML, CSS and Java Script. You can also create web APIs, mobile sites, use real time technologies like web sockets and more.

→ Because it is a framework it requires a language or package to build a project. Today almost all languages support ASP.NET and more than 50% of applications on Internet are ASP .Net based (.Net Based also). Top Companies and most of the developer communities use ASP .Net for their web requirement and the latest release of ASP .Net is version 5 which is open source and can be used in windows, Linux and IOS (apple use it).

→ ASP .NET is now available in a single format of development. Microsoft redesign ASP .NET by constantly releasing the on-demand platforms and today we have different approaches or diff. forms for developing ASP .Net project. The most important are i) ASP .Net forms ii) Web pages iii) ASP .Net MVC. For all these three different approaches "the core ASP .Net" is same and the best way to learn this core ASP .NET is to learn ASP .Net Web form.

- parameter are called as parameter when it is declared and when it is exceeded by some values it is argument.
- class in C# is internal.

## → To ASP.NET Customers

1. ZM
2. Getty Images
3. Thinkstock
4. Stack Overflow
5. The British Museum
6. Kelley Blue Book
7. US Airways
8. Bing
9. XBOX360
10. MSNBC
11. WOOT!

Web pages

IF you have exp. in  
Classic ASP, PHP

Web form

Winform, WPF, .NET

MVC

Ruby on Rails, .NET

### Development In Style

HTML markup and your code  
together in the same file

Expects

New, Mid-Level

Rapid development using a  
rich library of controls that  
encapsulate HTML markup

MID-Level

Advanced R.A.D

Full Control over HTML markup  
Code and markup Separated

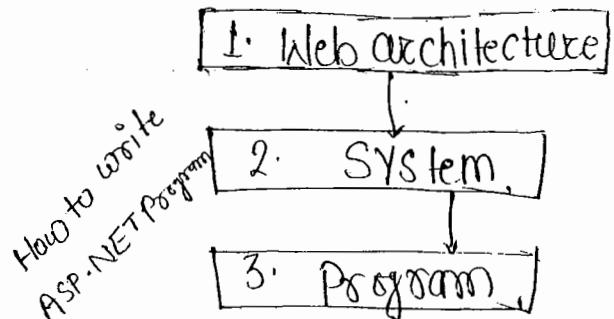
Level

and easy to write tests.

Advanced

The best choice for mobile &

Single page application.



- i) because of architecture or arch. leads us universal app.
- ii) apache is used by .Net from .Net 5.0.

## Web Applications:-

10 March 2015

- In Entire application development we have two types of applications -

1. Desktop applications :- The programs that are executed locally using local resources of the system are called as desktop applications or programs. eg- using c language, C# whatever program we write they are called as desktop programs. Features wise desktop application are very rich and no need to write extra code performance, presentation, security all are high in desktop programs.

2. Web applications :- Programs that are accessible anywhere and which are independent on hardware & software are called as web applications. Today most of the apps we develop are web app. and that is because of their universal behavior. Features wise by default every web application is low and we must provide externally security, performance and user interface.

The third kind of apps are called hybrid apps which are combination of desktop & web. In hybrid app development also, web content will be important and more in terms of Coding.

\* Web Architecture :- All web applications are universal because of their architecture and every developer or learner should understand this architecture & continue their development process.

- HTTP is used to communicate in web.
- Web app is universal app.

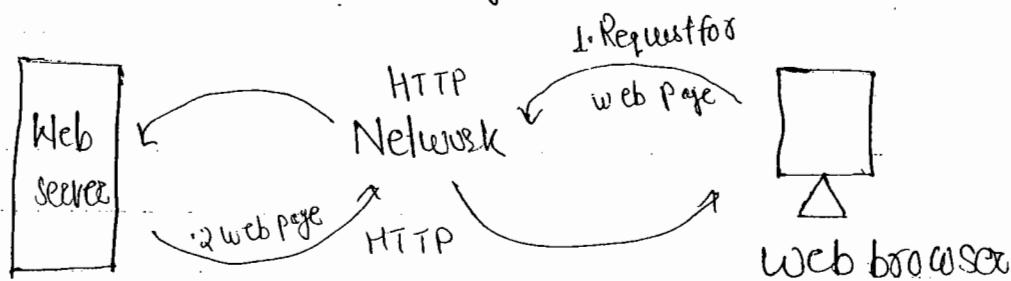
Web architecture is defined by a community called W3 org and in architecture we have 3 important things to understand -

1. Webserver :- It is a software which runs as a service under operating system and which is responsible to handle all requests in the form of HTTP.

practically a web server is collection of websites and every website is collection of programs (universal programs).

2. HTTP :- Stands for Hyper text transfer protocol. W3 Community has designed this protocol for accessing all web based programs. These are sets of rules which any type of user can follow and access web based program.

3. Client :- The most commonly used software for accessing HTTP based website are browser S/f. A web browser is a software which generates all requests in the form of HTTP & which also understands results in HTTP format. Other than web browser any programming language or package can also access websites programs with HTTP.



Web Server is mandatory for every web

appl.

- arch. makes every web app universal app.
- W3 Provides web arch. specification.

#### \* To check IIS is running or not do

Open browser  $\text{http://localhost}$  or  $\text{http://Systemname}$

If welcome is displayed IIS is running otherwise we need to install IIS.

1. To install → go to Control Panel  $\rightarrow$  Program & Features  $\rightarrow$  turn windows features on/off  $\rightarrow$  Select IIS with all its Options.

11 march 2015

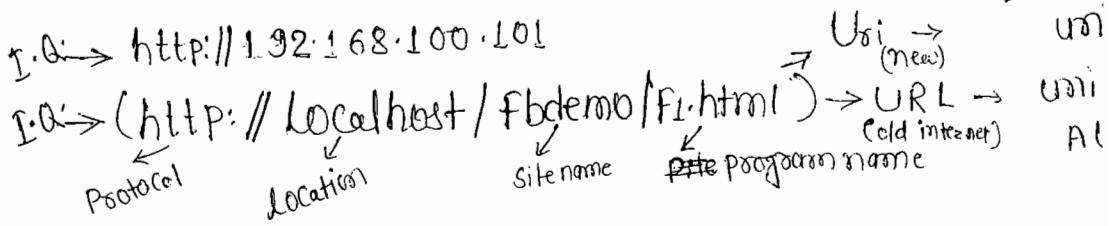
#### \* Creating websites using IIS:-

Once Web Server is installed and running we can create web site using IIS console. It is a window where we can see list of websites and manage websites according to our requirement as a new user we can begin by creating a new website with the following steps-

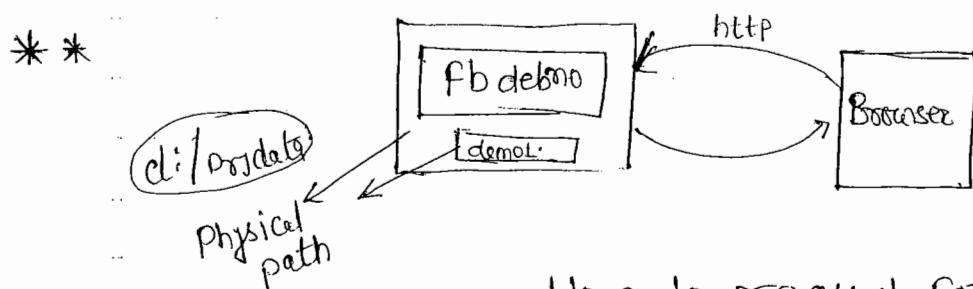
1. Go to Control panel  $\rightarrow$  administrative tool  $\rightarrow$  IIS Start this program and go to sites in the displayed window  $\rightarrow$  select "default websites" - right click on it and choose Add virtual directory.

NOTE :- Creating a website always require 2 names

- A. Virtual Name - A name for every user and also website name for One Project is virtual Name. also called as "alias" for web application.



b) Physical Name - this is a directory name where our all site program & resources exist also called as Content directory only known to developers.



How to request for websites

→ Start Notepad → Once website is created we can start writing program and saved them in our Content directory. Start Notepad type some sample code (`<h1> fb Demo Web Site </h1>`) and saved it in physical directory.

→ Browsing - the final task is to run our program as a client and for this start browser and type the URI in correct format.

Date 12 March 15

\* Creating website[s] Using IDE. S/W's :-

For faster and simpler development we will use IDE softwares in real time development. One of the advantage of .Net is it has strong IDE S/W's. Microsoft has provided two S/W for

uniform Resource Identifier

uniform Resource Locator

A URL means a kind a URI

{ HTTP - IIS }

{ File System - IIS Express }

\* IDE's → Utility Software

\* VS Latest version is 2015.

5.0 = C# version \* IIS.X → .Net fw.

building all .Net applications.

-1. Visual Studio .NET

2. Expression

VStudio is used for building Code related programs more allowing developer with Complete SDLC implementation (System Dev. Life cycle)

expression is used more for Coding design related things. Very rich graphics support like photo shop, Crop crop & Flesh implementation can be done using expression. So combiningly without any addition s/w we can develop a web application.

It is very important to understand our learning as well as development environment to built ASP.NET application we will use .Net framework as main platform. Language is a separate part & C# is used more for .Net development. IDE provides support for this language and framework.

The current version -

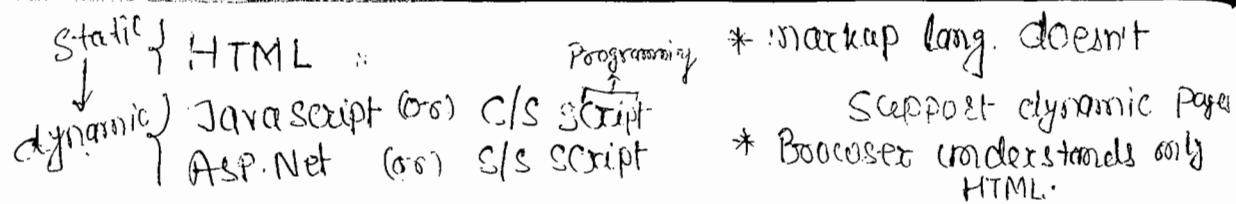
- VS 2013 (V12.0)
- C# 5.0
- .NET FW 4.5.X

To start creating a website VS provides two option -

1. Using IIS for which IIS should be installed & running

2. Using IIS Express - This is ~~a~~ standalone IIS version which can be used for every website in vs studio. It is not real IIS & very user friendly where IIS is not available or not running.

## NOTES



It is installed with V Studio itself and runs in every windows environment.

While creating a website we have to specify web location as file system for IIS express & HTTP for IIS. V Studio has lot of option to develop program faster and better. The following steps can be used to create website write program & execute it.

1. Start VS in administrator mode
2. File → New website → specify all required option (ASP.NET empty website)
3. Go to Solution Explorer window (Practically IDE means collection of windows) in view menu all windows are listed. Right click on project (bold) Add new item

HTML page

Design the page using all available options-

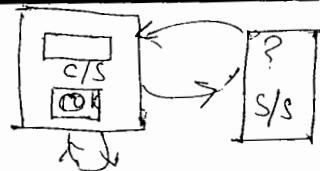
Date 13 March 15

### \* Programming of Web Application:-

1. Unlike desktop app. where we develop whole project with single language in web app. we required multiple languages. Because web is continuously and rapidly evolving we required many languages to meet those demands.
2. As a beginner it is important to understand

NOTES

HTML + JS + ASP.NET = Page  
2005 70% 10% 20%  
2015 5% 75% 10-20%  
Presentation purpose/design



- \* \* Which random Browser is known as Client side Script
- \* \* Which " " Server is " " Server " " .

that min. 3 Languages are used to build a web application.

- i) HTML (Hyper text markup language) - most of the web app. users are browser based and browsers understand only one language that is html.
  - HTML is a markup language "Not a programming language" where every instruction is written in the form of "<Tags". The only advantage of HTML is By writing less no. of tag we can produce rich outputs. On Internet it is a big requirement (Write less get more).
  - Using HTML we can't provide dynamic web Pages which are more required today. We must add script support in order to convert or present a static content as dynamic.

HTML → static

HTML + Scripting = Dynamic Web Page

Q: What is Scripting?

Ans:- Every Script is also a program but which is written for some other source and which is executed from the same source.

there are two types of Scripting is provided

\* Your webpage will be known by the people if Head part will be there.

\* Head part is information about the <sup>web</sup> page or we can say info for outside world.

## Client Side & Server Side Scripting.

2. Client Side Scripting :- Scripts that are executed within the browser are

called as client side scripts. Every browser provides an add-on interpreter to handle client side scripts. Today all browsers support Java script as their interpreter which means we have to write client side scripts only using Java Script.

- In HTML we have `<script>` tag to specify we want to run the script and inside `<script>` tag only the language code must be written.

\*\*\* `<!DOCTYPE html>` → HTML 5  
`<html xmlns = "http://www.google.co.in/2015/xhtml">`  
`<Head>`      { info for outside world  
    `<title> </title>`      } → +  
    `</Head>`      Other things  
*Structure of HTML*

Presentation      {  
    `<body>`  
        `<h1>` Structure and JS `</h1>`

`<script>`      } → all scripting  
    `</script>`      } → C/S+Javascript

`<form id = "frm">`      } → GUI elements -  
    `</form>`              Text Box, Button

`</body>`

\* all the presentation or I/O is being done by body.

```
<!DOCTYPE html>
<html xmlns = "http://www.w3.org/1999/xhtml">
<head>
<title></title>
</head>
<body>
<h1> Structure and JS </h1>
<script>
document.write("this is JS statement");
</script> its like printf of C
<form id = "frm">
<input type = "button" id = "b1" value = "Demo"/>
</form>
</body>
</html>
```

14 March 2015

Q. Why many languages for Web design?

Q. To app. need Complete dynamic.

Q. Is Scripting to override HTML and provide dynamic Behavior? No.

Q. What is Scripting? And How many type they are?

Q. What is the advantage of C/S Script?

Ans - Reduces the network crowd.

- Reduces the burden of Server.

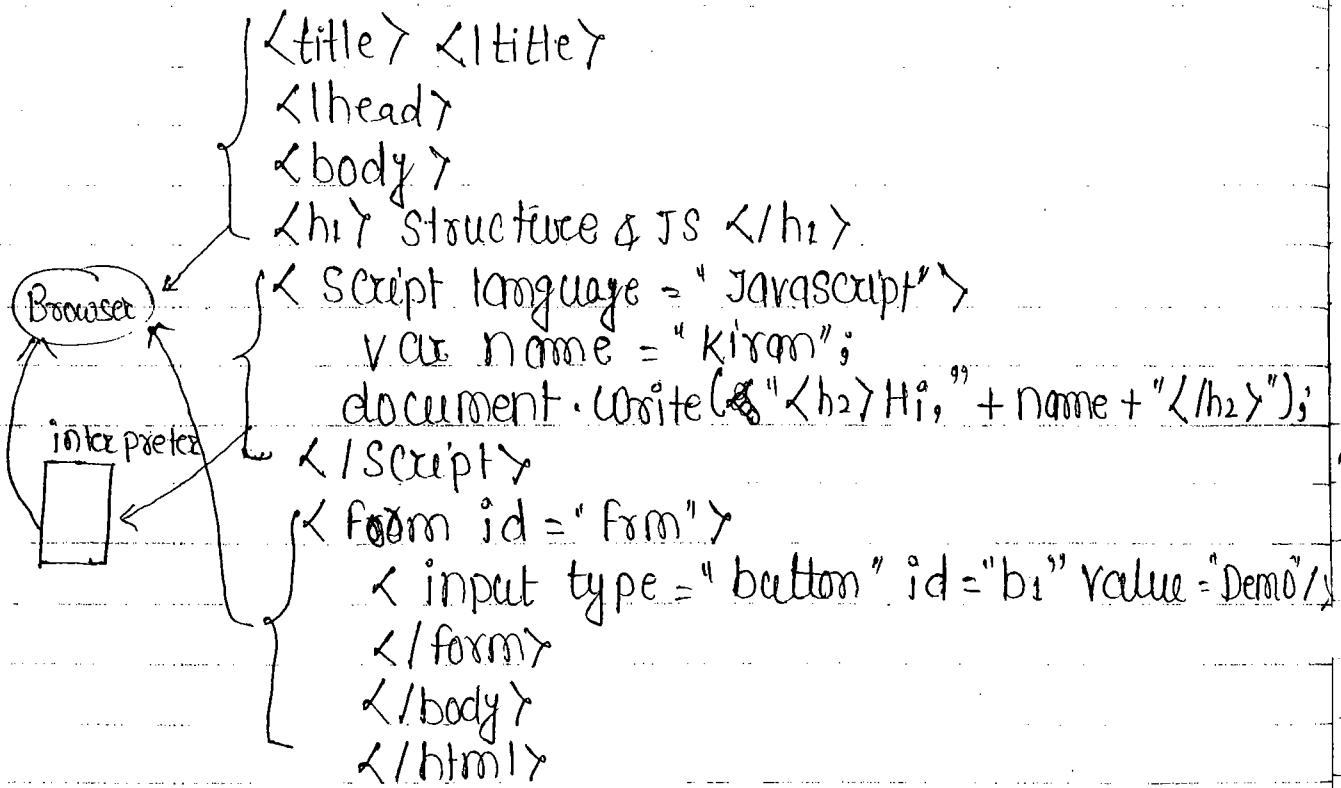
Q. Which tag is used to write any type of Script? When we write <Script> in modern html what does it means?

Q. How do we specify we want to write code in VBScript as language.

Ans 1+2 → <Script> → C/S + Java Script

```
<script language = "VBScript">
</script>
```

\* \* Only Code Specific to that language statement  
Should be Written Inside script block.



\* Java Script is Case Sensitive.

- \* Semicolon can be used as statement terminator  
or every new line is also treated as new statement  
that means Semicolon is optional.
- \* different methods of writing JS is provided and  
it is important to understand every method  
practically. In our example we have written  
JS to execute along with HTML sequential  
running and that is one method of writing JS.

\* Method II Of Writing JS is in the form of functions:

A function is a set of statements which can be re-used in JS. We write a function with following syntax:-

Function <fnname>(<args>) → no datatypes can be specified & any value can be stored.  
{  
    --- Stmts  
    ---  
    [return <value>] → optional  
        because JS is weak  
        typed script language  
        (no support for data type)

Eg. Function Add(a,b)  
{  
    c = a+b;  
    return c;  
}

→ When we write code in the form of function we have to explicitly call it.

\* Eg. For Method 2 (How to write JS coding in the form of function) -

```
<body>
<h1> JS Functions </h1>
<script>
function Point(x) {
    document.write("<br> Message: " + x);
}
Point ("Welcome");
Point ("Start the Server");
```

```

        Point ("Take Backup");
</script>
<h2> Back to HTML </h2>
<Script>
    Point ("Shutdown the server");
</Script>
</body>
</html>

```

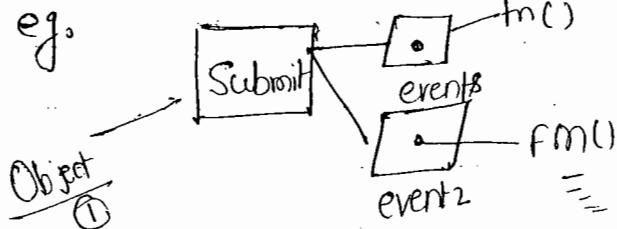
Date 16 march 15

### \* Writing JS in the form of Events :-

In every GUI program development event handling is one important task because the graphical elements will perform an action in the form of code for providing program requirements. More dynamic behaviour for any program is provided with event handling concept.

Q. What is an event?

Ans:- It is an action which is raised based on the behaviour of object. JavaScript provides events as function pointers which means every event will invoke the function and as a developer we have to choose required events & perform our task.



- \* All GUI Program will be put into form
- \* Old browser understand Name whereas new browser understand with Id.

Q. How to Create or handle events in JS?

Ans- Like other lang. JavaScript also has different methods to handle events. The most basic & old method of handling events is by writing event handling as an attribute for the HTML tag (Element). This method doesn't require my script tag and we can just write it like a property. Other new methods are very important where we handle event inside script block.

Ex:- <head>

<title> </title>

<Script>

function f1(x)

{ if (x==1)

    alert ("Clicked on submit");

    else if (x==2)

        alert ("Can't click this button");

}

</Script>

</head>

<body>

<h1> JS Events </h1>

<form id="frm">

<input type="button" name="b1" id="b1" value="Submit" onclick="f1(1)"

onmouseover="f1(2)"/>

<input type="button" name="b2" id="b2" value="Add Data" onclick="f1(2)"/>

</form>

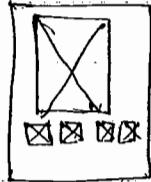
</body>

</html>

eg2:-

```
<title> </title>
<Script>
Function change(x) {
    if (x==1)
        document.m1.Src = "Lumia1.JPg";
    else {
        document.m1.Src = "Lumia .Jpg",
    }
}
</Script>
</head>
<body>
<h1> JS Events - Images </h1>
<img name="m1" id="m1" Src="Lumia.JPg"
height = "300" width = "200"
onmouseover = "change(1)" onmouseout =
= "change(2)" />
</body>
```

Q2



Write JS Program for displaying  
Preview of images.

Writing JS in a separate JS file.

2. Normally HTML Program can be written along with JS code i.e. both markup and coding in single file. This type of coding will result in complexity for writing as well as debugging. More importantly we don't get reusability of code. For better coding practices we should always write JS script code in a separate file so that we reuse and also get separation of code & design.

To implement add new item create Java script file say democode.js and write required function inside it.

```
function change(x) {
    if (x==1)
        document.m1.src = "lumia1.jpg";
    else
        document.m1.src = "lumia1.jpg";
}

function myfunction()
{
    function test()
    {
    }
}
```

After creating .JS file with code  
we must refer in our html page and use fn.  
normally.

```
<title> </title>
<script src="DemoCode.js"> </script>
</head>
<body>
<h1> JS Events - Images </h1>

</body>
</html>
```

Date 17 march 2015

#### \* JS DOM :- (Document object model) :-

- DOM is a specification provided by W3 Organization in order to communicate with many hierarchical languages like HTML, XML.
- JS follows this specification in order to communicate with HTML. And as a Java Script user we must understand specification of document object model and then use it to write JS statement.
- Some of the important specification is first of all entire HTML Content all

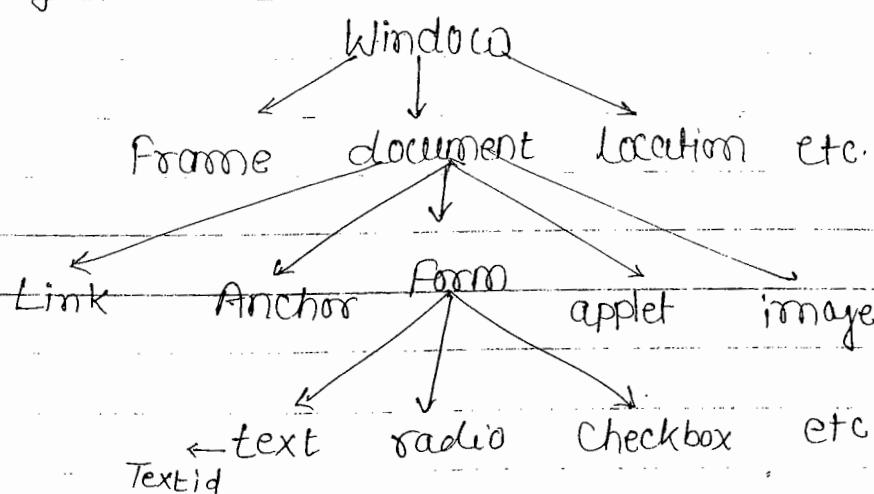
e  
fn.  
17  
umia.  
PG"

Program should be loaded into memory and represent it as a document. After loading the document different object should be provided to communicate with elements inside the document.

JS follows this specification and provides us with document and various object as a developer. We must use those object to perform our program requirement.

### Document Objects

Using JS can access and modify many of the 'obj.' in a document Containment Hierarchy of document object.



eg. `Window.document.Form.textId.value = 100`

eg. `Window.document.form[0].text[0].value = 100`

### Samples:-

- `<Form name = "formName"> ... </Form>`
- `document.forms[0], document.forms[1], ...`
- `document.formName`
- `document.formName.elements[index]`
- `document.formName.formElementName`
- `document.formName.formElementName.property`

```
<head>
<title> <title>
<Script>
    function order() {
        if (document.form.t2.value > 100)
            {
                document.form.t3.value = "10% Off";
                document.m1.SRC = "on.gif";
            }
        else
            {
                document.form.t3.value = "2% Off";
                document.m1.SRC = "off.gif";
            }
    }
</Script>
</head>
<body>
<h1> Order Form </h1>
<form id="frm" name="frm">
    Product Name <input id="t1" name="t1"
        type="text" />
    <br/> <br/>
    Quantity <input id="t2" name="t2"
        type="text" />
    <br/> <br/>
    <input id="b1" name="b1" type="button"
        value="Place Order" onclick="order()" />
    <br/> <br/>
    <input id="t3" name="t3" type="text" />
    <br/>
```

```

</form>
</body>
</html>
```

- Q: How many forms of writing JS is available & which is more preferred method.
- Q: What is an event & how JS support event handling.
- Q: What is the syntax for writing events in JS?
- Q: Can we write multiple scripting languages in a single page?
- Q: Why JS is only preferred as client side scripting language
- Q: What is DOM & how JS is related to it?
- Q: What is Scripting and how any program is executed with C/S & Server side scripts?

Q.

Value 1	textbox
Operator	dropdownlist + * / -
Value 2	textbox2
button to show Result	
Result is 9999.	

20/03/15

## \* DOM Version V1 & above :-

The initial version

of DOM is DOM version 0 and some problems in programming were found in terms of complexity and hierarchy. To overcome these issues and also to provide many new features DOM specifications and new libraries are added and ~~these~~ they all referred as DOM Version 1 or above. One of the important change in this version is referencing element of method called `getelementById` & many other are added to get reference of loaded element.

The advantages of these methods are simplified coding, less coding and no need to follow hierarchy.

Eg. function order() // V1.0 + version.

{ var x = document.getelementById("t1"); }

Var m = document.getelementById("m1");

if (document.form.t2.value > 100)

{

x.value = "10% off"

m.src = "On.gif";

{

else {

x.value = "2% off";

m.src = "Off.gif";

{

{

com  
calculator: CodeProject.com

## References :-

Unleashed ASP.NET - Stephen Walther (book)

.NET Interview Questions -

i) Mr. Naga Raju B.

DreamTech

ii) KoiGalaxy (BPR)

{ StackOverflow.com - to remove errors from  
programs or for  
debugging or problems }

Eg 2. <head>

<title> </title>

<Script>

function show() {

// Open ("JSDOM1.html");

, Open ("JSDOM1.html", "m1");

}

function show1() {

// Open ("JSDOM1.html");

Open ("test.html", "m2", "height = 200,

width = 200, left = 250, top = 200");

}

</Script>

</head>

<body onload = "Show1()">

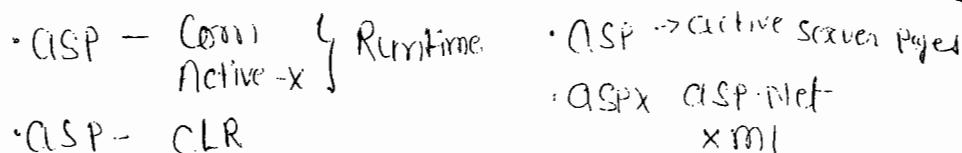
<h1> JS Windows </h1>

<Form id = "Form" name = "Form">

<input type = "button" id = "b1" name = "b1"  
value = "Help Page" onclick = "show()"/>

<input type = "button" id = "b2" name = "b2"  
value = "Demo Page" onclick = "show1()"/>

<input type = "button" id = "b3" name = "b3"  
value = "Close Page" onclick = "close()"/>



23/03/15

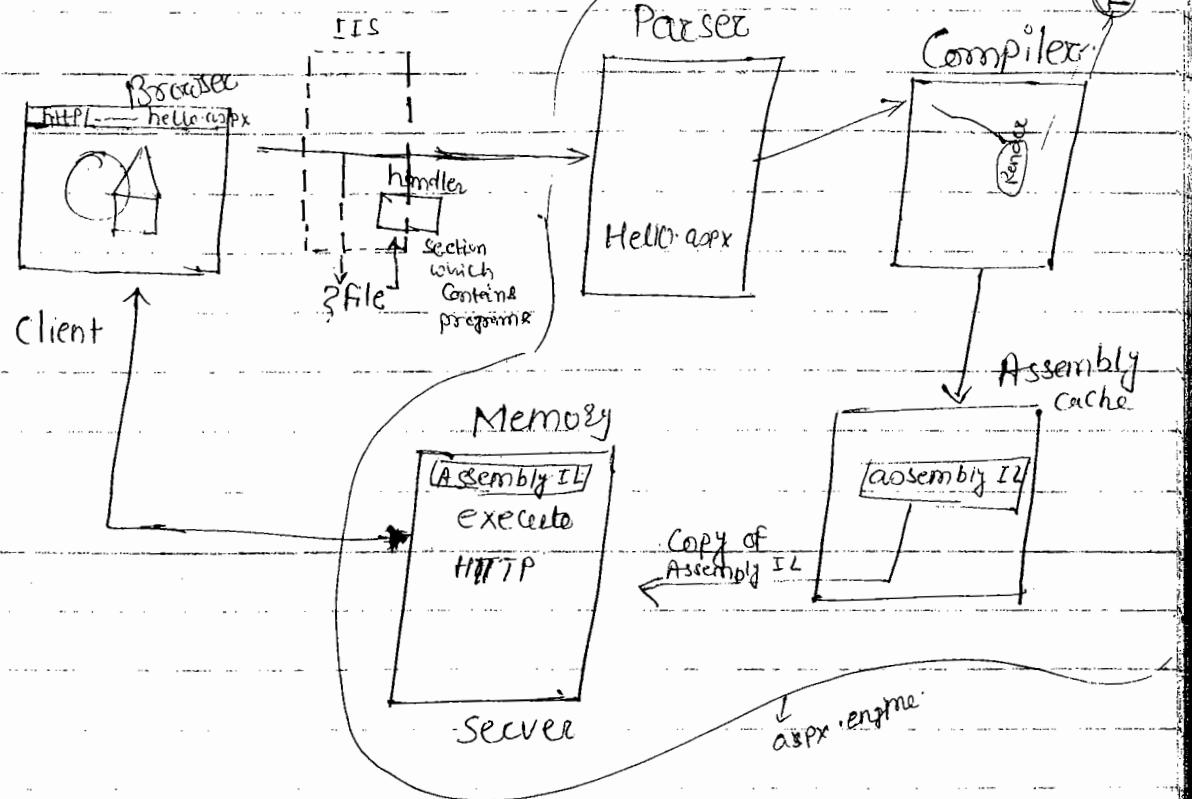
## \* Server Side Scripting using ASP.NET :-

- All programs in web app that are executed at Server Using Server side resources are called as Server side script.
- We must install required software at Server in order to write program in our lang. automatically Server will not provide any software.
- For ASP.NET we must install .Net framework because ASP.NET is part of .Net. In Latest version i.e. ASP.NET 5.0 we have it as a separate source which can be installed in multiple platforms. When we installed .Net framework we will get support for ASP.NET and in addition to it we will also get updated ASP Engine to support old ASP programs. The extension for ASP programs is .ASP & extension for ASP.NET programs is .ASPx where x denotes XML.
- even though .NET framework supports both ASP and ASP.NET runtime that can't communicate with each other because their runtimes are different. ASP runs with active-x runtime and ASP.NET is CLR based.

handler will check

for extension either  
aspx or ".aspx" and send to  
runtime.

## Q. How ASPX programs are executed @ Server?



### Step-Wise execution :-

1. Client makes a request for aspx program.
2. At Server IIS (web server) takes requests & searches for the requested program. When find the program is found it redirects the same to handles section of IIS. This section contains various handler programs which are responsible to check the extension and redirect the program to relevant runtime. In our case aspx program is redirect to ASP.NET worker process (aspx engine).

- iii) ASP .Net worker process will take the file & for the new file it performs Parsing & compilation & stores it in separate memory location at Server, called as assembly cache.  
for old file it directly directs user to assembly cache & from this a copy of requested program is loaded into memory for execution.  
The runtime will execute the program sends the result to user & most importantly destroys the memory after execution.

#### \* Creating ASPX Program:-

In visual studio just like HTML Pages we can create ASPX program. All ASPX Programs are also called as Web forms. Using add new item we have to select web form template in order to create a web form. Lot of support is provided by ASP .Net for creating web pages using ASP .Net web form. It is very important to understand differences b/w creating webpages using HTML and using Webforms.

date 24 March 2015

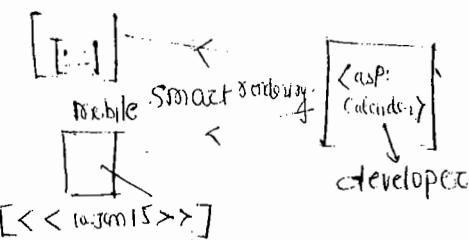
## \* ASP .NET WEB FORMS & CONTROLS :-

When we create a program with extension

- ASPX then it is called as Web Form or ASP .NET Program.
- The structure of ASP .NET Programs starts with directives section which is denoted with `<%@----%>` block. after directives whatever we specify will be with regular HTML Program structure But with an attribute called `runat = "Server"`. This attribute makes anything as server side and it will be processed at Server.
- Web forms are lot supported with Controls and all the strength of web forms is ASP .NET Controls. and the following is advantage ~~for creating~~ of ASP .NET Web forms Over HTML Forms.
  - i) ASP .NET is supported with many Controls (nearly 100) For rapid application development which is one of the feature of web forms.
  - ii) Simplify development:- every ASP .NET Control has many properties and methods which are easily understood and also easily implemented for a task.
  - iii) Exclusive Set of Controls with rendering:- every ASP .NET Control is built with lot of code and made simple for developer. ASP .NET Controls are not understandable to browsers so every control performs a process <sup>called</sup> rendering.

Rendering is not always  
same or not always  
different for sources

NOTE :-



which is defined as "The process of converting ASP.NET states into browser understandable format is called as rendering."

The feature in rendering is it performs conversion based on the client and it can be different for different clients (smart rendering).

#### iv) Better state Management :- Web applications

& their programs are stateless by default which means every request is taken as new request. In this state less process controls will loose the values when a round trip is made to server but for a good program, for a stateful program values should not be lost. And ASP.NET Controls come implicitly provided with state management which is one of its rich feature.

#### v) Rapid Application Development (RAD) :- Smart tags and wizards

are provided for many complex Controls to simplify and make development faster.

Q: Which control gets processed faster b/w ASP.NET & HTML? Why. - HTML, because no need of rendering as ASP.NET Controls.



protected void Button1\_Click(object sender, EventArgs e)

```
{
    if (CheckBox1.Checked)
        Label1.Text = TextBox1.Text + " IS Employed";
    else
        Label1.Text = TextBox1.Text + " Needs a Job";
}
```

∴ 25 March 2015 :-

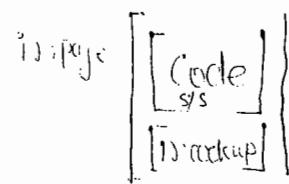
### \* Writing Code for ASP .NET :-

Separate location is provided always for writing S/S Code -

These are two different ways

- i) Code Behind / Beside technique.
- ii) In-Page tech.

In Code Behind technique we will create one ASPX & one ASPX.CS file. Inside ASPX we will write all the markup and design related code. And in CS file all server side code. The advantage of this method is clean separation of design.



and server side code. Most development of ASP.NET use code behind method only. The code file is attached to markup with an attribute in .ASPX file as part of Page directive. Visual Studio automatically takes code file instruction.

e.g. %> @ Code file = "Wf1.ASPX.CS"

iii) In inpage technique we will create only single file with extension .ASPx and devide the file into two parts. One portion for Server side code & the other portion for markup. Because all content is in single page no directive instruction will be written. In visual studio to create web form with inpage technique while adding webform using addnew item we must uncheck place code in separate file option.

e.g. Creating webform in a standard approach

Step i) Right click on project > add new item >  
(web form (code behind))

Step ii) In the created form plan the container based on requirement.

<div> & <table> are most used containers and all browsers recommend <div> for placing the content.

14  
gap - same  
text

3) After creating the containers place <sup>the</sup> content i.e., controls & other required things.

\* 4) Set the required property for every control—  
most importantly every <sup>control</sup> should have unique and  
user friendly id.

5) Finally write code based on requirement.

```
protected void btnSubmit_Click(object sender,  
EventArgs e)
```

```
    blResult.Items.Clear();  
    blResult.Items.Add("Account NO:" + TxtAcNo.Text);  
    blResult.Items.Add("Account Name" + TxtAcName.Text);  
    blResult.Items.Add("Amount" + TxtAmount.Text);
```

```
    if (rdbCreditCard.Checked)  
        blResult.Items.Add("Payment type : Credit Card");
```

```
    else if (rdbDebitCard.Checked)  
        blResult.Items.Add("Payment type :" + rdbDebit  
                           .CardText);
```

```
    else if (rdbcash.Checked)  
        blResult.Items.Add("Payment type : cash");
```

4

auto post back = true

Username

[checkbox] [checkbox] [checkbox]

Submit

Demo  
3-4 if cond.

Online Payment Form

ACC NO:	<input type="text"/>
ACC NAME	<input type="text"/>
Amount	<input type="text"/>
mode of Payment	<input type="radio"/> Credit Card <input type="radio"/> Debit Card <input type="radio"/> Cash
Submit	

Validation

bank name

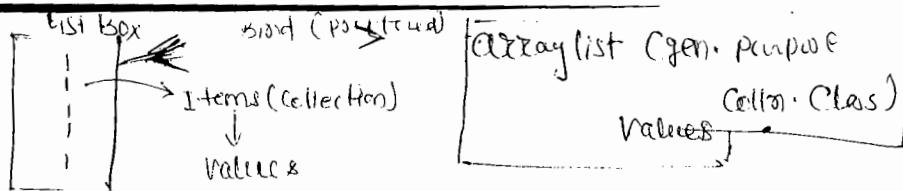
A8

NOT

26 March 2015

## \* \* List Controls in ASP.NET :-

- Among all Controls in Standardized ~~list~~ Category, most important are list Controls. When we want to present multiple values to User and allow one or more Selection from it, then we use list Controls.
- Multiple list Controls are available for different type of user interface and some important



are listbox, dropdown list, checkbox list, radio button list & BulletedList.

All these list Control provide some properties method to access them.

→ Most important is every list Control manages its values using Collections:

→ Finally we can handle & process list Controls in different methods and it is very important to use them in proper or Standardized method.

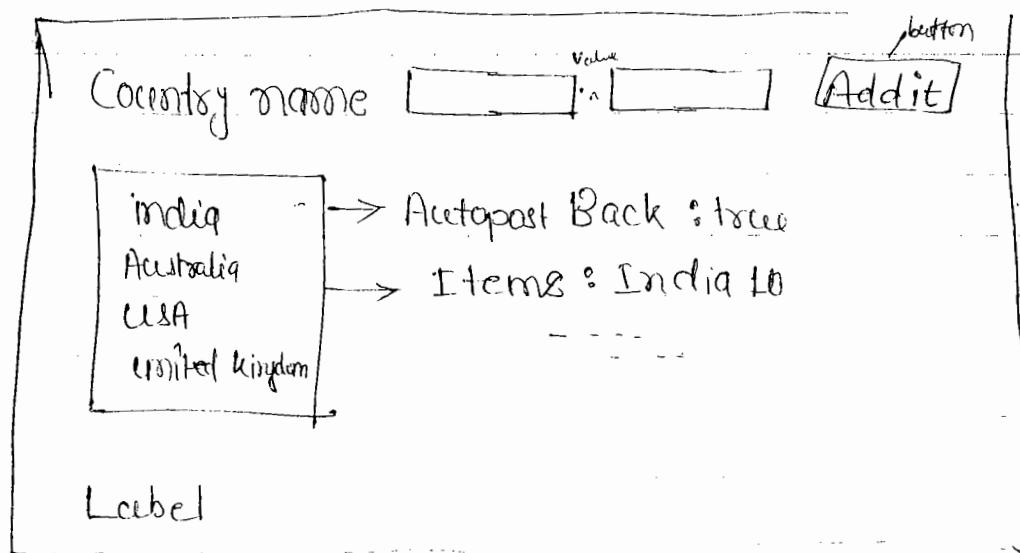
**Q. What is a Collection?**

**Ans:-** It is a group of element exactly like an array but with built-in functionality for several common tasks - additionally some collections can also allow to store different types of elements.

**NOTE**

In .NET it is recommended to use collections instead of arrays.

**eg 1:- Basic ListBox with read/write**



→ Bhavminagar

protected void Button1\_Click (object sender, EventArgs)

{ // ListBox1.Items.Add ( TextBox1.Text );

ListItem obj = new ListItem();

obj.Text = TextBox1.Text;

obj.Value = TextBox2.Text;

ListBox1.Items.Add(obj);

TextBox1.Text = " ";

TextBox2.Text = " ";

}

protected void ListBox1\_SelectedIndexChanged

( object sender, EventArgs )

{ // if ( ListBox1.SelectedItem.Text == "United States" )

if ( ListBox1.SelectedValue == "20" )

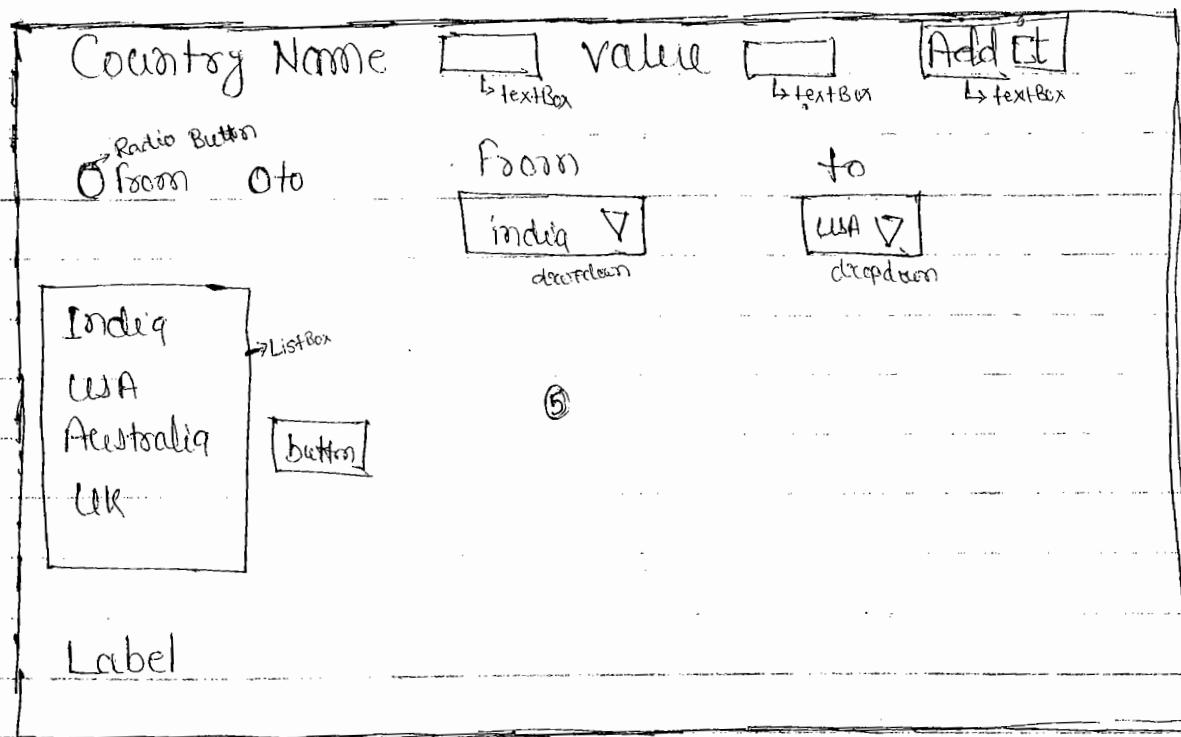
Label1.Text = " Main Hub for IT ";

else if ( ListBox1.SelectedValue == "50" )

Label1.Text = " Main Hub for toys ";

else

Label1.Text = ListBox1.SelectedItem.Text;



date 27 march 15

### \* List Controls with Collections & DataBinding:-

→ Data binding is a process of Mapping data obj. with control for presentation

→ Data object is normally a collection or any other object with data inside it.

→ .NET provides many collection classes for storing user data inside the object.

System.Collections & System.

Collections.Generic are two name spaces where collections classes are present. Generic is new collections classes replacing all old collections classes as they have performance & other issue.

within div

View data → Linkbutton1

→ List Box

India	10 → all no is hidden
Pakistan	20
SRI LANKA	30
Bangladesh	40
Australia	50

○ → RadioButtontlist

□ → Check box list

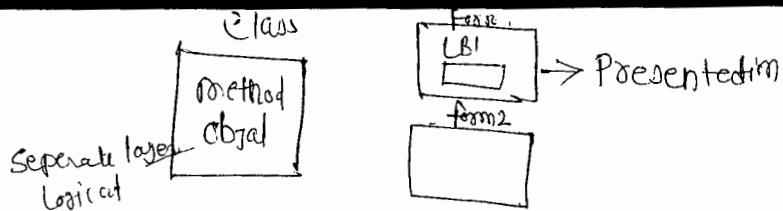
protected void LinkButton1\_Click(object sender,  
EventArgs e)

{  
// Collections & databinding

```
ArrayList Obj1 = new ArrayList();
Obj1.Add("India");
Obj1.Add("Pakistan");
Obj1.Add("Srilanka");
Obj1.Add("Nepal");
Obj1.Add("ABC");
```

```
List Box1.DataSource = Obj1;
List Box1.DataBind();
```

```
RadioButtonList1.DataSource = Obj1;
RadioButtonList1.DataBind();
```



CheckBoxList1.DataSource = obj1;

CheckBoxList1.DataBind();

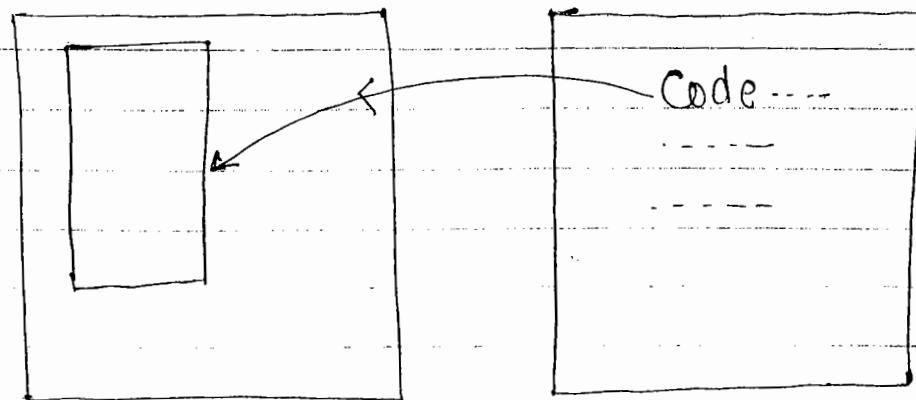
}

In the above Program we have used Collection & Data binding But all the programming is performed in a Single layer which is not a recommended method of working with forms.

→ In real time development writing programs in Layered architecture is very essential. We must use form as a presentation layer. And it should not contain any code related to logic. A separate layer generally called as Business logic layer should be created for writing all logical task. Preparing data objects, performing calculations and all other code related activities should be in business layer. Every statement or code that we write inside this layer should be generalize memo works for every other layer.

Presentation

Business logic layer



Layer architecture:

## \* How to Implement :-

Right click on project → Add ASP.NET folder  
|  
"App\_Code"

It is a predefined folder and ASP.NET provides it for writing all classes code.

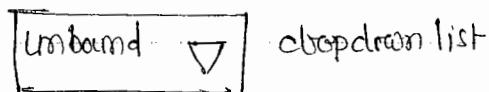
- Right click on App\_Code → add new item  
|  
class say "Utility.cs"
- Inside this class write method to prepare data object and return the same

Using System.Collections;

```
public class Utility
{
    public static ArrayList GetCountries()
    {
        ArrayList Objal = new ArrayList();
        Objal.Add("India");
        Objal.Add("Pak");
        Objal.Add("SriLanka");
        Objal.Add("Australia");
        Objal.Add("Nepal");
        return Objal;
    }
}
```

After Creating Utility Class with required methods Create a form place Controls and invoke Utility class methods

List Button



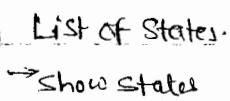
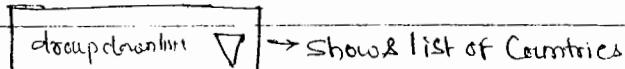
dropdown list

Protected void LinkButton1\_Click(Object Sender, Event  
args)

{  
    DropdownList1.DataSource = Utility.GetCountries();  
    DropdownList1.DataBind();  
}

Demo:-

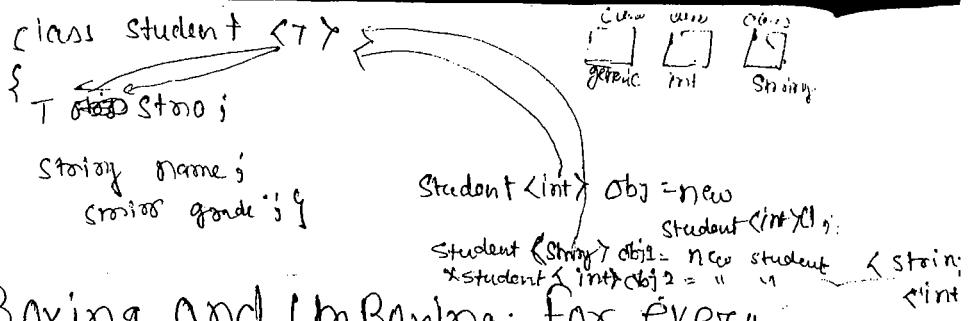
⑥ List Button



Date 28 March 15

\* Working with Generic Collections:-

→ in our previous examples of Collection & Databinding we have used ArrayList class from System.Collections namespace. All classes in this name space are performance wise low because they undergo a conversion process.



Called Boxing and UnBoxing for every storage and retrieval they will perform this conversion which means the more values we use the less is the performance. They also doesn't provide strong type of programming.

- To overcome the performance and strong type programming generics concepts is introduced and using generic we can do strong type programming and also better performance outputs.

Q. What are generics?

Ans:- It is a concept that allows user to create template kind of classes. A generic class is a class which is reusable with multiple types.

e.g. class Student<T>  
 {  
 T sno;  
 String name;  
 String grade; }

Where T is a data type which is passed at the time of instantiating a class. We can use pre-defined and user-defined types while passing data types to generic classes resulting in reusable class.

e.g. Student<int> obj = new Student<int>();  
 Student<String> obj1 = new Student<String>();

Collection  
ArrayList  
HashTable

Collection  
List<T>  
Hashtable<T>

```
student s1;
s1.name = "Shivam";
s1.rollno = 101;
s1.marks = 90;
```

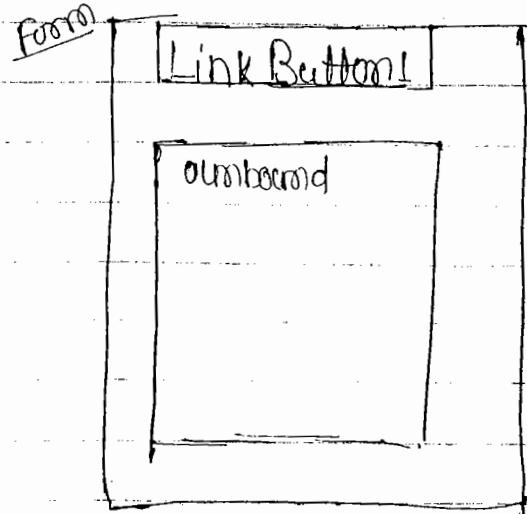
## \* Generic Collections:-

A generic collections memo a generic class with collection functionality. .NET provides all generic collection classes System.Collections.Generic name-space and it is highly recommended to use generic collection classes instead of normal collection classes.

Eg. public class util

```
{  
    public static List<String> GetCountries()  
}
```

```
List<String> Obj = new List<String>();  
Obj.Add("India");  
Obj.Add("Pak");  
Obj.Add("Nepal");  
Obj.Add("USA");
```



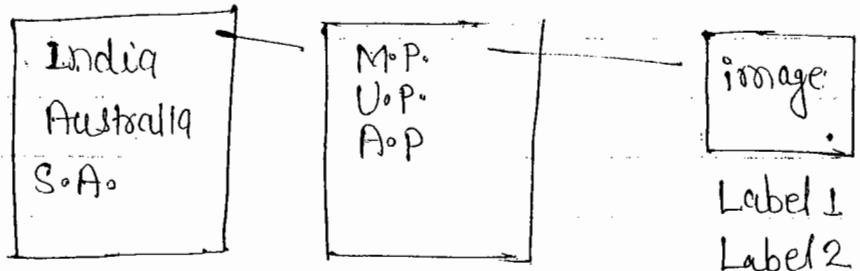
in Link Button:

List Box 1. DataSource = Util.GetCountries()

List Box 1. DataBind();

Image1. ImageURL = "lumia.jpg";

### Link Button



Date 30 march 2015

### \* Imagemap Control (ASP.NET Rich Control) :-

ASP.NET has 3 image Controls

- i) <asp:Image...../> for static images
- ii) <asp: ImageButton...../> for displaying image as a postback Control like

Button

- iii) <asp:ImageMap...../> which is used for displaying image with area wise selection (Hotspots mode)

- Image & ImageButton are Basic Controls of ASP.NET. Image Map is very rich Control and can display images with hot spot Selection. Using Image map we can provide an area of image for navigation and selection.

purpose. The areas can be rectangle, circle or polygon shape. We can use these areas for navigation purpose and also postback purpose.

→ The following example is a simple navigation example using image map with hotspots.

Example 1: Image map with navigation.

- In a new form place imagermap control from toolbox.
- Set the following properties-

Image URL: SolarSystem.jpg

Hotspots: (Collection) property

Appearance:

in demo a rectangle hot spot is taken

Bottom 230

Left 0

Right 250

Top 0

▷ Behaviour

AltText Text Sun is planet on Center

HOTSPOT Mode NOT Set

Navigatio URL ~/Default2.aspx

Example 2: ImageMap with postBack (mp)

previous example of image map

Was with navigation more productive use of image map can be when we use it with postback because with postback when user clicks on hot spot we will perform some action in the same page & display an interactive result. In this example we will also use one html control called

Imagemap  
label  
Iframe

< iframe....> Using this Control we can display other page contents as part of the current page as a portion of current page.

Steps :-

- In a new form place Image Map and below that label.
- goto source view and below label write <iframe....> as follows.

<iframe id = "ifSelectResult" runat="server"  
width = "895" Height = "500"  
src = "http://en.wikipedia.org/wikil  
Solar-system">  
</iframe>

→ Now Select image map & goto hotspots and define as many required.

Example for Rectangle <sup>Hot</sup> Spots -



Bottom	258
Left	0
Right	110
Top	0



After hate Text SUN  
Hotspot mode PostBack  
Navigate URL  
Post Back Value SUN

similarly other hotSpots.

- Now double click on imagemap to get its click event inside this check postback value and perform the required ~~value~~ action.

under imagemapSolarSystem\_Click( )

If SelectResult.Attributes["Src"] =

"<http://en.wikipedia.org/wikil/>" +  
e.PostBackValue;

Switch (e.PostBackValue)

{ Case "SUN":

// when user clicks on the sun area

lbDirection.Text = "The Sun is the star at the

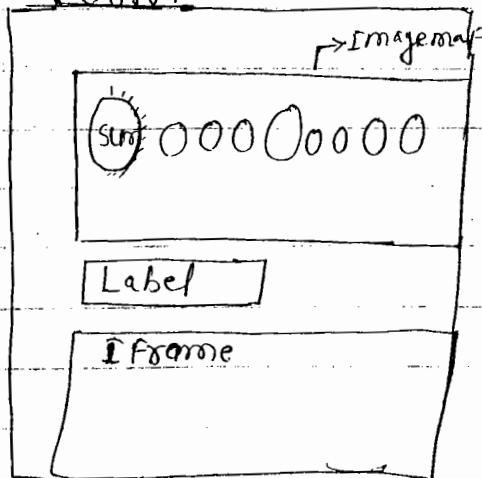
center of

break;

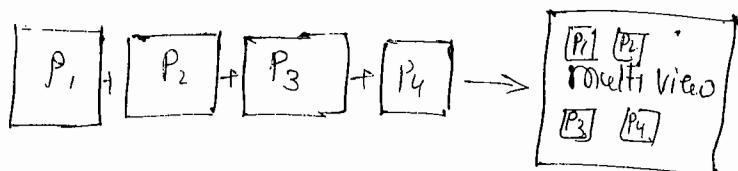
default:

break;

Form



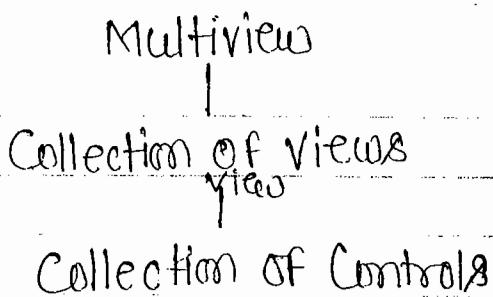
Activeview index



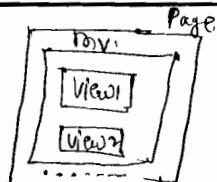
date-01 April 15

### \* Multiview Control :-

- It is one more rich asp.net Control.
- Using multiview Control we can display Multiple pages Output in a Single page. In Internet Websites Single Page Apps are very valuable because user will be more stateful by displaying all the Content in a Single page.
- Practically multiview Control is Collection of views and a view is created using another Control called view. and every view is Collection of Controls.

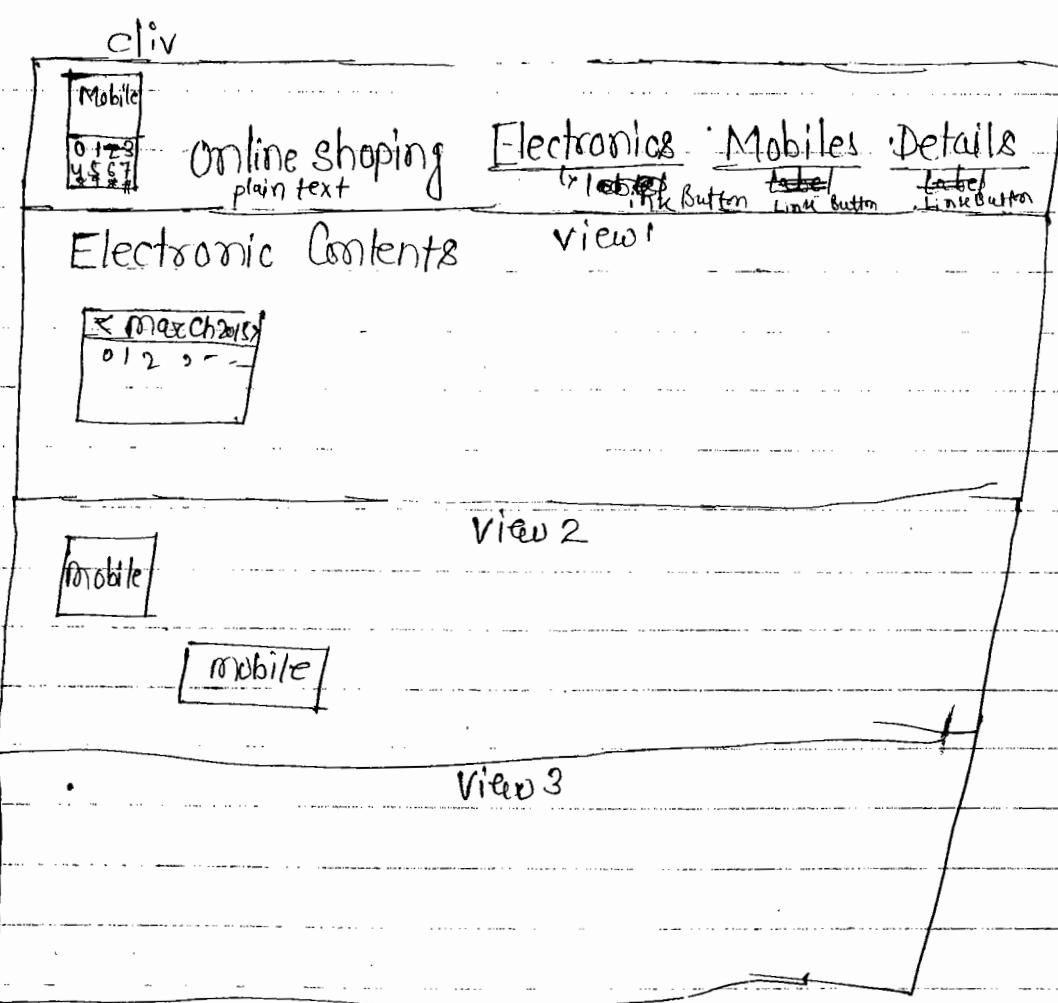


- Multiview Control manages all its views based on the indexed property called "activeview index". It is used to specify the view which we want to present in the collection. By default this property value is -1 which means no view is displayed. According to requirement we have to change this property.



\* \* \*

i/15



Code

LinkButton3

+ 4 mobiles

multiview1.ActiveviewIndex = 1

4

LinkButton4

{ //tablet PC's

multiview1.ActiveviewIndex = 2 }

LinkButton1

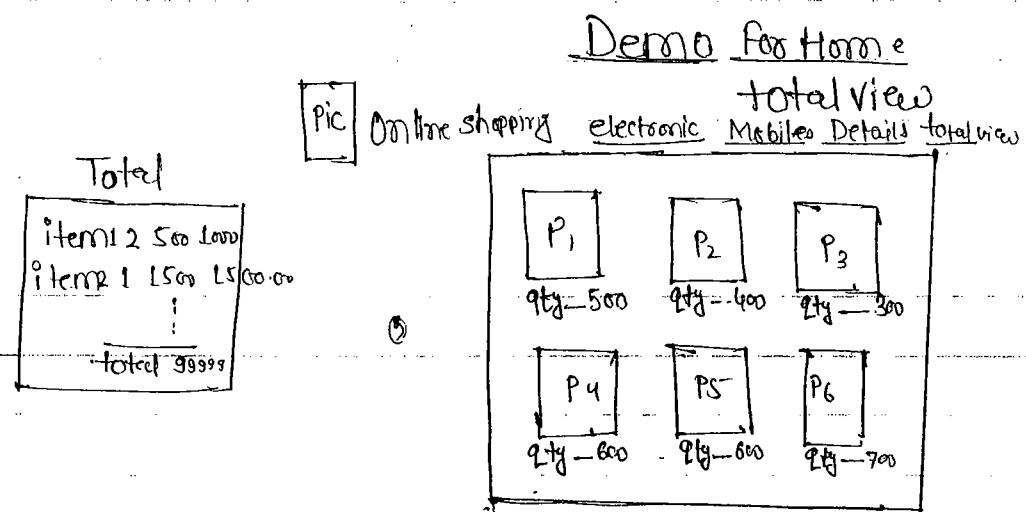
{ //electronics

multiview1.ActiveviewIndex = 0 ;

4

imp<sup>1</sup> → While Using multiview it is very important to understand that all the views are loaded into memory with all their controls so we must design page with proper load. We should not create multiple or lot of controls in single page.

imp<sup>2</sup> → Accessing Controls remain same even though the content is displayed in different views directly with control name we can access the content.



\*\* Panel :- It is a simple & useful Control.  
It is equivalent to <div> in HTML.

- The advantages of Panel are always -

i) as a Container.

ii) Scrolling the Container Content.

As a Container we can always use it to access

child Controls inside it and also set common properties directly from Container to child. At Runtime when we create a Control in asp.net - we require a Container to add it - Panel is one good Container for this purpose.

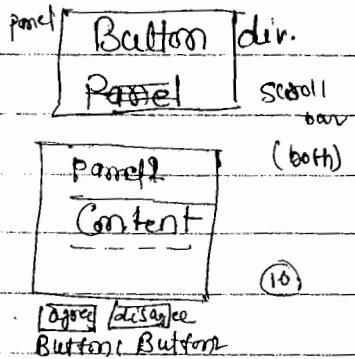
For Scrolling also it is very usefull. When we have large Content like "License Content" and similar we can ask panel to scroll the Content within the page.

For Button

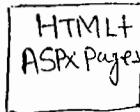
```
TextBox t1 = new TextBox();  
Control t1.BackColor = Color.Red;  
t1.ForeColor = Color.White;
```

```
Panel1.Controls.Add(t1);
```

Panel Demo



→ Panel is used for Scrolling also.

April  
02/04/2015

## \* Working with multiple forms :-

### Navigation in website :-

Every ASP .NET website is collection of HTML and ASPX pages and by default we will display a page from our entire site as a default page or startup page. Normally default .Aspx is considered as HOME page of Every ASP .NET website . So we must ensure we always have default .aspx Page and that to as our Home page.

- If we want any other page as startup page for our website then We can simply right click on the page and select set as add page option.
- Irrespective of startup page issue it is always important to provide navigation option from one page to other . Both HTML and ASP .Net has several options for navigation . the following are some of the important options in order of preference:

#### 1. Using HTML anchortag <a> → HTML provide Hyperlink Concept

Using the anchor tag . We can specify `<a href = "payments.aspx"> Make payment </a>`

so that we get a hyperlink called make payment and on clicking it we are redirected to payments . aspx page

2015

2. Using ASP.NET Hyperlink Control:- ASP.NET also provides HTML &

anchor tag kind of Control called Hyperlink.

It will provide a property called navigate URL which takes the page Main to navigate and then it performs the navigation. We can drag drop this Control or type in SOURCE view like this-

```
<asp:Hyperlink ID="hl1" runat="server">  
    NavigateUrl="Demo.aspx"  
    Text="Invoke Demo"/>
```

3. Using Response.Redirect (URL):- ASP.NET is

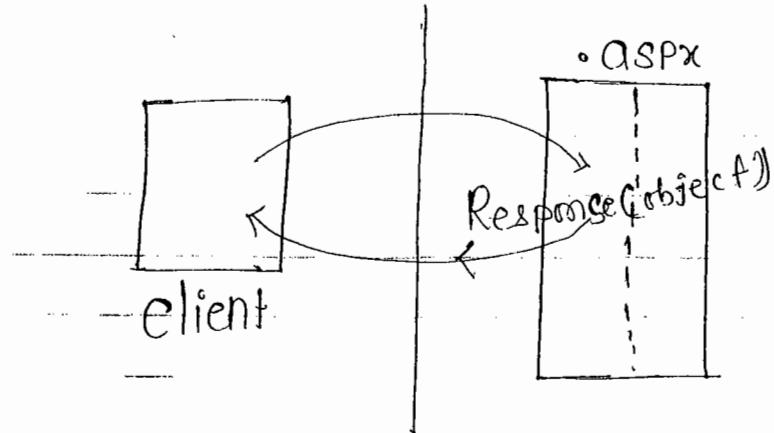
Practically Collection

of various objects. As a developer if we know these objects perfectly we can build ASPX based web sites lot easily. Among these objects response is one and the purpose of this object is to provide response from ASPX program back to the client and response means any type of content from server to client like a text displayed in browser, an instruction to browser a file to browser, etc (response doesn't mean only output).

Response Object has many important methods and redirect is one which provides an instruction to browser about the page to navigate. This page can be present in our website as well as in other websites.

Response object of which class?

Redirect  
Response



### Example :-

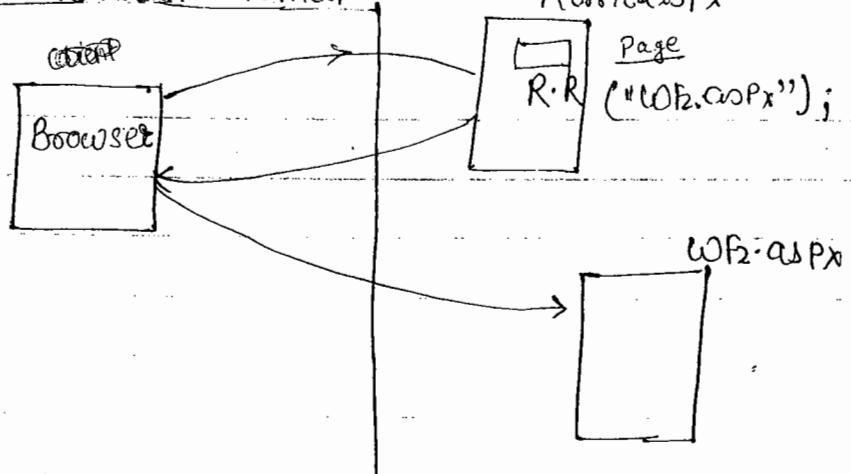
Response.Redirect ("WF2.aspx");

Response.Redirect ("http://maps.google.com");

Response.WriteLine();

Response.Writefile();

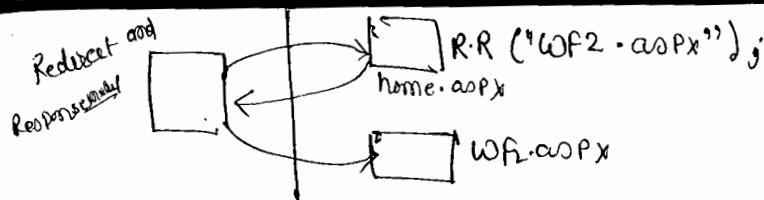
\* Response.Redirect method works. home.aspx



Q: \* Redirecting with values :- When we use redirect method it

Only performs navigation But it is also important to perform navigation along with the current Page value to new page.

Redirect method has no options to carry values from current page to new page.



We have to use one HTTP Concept Called  
"Query String" which allows user to write  
values along with Page in the following format-

QueryString Format:-

PageName? varname = value & varname = value  
..... " 255 chars

can be send from one page to other

Ex:- " WF2.aspx ? amount = 5000 & acno = 3439"

will redirect to WF2.aspx by carrying 2 values  
i.e. amount & a.no.

example of R.R method :-

Payment      Google      Visit Nilotan maps

↳ LinkButton

Enter user name

→ TextBox

[SUBMIT] → Button

Link Button 1

{ Response.Redirect ("WF2.aspx"); }

Link Button 2

{ Response.Redirect ("http://www.google.com"); }

Link Button 3

{ Response.Redirect ("http://www.google.com/  
maps/place/...") }

Button 1

\* Response.Redirect ("Shop.aspx ? l = " + TextBox.  
Text);

\*\* In response.Redirect method will call any method server from a page to the page which is not in our website but s.t. Call only to those page which is in our website

Shop.aspx Page

protected void Page\_Load (Object Sender,  
EventArgs e)

{ Label1.Text = "Hi" + Request["q"],  
}

For Demo in Second Page

User Name

Email Id

Button

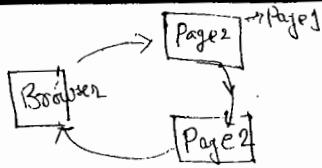
\* Using Server.Transfer (<PageName>):

2000 characters

Server is One more ASP.NET Object & it represent the Server Environment where our website is running. Using Server object we can find information of Server where we hosted our sites. One method of Server object is Transfer which redirects user from current page to new page at Server. Transfer will not redirect any instruction to browser. And it takes input as page name & this page should be present in same website otherwise we will get an error.

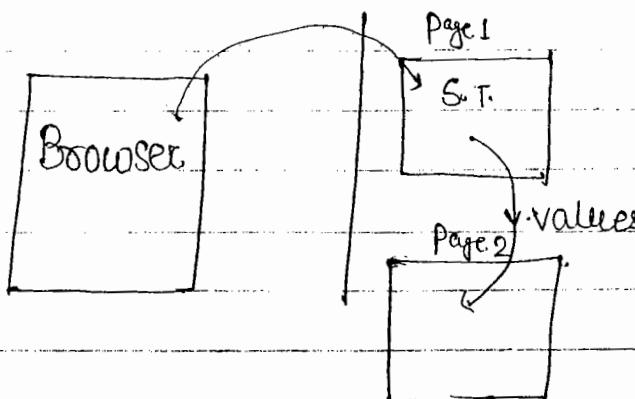
Transfer method also have the ability to transfer current page values to new page. All page values gets transferred when we asked this method for navigation.

method  
website  
bsite



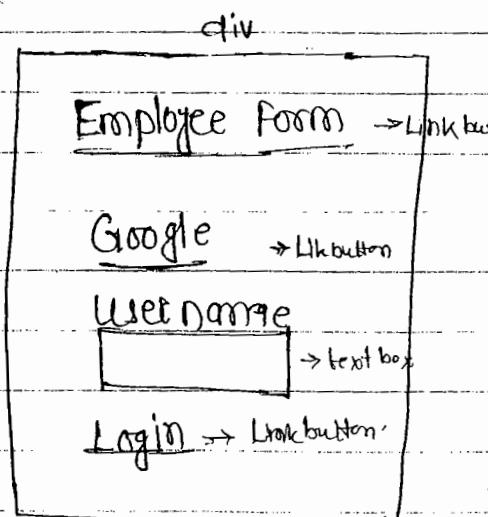
S.T. has no option to send single query to another page. It send all value or no value.

One very important issue with server transfer is "URL update in browser" because navigation occurs at server we will not get the browser URL updated with the new page. because of this issue Server Transfer is less used.



\* \* S.T. doesn't get outside from other Home Page.

Example: SPHOME.ASPX

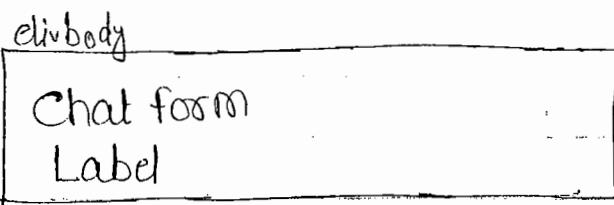


for LinkButton1\_Click  
{ // Page in current website  
Server.Transfer ("WFI.ASPX");  
}

protected void LinkButton2\_Click  
{ // error in other website  
Server.Transfer ("http://www.Google.co.in");  
}

LinkButton3\_Click:

{ // true... navigate with value  
Server.Transfer ("Chart.ASPX", true);  
}



```

Protected void Page_Load (Object sender,
{
    Label1.Text = Request["TextBox1"];
}
  
```

### Demo

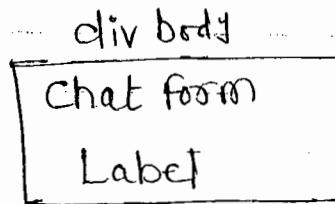
#### Employee form

Google

User name

Phone no.

Login



Output  
Rakesh singh 8517033325

I.Q. diff. b/w Response.Redirect() & Server.Transfer()

Qn:-

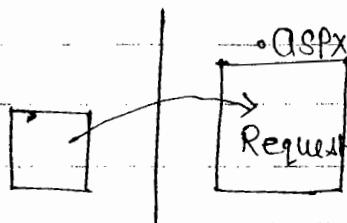
date 04 april 2015

- Practically what is ASP.NET for a developer?
- what is use of Response Object in ASP.NET?
- Using Response Object can we send a file from ASPX program to client?
- What is the use of Server Object?
- Which method of which object is used to provide navigation instruction to browser?
  - QueryString Format :-

- Is transfer of Server Object faster than Response.Redirect? Why.

- What is the use of Request Object?

Ans:- Any values which are sent by client to Server can be read using request object



5) CrossPage PostBack:- In ASP.NET we follow Postback Concept in order to load and submit the form. In normal submission process user gets one form and on submission goes to another form. In ASP.NET webform, single form only will be used for displaying 1<sup>st</sup> time and also on submission. Postback form is defined as when we submit a form to itself. It is called as Post Back.

In ASP.NET every form that we create is by default a post back form. To provide simplicity & stateful requirement we will use Postback Concept.

Example:- Normal Submission Process :-

Emp.HTML

```
<!DOCTYPE html>
<html xmlns = "http://----->
<head>
<title> </title>
```

```
</head>
<body>
<form id="Form" action="Print.aspx">
    <h2>Some Content </h2>
    <input type="Submit" name="name"
           value="submit"/>
</form>
</body>
</html>
```

Create Point.aspx and

execute html page i.e.  
emp.html & click on submit and notice it redirects  
to point.aspx and that is normal submission.

Example :- aspx form submission

Create aspx page and don't write any  
action attribute because ASP.NET will automatically  
add it at runtime. place a button execute the  
form and observe it submits the form to some  
current form resulting in postback.

Crosspage Post back means we can tell ASP.NET  
to submit the current form to a different  
form unlike postback submission. For this  
we have to use a property called PostbackURL  
where we can specify the form to run

Example : button → Postback URL : Print.aspx

NOTE: For Control ~~Web~~ we should not specify Cross Page postback  
we should not write any code for it.

date 06 April 2015

## \* Navigation Controls:-

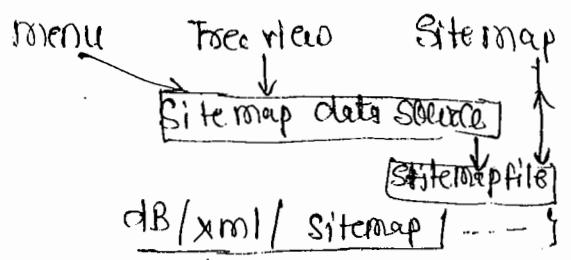
Apart from all navigation options we can also use navigation controls to implement rich navigation for a website. We have 3 navigation controls:-

- 1) menu
- 2) Tree view &
- 3) Site Map Path

All three are rich ASP.NET controls & they provide very good support for presentation <sup>and</sup> navigation. To consume these controls we can place them and use with constant values which is not preferred and we can also use them with data source options which means getting the data and navigation options from storage files. With data sources is highly recommended because we will have good manageability options with data source.

## Example: Simple usage of navigation controls

- Place menu & treeview controls and set their properties to provide display as well as navigation options.



→ For Menu → We have edit items or items Collection where we have to create each item along with text, navigational option.

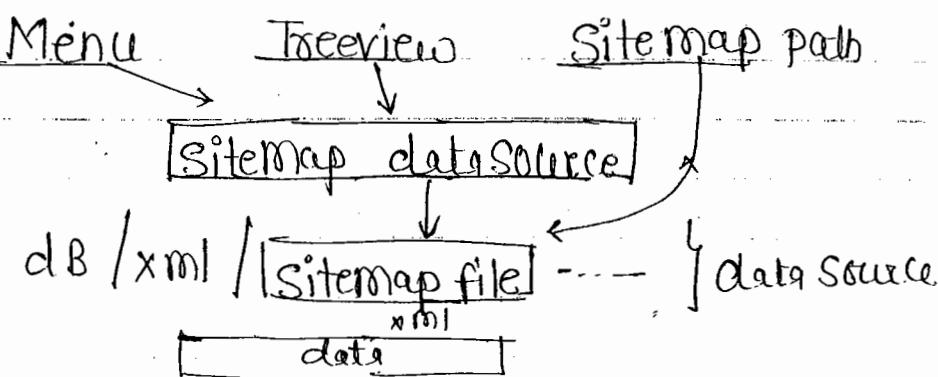
For treeview we have edit nodes or nodes as collection with name properties.

Both these Controls have many properties to Controls its layout - we have to just use them according to our requirement.

Like menu has Orientation: vertical / horizontal

Example 2\*: Menu, treeview with data Sources.

Step 1:-



Step 1:- add new file > sitemap file

\*\*\*we don't have to

change the file name.

Enter all the data using <sitemaphnode...>

```
<?xml version = "1.0" encoding = "utf-8"?>
<SiteMap xmlns = "http://schemas.microsoft.com/
    Com/Aspnet/Sitemap-File">
    <SiteMapNode Url = "Home.aspx" title = "HomePage">
        <SiteMapNode Url = "WF1.aspx" title = "Employee form">
            <SiteMapNode Url = "WF2.aspx" title = "Payments Page">
```

```
</SiteMapNode>
</SiteMap>
```

→ After <sup>Creating</sup> Sitemap file we have to place Site Map Path Control in every page where we specified an entry end SiteMap file. Sitemap Path automatically checks the page and its entries and displays the title along with hyperlink to its parent.

→ For getting Sitemap file Content in menu & treeview we have to use sitemap data source. Place menu & Select new data source and then Select sitemap option for getting Sitemap data source with all settings. Similarly tree view also just specify site map data source automatically it will present the data from site map file.

NOTE:- By default along with root all the options are displayed to user in presentation for better output we could like to skip the root node for pages for this we have two good options in Site MapDataSource Controls.

Properties: ShowStartingNode - false (set)  
StartingNodeURI -

Q. For web website why do we required navigation options. And what are the top ways of providing navigation?

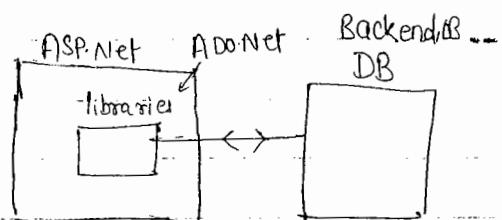
A. Virtually imagine a website like google & flipkart and design a menu option view in aspx pages.

A. Out of all 6 navigation method which are more suggested to an end user and how we have to plan navigation?

A

07 April 2015

## \* Working with Data Sources :-



Q. What is a data source?

Ans. The location where we store data related to our program is called as data source.

→ The application that we are developing is called as front end.

→ A front end can't store data on its own it depends on data sources (also called as backend for storing and retrieving data). Different data sources are available and most commonly used is database. Other data sources include XML, MS Office, and the latest cloud environment.

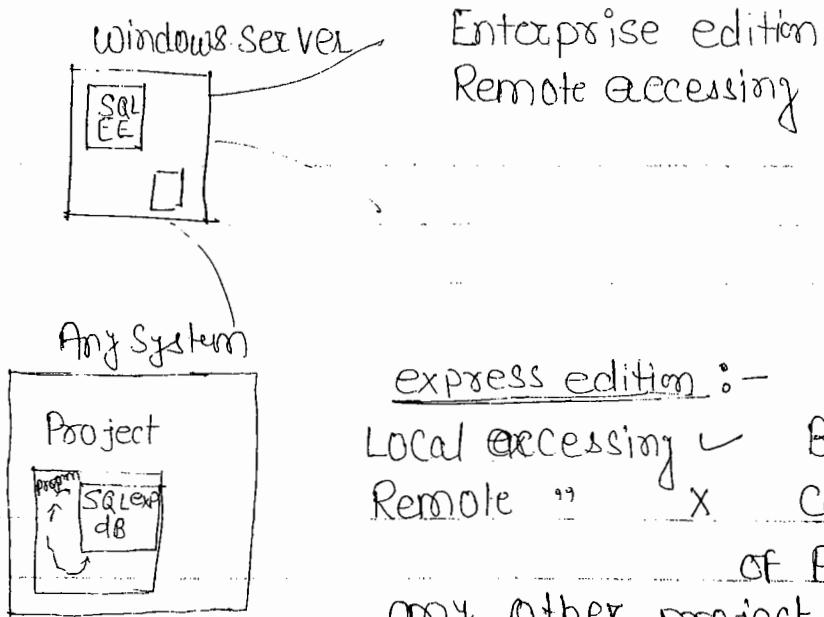
→ The role of front end is to provide library to communicate with data sources. .NET has a title called "ADO.NET" which are set of libraries to communicate with all types of data sources.

→ In ASP.NET most of the database communication is performed with a concept called data binding.

SQL — Enterprise edition for working with ASP .Net SQL  
— Express " should not be installed.  
— Compact "  
— Azure - Cloud "

It has rich support for working with different types of databases and also other data sources. By default .NET and ASP .NET has full support to work with SQL Server database. Other than SQL Server we can work with other DB but we must install provider libraries related to the require database.

\*\*\*



#### express edition :-

Local accessing ✓ But outside  
Remote " X Can use proj.  
of Project

any other project of same system can't use SQL exp. of other project.

- Free SQL Server
- Local & Light weight DB

→ during development time - simple & also fast.

→ Installed with VS itself.

#### Compact devices<sup>edition</sup> :-

- Compact devices
- eg. mobile, tablet @ PC's

# Enterprise memo out of my project

→ Azure - Cloud Edition

- Cloud dB - latest

\* Demo 1:- ASP.NET Webpage using SQL Server Express DB.

- Start any asp.net project > Add

ASP.NET Folder

APP-data

(For all data related files we use this folder)

For app-data Right click on app-data

Add New Item

SQL Server database

- Result : an mdf file will be created - double click to get "Server Explorer".

Right click on table → Add new table - Create with given UI:

- update will only generate and update with dB.

- Right click on created table → Show table data

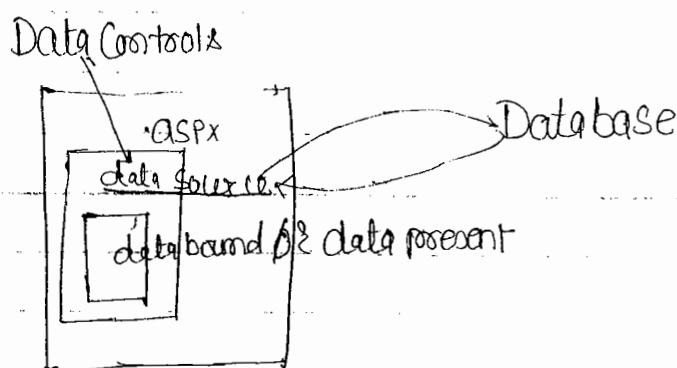
to insert, update and delete.

→ Once BackEnd is ready we can create our front-end ui with controls & support that ASP.NET provides.

To Simple generate the front end output one RAD method is to drag and drop the table from Server explorer to form.

Date 08-April-2015

### \* ASP .NET Data Binding Using DB'S :-



Data Controls in toolbox :- ASP .NET has rich support for presenting data in databinding style in toolbox. Separate tab for data related controls and tab name is also data. we have two types of controls inside them -

1. dataSource Controls - these are controls which connect with dB and get all database data to our program. internally these controls use ADO .NET Libraries to communicate with database. Today we have multiple Ado .NET versions and to support all of them we are provided with <sup>different</sup> dataSource controls.
2. databound Controls or presentation Controls :- using these controls

We present data to the user. databounds Controls get data from any data Obj which is prepared by dataSource Controls or which is prepared by programming Code (by developer). In real time application most of our outputs are based on Coding not with data source Controls.

Eg:- SQL DATASOURCE Control with gridview as data bound Control.

SQL dataSource Controls use the older aids .NET Version i.e. 2.0

Steps:- <sup>working</sup> for express

1. in a new form place SQL dataSource & Configure data source by specifying dB, table & other Options in the displayed format.

Result:- data object is created automatically.

2. Once dataSource Controls is prepared place gridView and set dataSource as created "SqlDataSource1" - choose other required options and execute the form.

Eg:- SQL Enterprise edition.

- IF we want to work with enterprise only change is while selecting the database - rest all programming or steps will be same.
- After placing SQL Data SOURCE → Select new Connection → "Microsoft SQL Server" for SQL

Server and we can install Oracle and other tools also to work with them  $\rightarrow$  based on Selecting we will get the window - just enter location (., localhost, ipaddress, any other string given by remote servers) authentication (Windows, SQL Server based on installation).

DataBase: a list should be displayed where we choose dbname & tables.

Eg:- Always databound Controls needn't be chosen from "datasab" - We can use regular or standard Controls also for presenting data from datasource or data objects. ex:- a List Control is also capable to getting data.

Date 09 April 200

Using ADO.NET Linq to SQL & Linq to dataSource Control:-

- In our previous example we have used SQL datasource Control which internally ADO.NET Version 2.0 objects. Linq to SQL is ADO.NET Version 3.5 (concept). It overcome all the drawbacks of ADO.NET Version 2.0 and provide rich approach in communicating with database. The following are concepts about ADO.NET 2.0 & Solution in 3.5.

Concepts:- ADO.NET 2.0 uses "dataset" & "datareader" objects in order to stored the data these are MS proprietary objects and doesn't supports kind of functionality means good with in .NET but poor with in Non-.NET application.

No Service Oriented Capabilities.

Not good in heterogeneous environment.

2) No Standardized programming:- Ado .Net 2.0 doesn't follow any industry

Standardized programming model resulting in multiple projects following multiple programming principles. Many application because of which didn't succeed and resulted in lack of good functionality.

3) Skilled Programming is required (In terms of data & logic):-

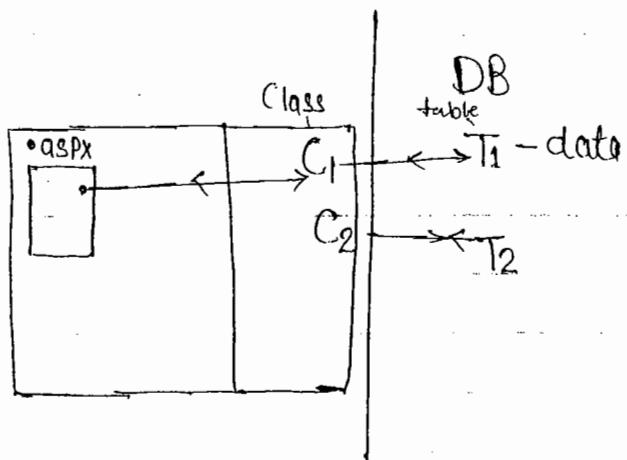
With Ado .Net 2.0 we have to write all coding in proper planned and carefully. Otherwise the volume of data and attacks will be more for our application. For e.g.- We must never write `Select * from table name`. We should write with a condition.

Apart from these major concerns many programming issues are also found in Ado .Net 2.0 as concerns.

### \* ADO .NET Link To SQL :-

- i) Microsoft introduced a new release of Ado .Net by following industry standardized "ORM" pattern (Object Relational mapping).

iii) Linq to SQL is the first ORM implementation in .Net. According to this pattern we must create front end class that represent database objects. Once classes are created entire communication should be performed through these classes only. no direct communication with database.



Generic Collection Objects :- Linq to SQL doesn't have any object like data sets & data reader they use strong and featured generics concept for all their storage. Using generics & their collection we can easily communicate with non .Net applications also.

Simplified and Strong Programming :- Many concepts like mapping, loading are added to linq to SQL resulting in smarter execution and also with less attack options (almost nil)

eg:- Steps for Linq to SQL

i) Insure that database is present and check tables with data.

ii) Right click on app-code and add new item

### Linq to SQL classes

In ORM designer is displayed where we can drag drop tables from server explorer to designer - result is frontend classes are created. Save it.

Create a new form & place "linkdatasource" control - Configure it with created classes - choose the required table.

Finally place gridview and set datasource to "Linqdatasource1".

Q. difference b/w sql datasource and linqdatasource Control?

Date 13 April 2015

### \* Working with ADO.NET Entity framework:-

After link to SQL .NET had one more Ado .Net version called entity framework. Using this Ado .NET we can build some ORM based applications. the following are the reasons to provide new version for Ado .NET instead

Method/member

↓  
Class

↓  
Class Library.dll, exe

ADO.NET → LINQ to SQL → ADO.NET EFW

framework

many libraries + Runtime

entity framework

## OF LINQ TO SQL:

:- differences :-

→ LINQ TO SQL (ORM) :-

- i) Works Only with SQL Server DB.
- ii) Limited mapping options.
- iii) Limits to one-tier development - doesn't allow user to implement rich n-tier architecture based applications, no rich programming options (many programming options are not available)

→ ADO .NET EFW (ORM) :-

- Works with almost all DB's and latest version even supports non db environments i.e. nosql db's like DocumentDB, mongoDB etc.
- Rich mapping options.
- Supports N-Tier Architecture.
- Multiple Or many programming methods.
- Earlier versions of ADO .NET were just libraries and this is provided as a framework

+

Apart from these all standard features of LINQ to SQL & ADO .NET 2.0 are supported

- ADO .NET 4.0 introduced entity framework 4.0 (.NET FW 4.0)

## Install - Package

EFW

all these are supported by VS 2013

→ ADD .NET Entity Framework 4.1 / 4.5 / 5.0 / 5.X / 6.0 / 6.1 / 6.1.X / 7.0

Old VS's

Minimum

↓ supports

VS 2012

VS 2013

VS 2015

Q. How do we upgrade or install higher version of EFW  
in any VS environment?

2 Options\*\* ( Same procedure i.e. Same 2 options for other installation also)

i) Right click on project → Manage Nuget package  
Options

Select required package and click on "Install"

Other method

Tools → Nuget package manager

Package Manager Console

A PM > Prompt is displayed where we have to type "Install - Package Entity framework"

Example: EFW 6.X with VS 2013

EntityDataSource Control

- Start a new empty website.
- Add DataBase or ensure that db is available in enterprise/ express.

- Create "App-Code" folder → Right click on it → Add new item → ADO.NET Entity data model  
Select db & table(s) for which we have to create front-end classes.

Result:- a designer is displayed with all front-end classes for selected tables.

- Create a new form - place entitydatasource control and configure it with classes.
- Finally place gridview and set datasource to created entitydatasource.

Note:- If an error is displayed while configuring Entity data source, go to app code → Right click on .edmx and select open with XML Test editor option → in the displayed file we have to change provider manifest token = "2008"

Q: LinqDataSource & EntityDataSource Control difference?

date 14 April 2015

\* Preparing DataObject Programmatically :-  
(Using ADO.NET 2.0)

In our previous examples we have prepared data objects using dataSource controls of ASP.NET like SQLdataSource, LinqDataSource and entitydatasource. In real time application we always prepare data

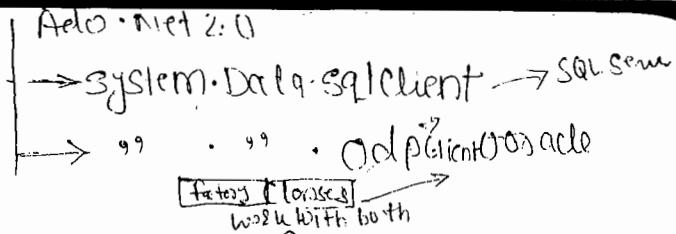
In programmatic method which means writing code using ADO.NET class and then using them the created data objects for data binding & other purposes. Most of the project requirement can be easily fulfilled using this programming methods. It is also important to follow layered architecture in building code based programs.

→ In ADO.NET 2.0 we have to write more programming code than any other higher version. We have to understand different classes their uses and combinedly use them in our layered architecture.

→ System.Data is the root namespace for performing all database actions in all versions.

→ System.Data.SqlClient and other namespaces at this level are used to connect with particular database and perform all operations. SQL Client is used to connect with almost all types of SQL Server database. Similarly "Odbcclient" (when installed) is used to connect with Oracle database.

→ In ADO.NET 2.0 one "industry standard pattern called "factory pattern" is provided with factory classes concept. Using these factory classes we can communicate or write our programs which



works in generic style of communication means a factory class will not be limited to work with particular database. It can be used with any kind of database (with small changes).

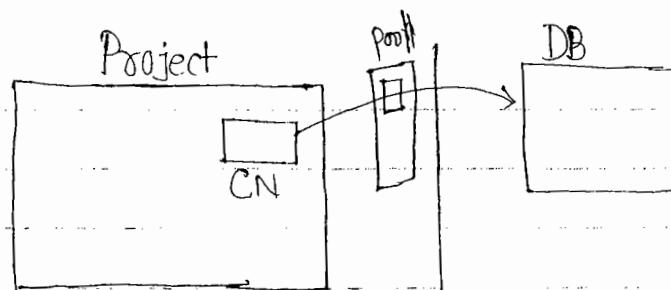
In Ado .Net 2.0 at project level it is recommended to use factory classes only in order to communicate with databases. However to start working with databases we can begin using database specific classes & then migrate to factory classes coding.

of Ado .Net 2.0

The following classes are available used to perform various actions

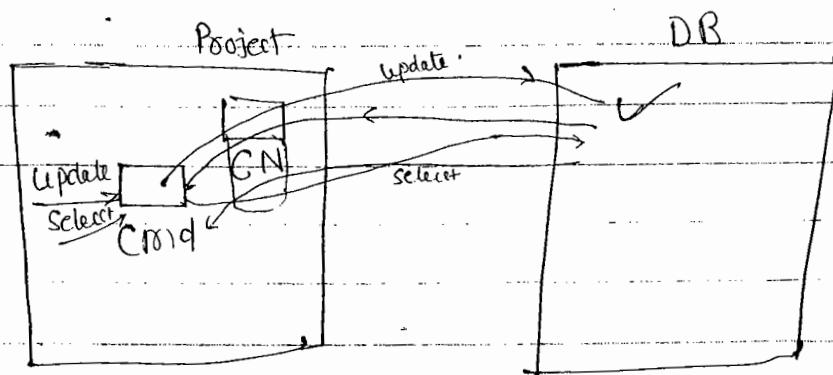
1. SQL Connection :- This class is used to establish connection with SQL Server database. And by default SQL Connection and other connection classes work with "Connection Pooling" concept. This concept speeds up establishing & closing connection process as part of programming. Establishing a new connection is always time consuming process that's why whenever a connection is created it is maintained in a pool and reused for several requests. A connection pool is collection of connections and it is purely based on connection string. For every DB operation we require connection object & it is very important for a developer to understand where the connection is established implicitly and where to establish it explicitly.

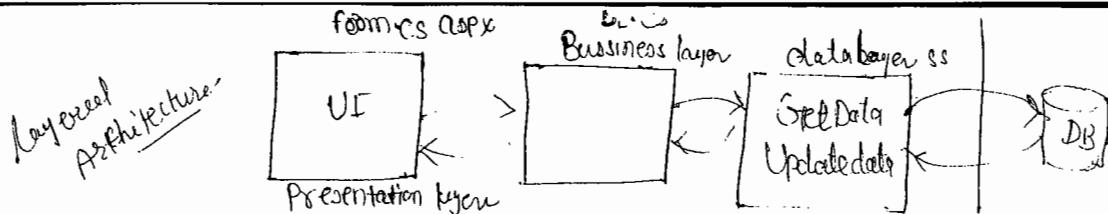
Properties - fu



1. SQL Command & SQL Data Adapter: - Using these classes we can execute an SQL Command using the Connection object. We can run insert, update, delete & select queries using this classes.

SQL Command is a rich class containing all operations to connect with database for running command operation. SQL Data Adapter is a subset of SQL Command which is also used to run SQL Query. SQL Data Adapter is more simplified and contains some predefined methods in order to perform a batch of operations. Both these classes can execute a command but they can't store any data on their own. When we run a command which gets the data we must assign it to a storage object.





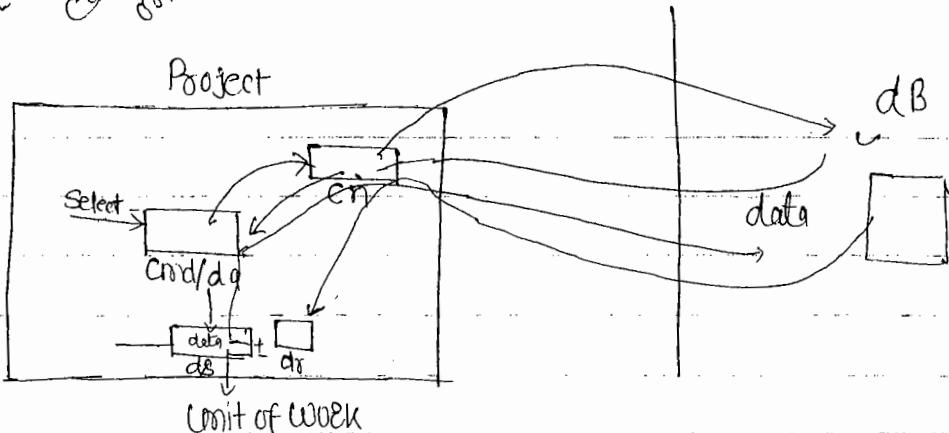
### iii) DataSet & DataReader (Storage Objects) :-

DataSet is designed to store data in relational format and it can be used by any type of Object for storing its data. DataSet is completely unaware of any datasource which means it can be used to store data from any type of datasource because it is not aware of databases it is called as a disconnected object. It provides offline access of data and a good concept called "Diffgram" for providing "unit of work pattern" which means we can perform all the required changes offline, store them as a unit and at once update the data source. Today industry recommend unit of work pattern for performing crud operation.

Data reader is another storage object which is read only and always required active connections for accessing data. It maintains handles & pointers with database data and on demand gets single record at a time for our project. The fastest way to access data is always using data reader. We use explicitly data reader in our programs based on requirements. SQL data adapter & Cmd Object implicitly use data reader while getting the data from database.

SQL Command  
& SQL Data Adapter  
can be used  
once place.

adapter open the collection implicitly  
Command object " " " explicitly.



datareader is only read only. and fastest  
while getting data. dataset also used datareader so  
it is slow.

15 April 2015

Example: ADO .NET 2.0 with code in layered architecture:

- In a project ensure that DB is available/arranged.
- Right click on App\_code and add a new class Say "Data Layer". - This layer will be responsible to communicate with database for all operations (CRUD → Create, read, update & delete)  
While writing code in data layer we must ensure that it is not specific to any table or class. all code should be in generic style means multipurpose.

Using System.Data; //

using System.Data.SqlClient; //

@params - exact string  
→ exbatim string - exact string

```
public class DataLayer
{
    string cnstr = @"Data Source=(localDB)
    ";

    public dataset Getdata(string sqlstat)
    {
        SqlConnection cn = new SqlConnection(cnstr);
        SqlDataAdapter da = new SqlDataAdapter(sqlstat,
            cn);

        DataSet ds = new DataSet();
        if any exec Comer
        here then correct
        all above set of
        codes
        da.Fill(ds); // automatic open connection, run given
        between ds;   command - get data - fill $ dataset -
        close ch.
    }

    public void Updatadata (string sqldata)
    {
        SqlConnection cn = new SqlConnection(cnstr);
        SqlCommand cmd = new SqlCommand(sqldata, cn);
        cn.Open();
        cmd.ExecuteNonQuery(); // insert, update, delete
        cn.Close();
    }
}
```

- Write click on app code and add new class say "BL.cs" - This layer will be responsible for performing all logical tasks required for my action presentation layers and other business layers in project can interact with each other for performing a complete operation.

In our example we have to write methods to perform various actions on the selected or required table.

```
public class BL  
{  
    public DataSet GetJobs()  
    {  
        DataLayer dl = new DataLayer();  
        return dl.Getdata ("Select * from Jobs");  
    }  
  
    public DataSet GetChildren()  
    {  
        DataLayer dl = new DataLayer();  
        return dl.Getdata ("Select * from Children");  
    }  
}
```

→ Create a form which is presentation layer & place a link button & Grid Control.

```
public partial class frmJobs : System.Web.UI.Page  
    BL objBL = new BL();
```

```
protected void Page_Load -- -- --  
    in LinkButton1 -
```

```
    Gridview1.DataSource = objBL.GetJobs();  
    Gridview1.DataBind();  
    }
```

msg. box is ~~be~~ used  
in desk top app but  
not in web app.

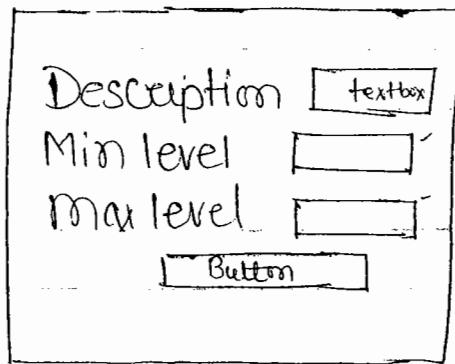
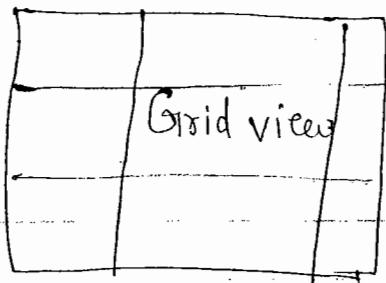
generic <sup>way</sup> - any body can costume  
that

date 16 April 15

\* Performing Insert & Other operation using  
ADO .NET 2.0 :-

- Presentation layer code :-

LinkButton



protected void LinkButton1\_Click (---)

{  
    Gridview1. DataSource = ObjBL.GetJobSC();  
    Gridview1. DataBind();

- Button1\_Click —

{  
    // insert  
    ObjBL.AddJob ( TextBox1.Text, int.Parse  
                  ( TextBox2.Text ), int.Parse  
                  ( TextBox3.Text ) );

LinkButton1\_Click ( sender, e );

TextBox1.Text = " ",  
TextBox2.Text = " ",  
TextBox3.Text = " ";

15

Response.Write ("

- In BI-CS Class -

```
Public Void AddJobs (String Jdesc, int minlv1,  
int maxlv1)
```

```
{ // insert into jobs values ('Prog', 10, 20)
```

```
String sqlstat = "Insert into jobs values  
('" + Jdesc + "','" + minlv1 + "','" +  
maxlv1 + "');"
```

```
DataLayer dl = new DataLayer();
```

```
dl.UpdateData (sqlstat);
```

```
}
```

Q. In the same project provide another form where we accept Jobid & perform update, delete operation. While performing the required action during demo of project we have constantly update layer and other layers according to requirement.

Server error in 'Rakesh' Application

Login failed for user "IIS APPPOOL\ defaultApp0".

Description:- An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.

## Job Operation:-

Job Id	<input type="text"/>
Find	
Description	<input type="text"/>
Min Level	<input type="text"/>
Max Level	<input type="text"/>
<input type="button" value="Delete"/> <input type="button" value="update"/>	

Using System::Data; //

```
public partial class JobUpdate : System.Web.UI.  
Page  
{ BL ObjBL = new BL();
```

```
protected void Page_Load(-----)
```

- Button1\_Click -

```
{  
    DataSet ds = ObjBL.GetJobInfo(int.Parse  
        (TextBox1.Text));  
    if (ds.Tables[0].Rows.Count > 0) // record is present  
    {
```

```
        DataRow rec = ds.Tables[0].Rows[0];  
        TextBox2.Text = rec[1].ToString();  
        TextBox3.Text = rec["min-lvl"].ToString();  
        TextBox4.Text = rec["max-lvl"].ToString();  
    }
```

else

{

Response.Write

```
( " <script> alert(' No Record')</script>" );
```

}

}

in BL.cs Form

Public DataSet GetJobInfo(int jid)

{

DataLayer dl = new DataLayer();

UF:

return dl.GetData

```
("Select * from jobs where job_id = " +  
jid);
```

}

@Q: Complete update &amp; delete Operation.

Q: instead of text box display dropdownlist for

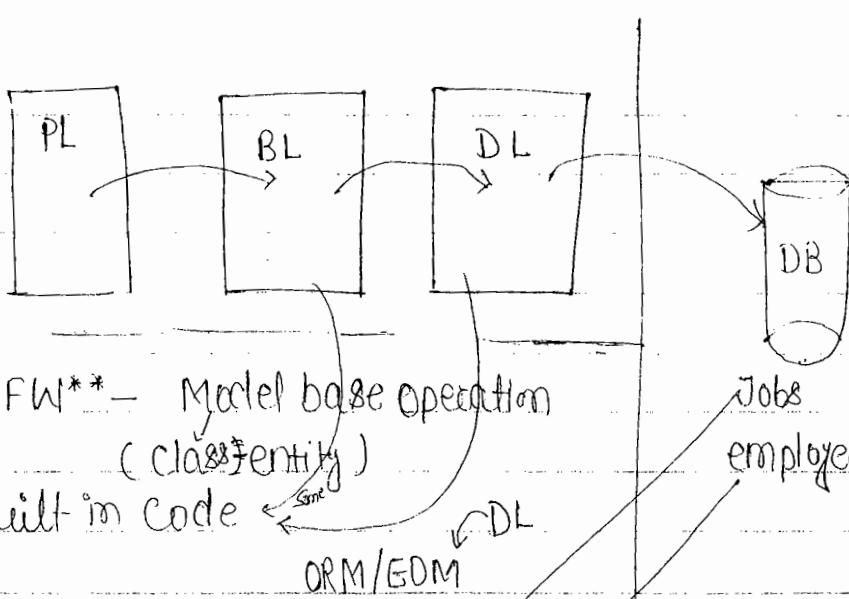
④ Jobid and show all job id's on selecting  
a jobid relevant record should be displayed.  
(No Find Button)

11 April 2015

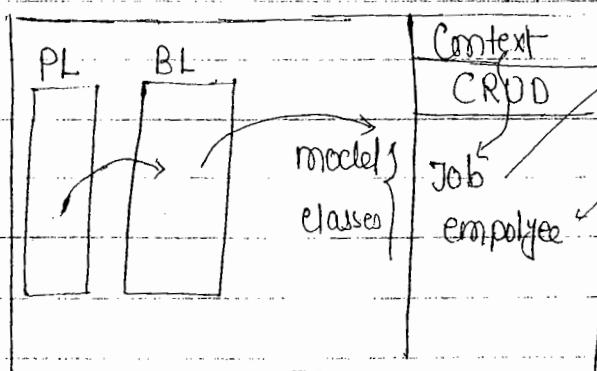
## \* Working With ADO.NET Entity using Code :-

- Our previous demo which had all operations with dbal base and layers was using ADO.NET 2.0. More important for an application is using ADO.NET Entity Framework as we have ORM pattern and others standard approaches of building the programs. Using ADO.NET entity framework we should continue the same layers method but with ORM standards. programming is more simple and accurate with entity framework only not with old dataset, datareader and other 2.0 objects.
- When we create ado.net entity framework for our selected tables automatically ~~that~~ the classes are generated. These classes are model classes followed by a context class. Model classes are used to represent Backend tables data. For every table we will get one model class & for all model classes we will get one context class. All these classes combinedly provide a datalayer for our application. It also includes common validations which are part of a business logic. This also means that when using ado.net entity framework ~~you~~ we needn't create specially datalayer for our application directly from business layer or from presentation layer we can perform our operations.

ADO.NET 2.0



ADO .Net EFW\*\* - Model base operation  
(class Entity)  
- Built-in Code



Jobs  
employee

Jobs  
For all "table" there  
will be  $n+1$  class

EFW  
Example Code :-

- i) In a new website add DB
- ii) Create App\_Code folder → Right click on App\_Code

Add new item - ADO.NET EDM

Select DB & tables [SQL]

Result\*\* : A Context.cs Containing all CRUD  
operations · edmx for designer of ORM

model.cs for all selected table model classes  
( $n+1$ ) classes

iii) Right click on app-code > add new item

Repo  
Class (Job.cs)

In the created class add methods to communicate with created EFWI.

For Business Layer :-

public class Repo

Connective  
SQL Connection code  
here.

pubs2012Entities objctx = new pubs2012Entities();

public List<Job> GetJobs()

var x = from n in objctx.Jobs

Select n; // LINQ

return x.ToList<Job>();

}

— EFWI FORM — In presentation Layer

Link Button

Gridview


public partial class EfwI : System.Web.UI.Page

{ Repo obj = new Repo();

protected void Page\_Load( -- )

— Link Button1 — Click —

```
{ Gridview1.DataSource = Obj.GetJob();
Gridview1.DataBind();
```

```
}
```

```
}
```

Now this is only a read only.

date 18 April 2015

### Line & Var in Coding:-

→ Line is Language integrated Query language it is used to query objects in frontends application just like SQL quick databases.

→ Using Line we can replace lots of programming statements and get results for our programs. Writing Line Query is very simple & it is supported with intelligence and strong type of coding. The syntax of writing a Line Query

From <rangevar> in <Source>

Orderby <(ColName)>

groupby -

Select data.

→ In Line we start with "From" keyword by declaring variables to represent range of data & perform the query operation.

Writing LINQ Query is very simple but storing the result of those queries required a proper datatype. If datatypes are not present<sup>then</sup> we must create them & store results which is a complex & time consuming process. In order to simplify even the storage of result var keyword is used. when we write var the compiler will see the query return value or any expression return value and convert var exactly to that type. If the type is not present system will implicitly create the type and then store the result which means user coding is lot simplified.

→ Both combining that is var & Ling most of the application task are made very easy but for a developer it is very important to understand what types are implicitly created for one query or statement. otherwise our coding lines after var will be difficult to manage and trace the errors. Some sample Ling queries.

1) `From n in objctx.jobs  
Select n;` (returns all data)

2) `From n in objctx.jobs where n.job_id==4  
Select n;` (returns one data of jobid:4)

class among  
 of story job-desc  
 int max-lvl  
 automatically ~~vs~~ vs will write it  
 $\forall x \in \text{from } n \text{ in } \text{Objectx}. \text{jobs}$   
 $\text{Select } n \cdot \text{job\_desc} \cdot \text{max\_lv1}$

3)  $\text{from } n \text{ in } \text{Objectx}. \text{jobs}$

$\text{where } n \cdot \text{job\_id} > 10$

$\text{Select } n \cdot \text{job\_desc};$  → only one column allowed  
 (return all job-desc whose job id is above 10)

4)  $\text{from } n \text{ in } \text{Objectx}. \text{jobs}$  → multiple values

$\text{Select new } \{n \cdot \text{job\_id}; n \cdot \text{job\_desc}\}$

5)  $\text{from } n \text{ in } \text{Objectx}. \text{jobs}$  alias

$\text{Select new } \{ \text{description} = n \cdot \text{job\_desc},$

$n \cdot \text{max\_lvl} - n \cdot \text{min\_lvl}$

virtual const (which is not in the table)

6)  $\text{from } n \text{ in } \text{Objectx}. \text{jobs}$

$\text{where } n \cdot \text{Sal} > 10000$

$\text{Select } n \cdot \text{First();}$

display all ~~person~~ whose salary is above then ~~10000~~

and display the 1st row from the salary.

This query ~~is~~ works if atleast 1 record is retrieved otherwise in an empty set `First()` will throw an exception.

`FirstOrDefault()` is another method which avoids exception when no data is present and returns null as the result.

More practice: my blog → Ling Lab Demos  
 in Ling Pad. Exe (Joseph albahari)

in Repo.cs —

```
Public List<Job> GetJobs()
{
    var x = from n in objctx.Jobs
            Select n;
    return x.ToList<Job>();
}
```

what happen if  
x will not use  
list abt here

```
Public void AddJob(Job j)
```

```
{ objctx.Jobs.Add(j);
    objctx.SaveChanges(); }
```

## Jobs Information

Job Id	<input type="text"/>
Description	<input type="text"/>
Min Level	<input type="text"/>
Max Level	<input type="text"/>
<input type="button"/>	
Grid	<input type="button"/>
View	<input type="button"/>

```
public Partial class Form1 : --
```

```
    Repo Obj = new Repo();
```

```
    — Page_Load —
```

```
{  
    if (!IsPostBack)  
        GetData;  
}
```

```
public void GetData()
```

```
{  
    GridView1.DataSource = Obj.GetJobs();  
    GridView1.DataBind();  
}
```

```
— Button1_Click —
```

```
{ // add button
```

```
    Job j = new Job();
```

```
    J.Job_id = short.Parse(TextBox1.Text);
```

```
    J.Job_desc = TextBox2.Text;
```

```
    J.Min_Ml = byte.Parse(TextBox3.Text);
```

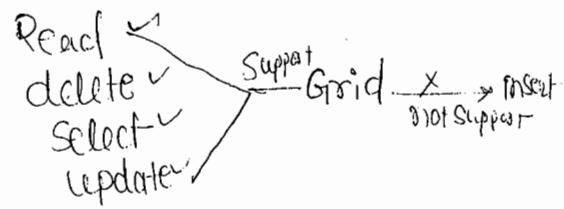
```
    J.Max_Ml = byte.Parse(TextBox4.Text);
```

```
    Obj.AddJob(j);
```

```
    Response.Write("<script> alert('Record add');</script>");
```

```
    GetData(); // rebind data.
```

```
}
```



date 20 april 15

## Presenting & Editing Of data using Gridview & EFW

In our previous example we have displayed jobs data along with adding functionality that is insert operation & read only. Similarly we can provide all other operations like editing, deleting, followed by a single record search. To perform CRUD operation in tabular layout we can take the help of Gridview Control as it supports all crud operation except insert.

- In Real time application it is also very important to present data in more efficient manner to user instead of just displaying plain text output like our previous examples.
- In order to present rich & user friendly outputs we have to manually write all gridview presentation for this we have to use "autogenerated+columns" property of grid and follow its syntax for presenting outputs manually. By default autogenerate column is true which means based on the data given to grid presentation will be generated implicitly. We must set this property to false and write all grid view columns presentation with the below syntax:

<asp: GridView ID="gv1" runat="Server">

    AutoGenerateColumns = "false">

        <Columns>

            <asp: Gridview field...> - jfield

            </Columns>

(collections  
that means we can  
add at the runtime)

for plaintext

<asp: Boundfield> ... for rich control

<asp: Templatefield> ... for editing

<asp: Formattedfield> ... for edition

Itemtemplate will come in every row but Header template comes only one.

→ Insert  
Supper

15

EFW

In this syntax Column is the collection of grid view fields and gridview provides different types of fields for different outputs.

### Example :- Gridview Presentation using Manual Structure

- Assuming that EFW and Repo class is present in the project.
- Create a new form.
- Place LinkButton & Gridview.
- Set gridview → Autogenerate Columns : false
- In Linkbutton write code to retrieve data from repo class and present the same in gridview.
- go to gridview source code i.e. in markup and write the presentation part using its structure.

Public partial class frmgrid : System.Web.UI.Page

{  
    Repo Objrepo = new Repo();

Under { LinkButton1\_Click -

    Gridview1.DataSource = Objrepo.GetJobs();  
    Gridview1.DataBind();

}

6 0 0  
0 0 0

### Source Code :-

```
<asp: Gridview ID="GridView1" runat="Server"  
Itemtype = "Job" AutogenerateColumn = "False"
```

```
<Columns>
```

```
  <asp: Boundfield DataField = "Job_id" HeaderText  
      = "JobCode" />
```

```
  <asp: Boundfield DataField = "Job_desc"  
      HeaderText = "Description" />
```

```
<asp: Templatefield >
```

```
  <HeaderTemplate>
```

```
    <img src = "PH01046.JPG" height = "70" width = "100"  
      />
```

```
    <br />
```

```
    <b> Minimum </b>
```

```
  </HeaderTemplate>
```

```
  <ItemTemplate>
```

```
    <asp: LinkButton ID = "L1" runat = "Server"  
      Text = "<% # Item.Min_Inv %>  
          " />
```

```
    <img src = "hands.jpg" height = "60" width =  
          "50" />
```

```
  </ItemTemplate>
```

```
  <asp: Templatefield>
```

```
  </Columns>
```

```
</asp: Gridview>
```

21 April 2018

## ASP .NET DataBinding Expressions :-

Q. What is use of autogeneratecolumn ? true / false in gridview.

Q. Which Collection of gridview is used to create Columns @ design-time and run-time.

Q. What are gridview fields & where they used \*\*\*?

Q. What is the difference bw a boundfields of gridview and templatefield \*\*\*?

Q. How a templatefield provides rich output for a gridview columns?

Q. What is the use of <% # %> block in asp .Net  
gridview Columns Controls is used to attach a model class to grid.

In ASP .NET As we know data binding is one important concept and most of the project outputs are produced using data-binding methods . As part of data binding In entire asp .Net anywhere when we don't have properties for presenting data object Content there we have to use data binding expression.

type

bind & eval keeps the value in object so  
we have to type  
in context when we need to  
integer.

- A databinding Expression is defined as an expression which is evaluated against a data object for getting value.
- In grid & many others bound controls we required databinding Expression for getting a data object value.
- In ASP.NET A dataBinding Expression is written in a separate block:  
`<% # expression statement %>`

for fields like bound fields we have a property called datafield which means we needn't write any databinding expression for getting a value. fields like templates fields has no property hence we use databinding expression statements.

- The following is the list of different methods of writing databinding expression starting from ASP .Net version 1 to version 5. Remember in higher versions all older methods are also supported but it is highly recommended to use preferred method of access.

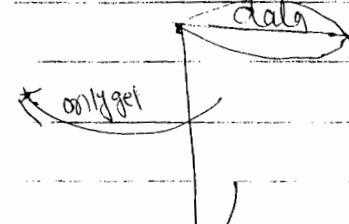
- 1) `DataBinder.Eval(Container.DataItem, " <fieldname> ")`  
(Supported in all versions)

Eg:-

`<% # DataBinder.Eval(Container.DataItem, "min - lvl") %>`

2) In ASP.NET 2.0 and Above

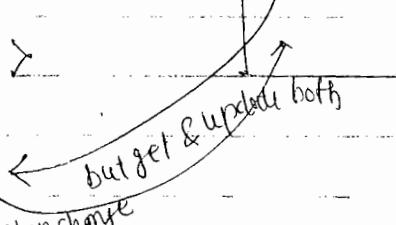
<% # Eval (<FieldName>) %>

ex:- <% # eval ("max\_lv") %> 

3) In ASP.NET 3.0 & above

<% # Bind (<FieldName>) %>

ex:-

<% # Bind ("min\_lv") %> 

when change

Both 2nd & 3rd options are introduced in ASP

.NET 2.0 as new features in databinding expression

Eval is the short way of writing a lengthy statement

and it performs some job like databinder.eval

i.e. reading the value from data object

using bind method we form some eval kind of retrieval but if any changes are made and our code for update is present then it will perform modify operation also that is read-write capable.

4) Performing Calculations and other expr's using db expressions :-

data binding expression doesn't mean always getting data from dataobject ~~but~~ we can also perform complex calculations for creating virtual columns in presentation area (not in database & linkquery) by performing calculations while

It is very imp. to understand eval & Bind  
Convert any type of data to object

cmd

also the region<sup>for</sup> little slower Outputs to  
perform the Calculation in our example we have  
to write the following statement with conversion

ex:-

```
<asp: TemplateField HeaderText = "Difference">  
<ItemTemplate> it gives object type  
<% # Convert.ToInt32(Eval("max-lv1")) - %>  
Convert.ToInt32(Eval("min-lv1")) %>
```

</ItemTemplate>

</asp: TemplateField>

imp

08

we 5) .NET 4.0 + <% # Item.FieldName%>

It is most preferred databinding  
expression in entire ASP.NET. It provides  
strong type of coding without converting  
any original data type to object type resulting  
in faster binding operation and also with  
best coding methods. To use item.field name  
expression we must do databinding in  
model based operation style which is only how  
provided by Entity framework. To use item.field-  
name we must write Itemtype attribute as  
we have written in our gridview property.

Itemtype = "Model Class"

Calculations and all can be performed directly with better performance.

Eg. `<asp:TemplateField HeaderText="Difference">`  
`<ItemTemplate>`  
`<% # Item.Max-Lvl-Item.Min-Lvl %>`  
`</ItemTemplate>`  
`</asp:TemplateField>`

6) executing code in .cs file & pointing or getting the values

`<% # GetRating( Item.Min-Lvl )%>`

The meaning of this is we are invoking or calling GetRating function by passing minimum level as argument to it. The big advantage of this is we are writing our logic for business rules and present the result for gridview column. Many complicated task in realtime can be easily solve in this method of writing databinding expressions.

Eg. `<asp:TemplateField HeaderText="Rating">`  
`<ItemTemplate>`  
`<% # GetRating( Item.Min-Lvl )%>`  
`</ItemTemplate>`  
`</asp:TemplateField>`

In aspx.cs file :-

```
public string GetRating(int min)
{
    if (min > 50)
        return "<img src=5star.jpg height=20 width=50>";
}
```

## Editable Row - edit

```
else if (min > 40)
    return "<img src=4star.jpg height=20
            width=50>";
else
    return "<img src=2star.jpg height=20
            width=50>";
```

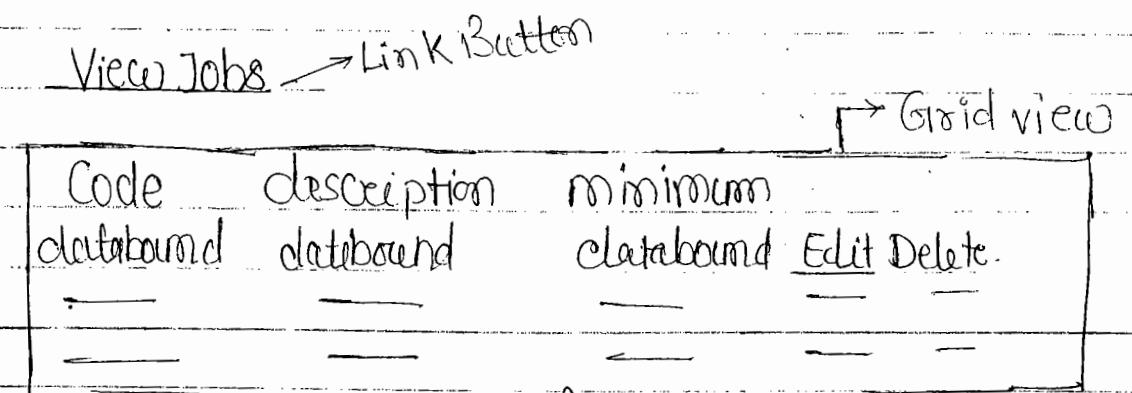
date 22 april 2015

### \* Gridview editing using EFW :-

- One Of the feature of gridview is editing of data in place editing is provided by gridview which is not only rich editing but also user friendly editing.
- Gridview allows single record edit with a tabular view of entire data.
- Gridview provide <sup>the</sup> all support for editing of data in presentation layer cmd. must additionally attach our DB logic or code to perform changes in database. In this Context efw with the same layer architecture is preferred.
- Gridview has a property call "EditIndex" whose default value is -1 and when changed to any Record no. that record is send to be ineditable mode and the editable record is displayed with different presentation by each field like boundfield displays text box instead of plain text so that user can

20

Perform editing of bound field Content  
Similarly other field will also provide different  
editable presentation based on editIndex value



Put autoUpdateIndex = false.

Repo Objrepo = new Repo();

protected void Page\_Load (object sender, EventArgs e)

protected void LinkButton1\_Click (

)

Gridview1.DataSource = Objrepo.GetJobs()

Gridview1.DataBind();

Y

in source code

Gridview ID = "Gridview1" Format = "Server"

ItemType = "Job" AutoGenerateColumn

<Columns>

<asp: Boundfield DataField = "Job\_id" HeaderText = "Code"

ReadOnly = "true"

```
<asp: Boundfield Datafields = "Job_desc"  
HeaderText = "Description" />  
  
<asp: TemplateField HeaderText = "Minimum">  
    <ItemTemplate>  
        <%# Item::min_lv1 %>  
    </ItemTemplate>  
    <EditItemTemplate>  
<asp: DropDownList ID = "DropDownList1"  
    SkinID = "Server" />  
  
<asp: ListItem> 10 </asp: ListItem>  
<asp: ListItem> 20 </asp: ListItem>  
<asp: ListItem> 30 </asp: ListItem>  
</asp: DropDownList>  
</EditItemTemplate>  
<asp: TemplateField>
```

```
<asp: CommandField ShowEditButton = "true"  
ShowCancelButton = "true"  
ShowDeleteButton = "true" />  
</Columns>
```

all the above code is gridview presentation  
Code with editing support. the new thing we  
have used in our demo is readOnly property  
for bound field which is used to specify that  
we want to ignore editing option for this field  
normally for primary keys we will use it.  
Edit item template of template field is also

new cmd while editing template field displa  
this content. Finally a Command field where  
we provide action buttons to user like edit,  
update, delete & cancel. By default these buttons  
are displayed as linkbuttons if required we can  
also change them to normal button or a rich  
image button. Command field has a property called  
button type which can be used to change the  
appearance

#### \* Writing Code for Command Field Button:-

For all command field button we don't have  
direct click event. Gridview provides events for  
all these controls as a parent or container. In ASP  
• .NET "when container control raises an event, in  
response to a postback performed by any of its  
child controls then those events are called as  
Bubbled Events".

Gridview events  
Rowediting  
Rowdeleting  
Rowcanceling  
Rowupdating

Commandfield Control  
Edit  
Delete  
Cancel  
Update

for Gridview1\_RowEditing

{ // e. NewEditIndex --- so where edit is clicked  
Gridview1.EditIndex = e.NewEditIndex;  
LinkButton1\_Click (sender, e);}

— Gridview1 - RowCancelingEdit (Object Sender, —  
{ }

Gridview1: EditIndex = -1;  
LinkButton1 - Click (Sender, e);

— 23 April 2015 —

\* Gridview Update & Delete :-

Gridview has its own structure  
in order to place the values and also to read  
the value in order to read values from  
grid we must know the structure of it.  
Based on structure only we will be  
retrieving the value. Once structure is known  
it is also very important to understand the  
type of cell & its data because for different  
fields we have to write different retrieval method  
and most required are bound field & template  
field columns.

If bound field created plain text is present  
then we have to use

GridView1.Rows[n].Cells[n].Text

If bound field created text box is present then  
we need to write

GridView1.Rows[n].Cells[n].Controls[n]

If template field control is there then  
GridView1.Rows[n].FindControl(id)

Plain text is generated by bind field.

dec -

protected void Gridview1 - RowUpdating ( - - - )

```
int Jid = int.parse (Gridview1.Rows[e.RowIndex].Cells[0].Text);  
TextBox t = (TextBox)
```

```
Gridview1.Rows[e.RowIndex].Cells[1].Controls[0];  
DropDownList d1 = (dropdownList)  
Gridview1.Rows[e.RowIndex].FindControl  
("Dropdownlist");
```

```
Objrepo.Updatejob (Jid, t.Text, byte.Parse  
(d1.Selectedvalue));  
LinkButton1 - Click (sender, e);
```

- Right updatejob method in RepoClass -

```
Public void Update (int jid, string jdsee, byte  
minlvl)
```

```
{  
    var x = (from n in Objctx.jobs where  
            n.job_id == jid  
            Select n).FirstDefault();
```

```
if (x != null) // present
```

```
x.job_desc = jdsee;
```

```
x.min_lvl = minlvl;
```

```
Objctx.SaveChanges();
```

```
{  
else
```

```
{ throw new exception ("No such record"); }  
}
```

In the Update process we have to search, modify & save changes to database, delete will be same like update but instead of modifying we will perform a remove operation with gridview we use Rowdeleting to perform our operation.

Public protected void GridView1 - Rowdeleting(

Int jid = int.Parse (GridView1.Rows[e.RowIndex].Cells[0].Text);

Objrepo.Deletejob (jid);

LinkButton1\_Click (sender, e);

- In Repo class deletejob code write -

Public void Deletejob (int jid)

{

Var x = ( from n in Objctx.Jobs  
where n.job\_id == jid

Select n).FirstOrDefault();

if (x == null)

{

Objctx.Jobs.Remove (x);

Objctx.SaveChanges ();

}

else

{

throw new ArgumentException ("Record not found");

}

do  
Q: Crud Operations on employee table of pubs.

-: date 27 April 2015 :-

both are unstructured

### \* DataList & Repeater Bound Control:-

→ apart from gridview we have these two controls which are also most commonly used DataBound Controls

→ Both datalist and repeater are not structured controls like gridview we can use these controls as unstructured and free-form layout controls

#### DataList Control :-

This control provides all its presentation like any other bound control but it is unique in repeating columns for data in the form of records.

→ datalist control supports rapid development by providing wizards for choosing data source & other property.

→ datalist provides properties methods to control its layout both at design time & also run time.

→ It provides several formats for presenting data so that user can easily build the control.

\* never go to datalist unless it is asked  
for Repeating Column.

with all required presentation.

→ datalist when compared with Grid is less featured but still provides editing and some common requirements of presentation. It doesn't support paging, sorting of data like Grid and the supported editing feature are also not simplified like gridview.

Datalist → Other Control

Repeating Columns → Unique

*It is featured  
Control but not much  
than Gridview*

Item = Record	Item	Item
Item	Item	Item
Item	Item	Item

no other control has this quality means RepeatColumn each cell is a record

\*\*\* → Use datalist only when repeat columns presentation is required.

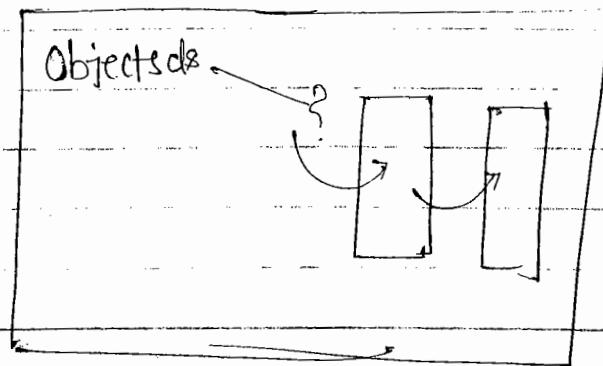
Ex. RAD Method :-

Steps:-

→ In a new form placed object datasource control & configure it with our business layer class "repo"  
(Select class → map select with getJobs, add with addJobs & so on) → for configure it

27 Place datalist in the form and set data source to created "object dataSource" control.

Object data source:- Other dataSource Controls are no more recommended in .Net ~~use~~ versions today but "ObjectDataSource" is one Control which is always usefull and also powerful Control. the speciality of this Control is it retrieves data from our business layer class instead of writing its own code like other controls.



Q. Why object datasource when we can directly use repo class in project?

Ans: Every dataSource Controls provide many features like "built-in Caching", "dependency", "Automatic Updations" etc --- to get these features along with our own repository pattern or any other pattern classes <sup>we</sup> can use these controls.

Result → automatically vs generates all the markup required for data datalist Control - markup includes templates for presenting data with eval() statement for data binding expressions & tables for presentation.

Datalist doesn't support the new "Item type" feature which means only eval and bind should be used.

what is the use of Item type?

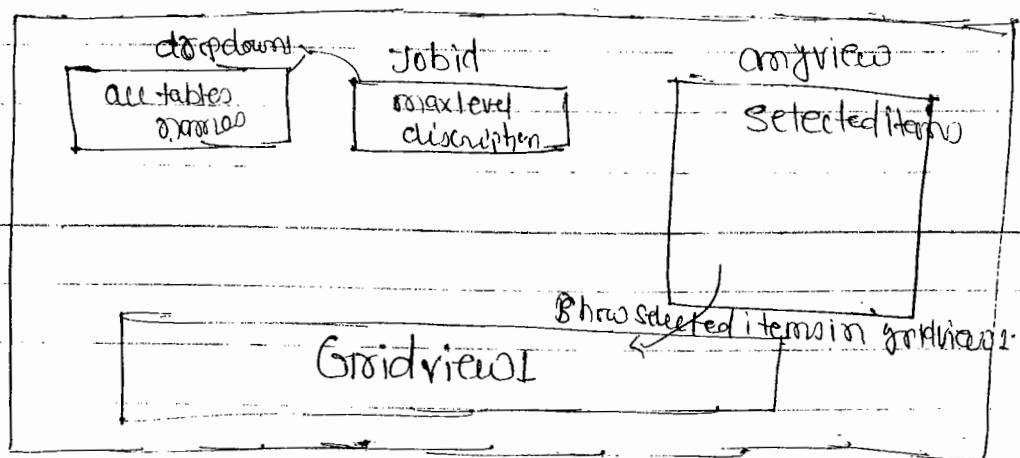
- Once datalist is bound we can set properties to control its layout - most important is RepeatColumns:- other properties like RepeatDirection, CellSpacing, Cellpadding & RepeatLayout can also be used for customised presentation.
- To change the presentation we'll go to sourceview and change elements of templates as we want (from Label to Linkbutton)  
while changing it is important to know that datalist is "templated" control which means all its presentation is performed with template(s) only
- ItemTemplate, EditItemTemplate
- We can also edit or customize the presentation using design view → Edit Templates option.

Exercise :-

- Q1. design a grid which displays 'Jobs' table data with following columns - Jobid, description, List of Employees who belongs to this job  
also display the Count for every list of employee.

Jobid	Description	List of Employees			
1.	Programmer	<table border="1"><tr><td>1</td></tr><tr><td>2</td></tr><tr><td>3</td></tr></table>	1	2	3
1					
2					
3					

Q. Display 2 dropdownlists where dropdownlist 1  
 Should represent table name[s] & on  
 Selecting the dropdownlist 2 should display  
 Column names when user "Selects or adds"  
 particular col for presentation display in  
 grid only those.



Q. Employee data with navigation options

Empno	<input type="button" value="&gt;"/>
Name	<input type="button" value="&lt;"/> <input type="button" value="first"/> <input type="button" value="last"/>

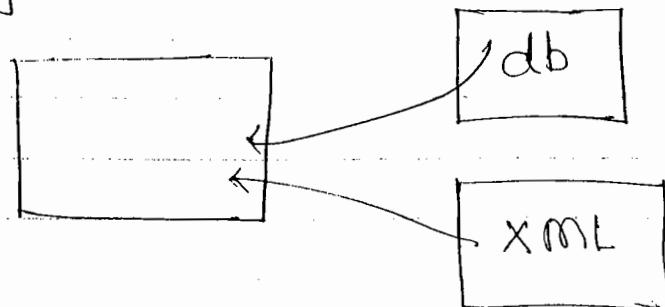
Select Tablename from  
 Information\_Schema.Tables  
 where table\_type =  
 'Base Table' And  
 Table\_Catalog = 'cl8nms'

28 April 15

### \* DataList with XML as dataSource (as my bound control) :-

Like database we can use XML also as our datasource. With XML we store data in hierarchical format not in relational format like database.

- XML is a simple dataSource where we can store small amount of data as it is not suitable for large volumes of data.
- XML is not secured as database & explicitly one have to provide security for XML data.
- Every XML file is created with extension .XML and it should contain data with minimal rules called as "<sup>"well</sup>formed XML".
- .Net provides different methods to access this XML data and the top 3 <sup>ways</sup> ~~ways~~ to access my XML file are -
  - 1) Using System.Xml namespace
  - 2) Using Dataset
  - 3) Using link to XML\*\*



dataset doesn't belong to  
only .Net it support all  
other language also.

### i) System.Xml →

- Most rich namespace for accessing xml data.
- Many classes are present to access xml data in different formats.
- Complex in coding as it has to fulfil different approaches of accessing data.
- So we use this namespace when no other way of processing xml is provided by other options.

### ii) Using dataset:-

- Most simple method of accessing xml data for s/w purpose it with dataset.
- DataSet has built-in methods to read & write xml data to an xml file.

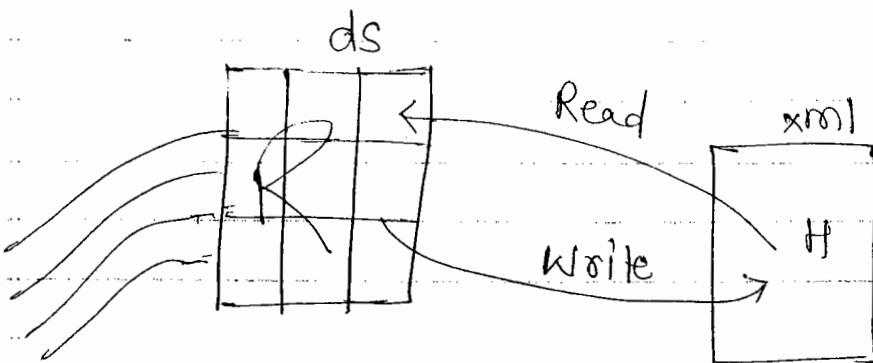
- ① `ReadXml(<xml filename>)`  
deserialization - reads data from xml file to ds  
    ↳ (heirarchical to relational)
- ② `WriteXml(<xml filename>)` → serialization.  
    ↳ writes data from in-memory dataset to  
        xml file (relational to heirarchical)

- this s/w of data from dataset to xml is  
also called as DataSet serialization &  
Deserialization.

- Linq
- Linq to SQL
- Linq to entities
- Linq to xml.

Q: What is Serialization? (Yes it is required)

Ans: The process of Converting in-memory form of data to a stream or a file is called as serialization & the reverse is deserialization.



other methods :-

WriteXmlSchema(); ReadXmlSchema() & GetXml()

iii) With Linq to xml :-

→ Today in .Net recommend methods of accessing xml data with Linq to xml.

→ In Query Style we can access with Data.

→ Many other classes are also provided to perform all CRUD Operations.

→ System.Xml.Linq is the namespace for all Linq to xml classes.

→ L2XML provides both DOM and Non Dom methods of accessing xml Data.

ii) 1<sup>st</sup> parent child = 2<sup>nd</sup> child present in XML

(Non-DOM style is for faster and simple access)

### Demo Objectives: Data List

iii) XML

iv) DataSet with XML

v) displaying images and videos  
(media) along with presentation.

→ add new item XML file - Products.xml

<?xml version="1.0" encoding = "Utf-8" ?>

⊕ <ProductRoot>

⊖ <Products>

<id> 1001 </id>

<desc> i5 Laptops with touch </desc>

<Picture> L.jpg </Picture>

<video> laptops.mp4 </video>

</Product>

⊕ <Product> ----- </Product>

⊖ ,

⊖ ,

</ProductRoot>

Place a form:-

— LinkButton1- Click —

{

DataSet ds = new dataset();

what is the use of  
declaring here dataset

for image when  
it is in folder  
<Picture> ~\Prod\Images\1.jpg // Picture Converts  
Path  
Virtual directory to Physical  
directory path (mappath)

// mappath fn is use to

ds.ReadXml(MapPath("Products.xml"));

DataList1.DataSource = ds.Tables[0];

DataList1.DataBind();

why we are  
using table here.

y

g

## — SOURCE CODE —

<br />

<asp:DataList ID="DataList1" runat="Server" RepeatColumns="2">

<HeaderTemplate> List of Products </HeaderTemplate>

<ItemTemplate>

<asp:ImageButton ID="Img1" runat="Server" Height="200" Width="200"

ImageUrl = '<%=Eval("Picture")%>' />

<br />

<asp:LinkButton ID="Link1" runat="Server" Text="<%#Eval("desc")%>"></asp:

LinkButton>

&ampnbsp &ampnbsp

<asp:LinkButton ID="Link2" runat="Server" Text="Buy it Now" />

</ItemTemplate>

</asp:DataList>

in image  
button in item

mappath is compulsory.

(what is diff. b/w  
itemtemplate &  
edittemplate)

- After preparing all the source view code, i.e. markup we can specify autoformat along with repeat column properties set it as : 2 (As ~~for~~ want)
- In our examples as we are displaying relevant images for every records based on our datasource accordingly we have to arrange those images preferably in separate folder like product images. In the real time app, these images are not stored in our project directory. They are stored in a separate website or servers so that effective load balancing can be done. In such cases the address of that image along with the site name should be returned by our datasource. Some good examples for picture columns values are

Date 29-04-2015

### Handling PostBacks inside bound controls:-

- In all bound controls & container controls postbacks raised by child controls are handled with bubbled event. Datalist & repeater use ItemCommand event which fires in response to a postback performed by any of the child controls. In gridview the same process is handled by RowCommand event.
- Bubbled events allow us to write code, common for all the child controls without repeatedly

Writing for individual for postback Control.  
They also allow us to write specific action  
Code with the help of Command name and  
CommandArgument Arguments.

Q: What is Commandname & Commandarguments

Ans:- During Bubbled event process the child Controls  
Can Communicate with parent or Container  
with unique name and an argument for  
business logic. Both these parameter or properties  
are written for postback Controls.

Source Code :- (Itemtem)

<ItemTemplate>

<asp: ImageButton ID = "Img1" runat = "Server"  
Height = "200" width = "200"  
ImageUrl = '% # Eval ("Picture") %>'  
CommandName = "M1" CommandArgument =  
'% # Eval ("Video") %' />

<br />

<asp: LinkButton ID = "Lnk1" runat = "Server"  
Text = '% # Eval ("desc") %'  
CommandName = "L1" CommandArgument =  
'% # Eval ("id") %' />  
&nbsp &nbsp

<asp: LinkButton ID = "Lnk2" runat = "Server"  
Text = "Buy it Now" />

</ItemTemplate>

## Default.aspx.cs

```
protected void DataList1_ItemCommand ( -- 
    e as EventArgs
    {
        // TextBox t1 = (TextBox)e.Item.FindControl ("txtTitle")
        if (e.CommandName == "M1")
            Response.Redirect ("ShowVideo.aspx?v=" +
                e.CommandArgument.ToString ());
        else if (e.CommandName == "L1")
            Response.Redirect ("Details.aspx?id=" +
                e.CommandArgument.ToString ());
    }
}
```

## Create ASPX Show Video Form -

```
</head>
<body>
<form id="Form1" runat="server">
<div>
    <h2> Display video </h2>
    <video id="V1" src="" runat="server" height="400" width="400" controls></video>
</div>

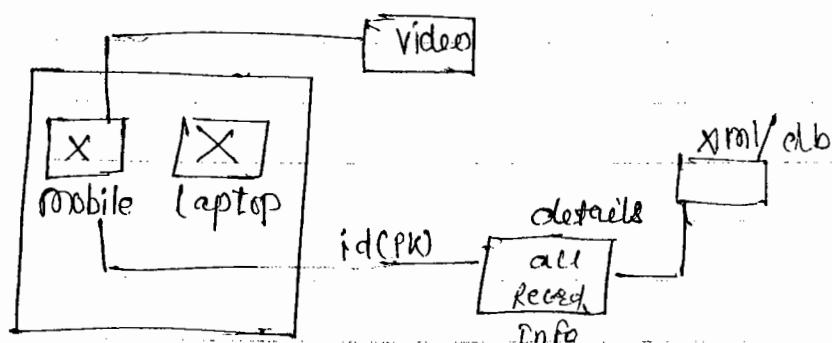
```

Command Argument can pass only 1 value.

— Showvideo.aspx.cs —  
Protected void Page\_Load ( )  
{ VI. Attributes ["Src"] = Request ["V"];  
    }

In the above example when user clicked on Image Button we have redirected to New page by passing the current Record argument. We can pass only one argument with Command argument property. But sometimes we want to pass multiple values. Show that we can display them in the new page because multiple are not possible. One logical idea is to pass a single primary key value to new page as argument and using that primary key we can retrieve all other values from data source. Again most recommended method of handling values. In our example when user clicks on the title or description we have to perform the same process.

— Demo task: -



Create details.aspx Page and display all the Records Information based on the Id that we received.

## -? Repeater Control:-

- It is another data bound Control which is unique in presenting data binding Outputs faster than any other bound Control.
- It is a light weight Control and doesn't have any properties or methods for controlling the layout.
- Every small & big presentations should be completely handled with developer code only.
- It is also template based Control which means every output we have to produce with available templates only.
- Repeater is mostly used as a child Control or Sub Control for other bound Controls and also for smaller presentations like displaying vertical menu style of Items, some handing related info. with minimal datasource value, as a popup with detailed info. for Selected item etc.
- Repeaters support the new <sup>data</sup> binding Item type option (datalist doesn't support Item type)
- Using repeater any type of layout not just

tabular can be presented : a searching website can be done with repeater output.

→ Repeater has no features to support editing, Paging, sorting like gridview & datalist. If required we have to manually i.e. with logic we must complete.

- Create a form with LinkButton & Repeater

Protected void LinkButton1\_Click --

```
{  
    DataSet ds = new DataSet();  
    ds.ReadXml(MapPath("Products.xml"));  
    Repeater1.DataSource = ds.Tables[0];  
    Repeater1.DataBind();  
}
```

Source code :-

```
<asp: Repeater ID="Repeater1" runat="Server">  
    <HeaderTemplate>  
        <table border="1">  
            <th bgcolor="Cyan"> Code </th>  
            <th> Description </th>  
            <th> Image View </th>  
    </HeaderTemplate>  
    <ItemTemplate>  
        <tr>  
            <td bgcolor="Cyan"> <%# Eval("Id")%> </td>
```

```
<td> <%# Eval("desc") %> <%td>
<td> <asp: Image id="m1" alt="Server"
      Height="100" width="100" ImageUrl=
      '<%# Eval("Picture") %>' /> </td>
</tr>
</ItemTemplate>
<FooterTemplate> </table> </FooterTemplate>
</asp: Repeater>
```

Q. Using Repeater Control display table data not in tabular format but like google search result.

30<sup>th</sup> April 2015

### Details view & Form View Control:-

- In dataBinding Controls Repeater, datalist & gridview doesn't support any Inserting off data operation. We can manually perform inserting of data with our own code but in databinding style if we want to perform add operation then we can use both details view and formview controls.
- Detailsview & form view are both unique in providing insert operation and then displaying single record at a time.
- Both these Controls provides similar features but they differ in their markup and provide

Repeater & DataList can be used will all condition.

- good flexibility for developers to choose the style of layout or presentation. Details View provides structured layout like grid view and all its presentation is also performed with fields like bound field, template field etc. FormView provides the same but using templates and also by providing free form layout. We can use FormView with any type of presentation because it is not structured like details view.
- Both these controls can be used in many ways and preferably we must use them with data source control. ObjectDataSource with Repository pattern class will be the best way to use these controls. Alternatively with any datasource control that provides insert, update delete operations.

Example : 1 -

Step 1:- In a new form SQL datasource (preferably object datasource) & map them with dB, table & CRUD operations. Ensure that the table has ~~the~~ a primary key and that column is selected in our retrieval. Otherwise we will not get insert, update, delete autogenerate options as part of advanced button. Once datasource control is configured we can place details view control and configure it with the created SQL datasource controls. Once we map them we will get options like enable paging, editing, inserting & deleting.

both details & form view are same in features.

- After specifying the data source & features we can go to source view and change auto-generated markup according to our requirement.

### Eg:2 - FORM VIEW

→ Same as previous example we can use formview control instead of details view. When we go to source view we notice all the code in templates which gives more flexibility in arranging the contents. We can customise every template code according to our requirements like changing the headings, changing the controls and also adding some additional contents.

### Eg:3:- A CRUD Form (Tabular Style of presentation with Insert)

- Take a form.
- take a table
- Place SQL data source & configure as above.
- Place Gridview & choose data source: SQLDataSource1.
  - And enable all 5 option.
- Now insert form view & choose data source: SQLDS1. make it is horizontal way by selecting Defaultmode property of form view as inserting.  
To do horizontal go to source code & remove `<br>`.
- take SQL data source and do all activity by selecting where and column select, column from gridview1.
- place one more Gridview select gridview2 SQLDS2.

Empty data text is property of gridview.  
Show HeaderEmpty false.

Date 01 May 15

### \* Listview Control (.Net 4.0 Data Bound Control):

It is one more rich control like grid view and most featured than any other data bound control. List View offers more features than grid view also. It provides all crud operations in all types of presentation. Which means it can be replacement for every other data bound control.

- Using list view every style of presentation is possible followed by common features for all outputs. The main goals of Listview are:
  - i) Templated list control, completes the asp.net 2.0 data-bound control "family".
  - ii) Allows developers to completely control the rendered markup.
  - iii) CSS & Scripting friendly.
  - iv) Full support for data source capabilities.
  - v) Satisfies common client requests.
  - vi) Rich design time experience.
  - vii) Finally simple to use.

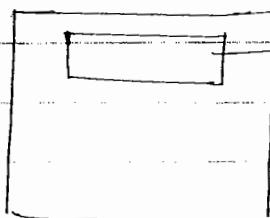
NOTE:- Originally Listview Control is released in .Net 3.5 Service Pack 1 where Listview was rich but it was introduced ~~in~~ with new style of working. The new method was different and it requires good planning for presenting rich outputs. In .Net 4.0 version they added a modified Listview Control where we can

It is used to design - Layout template

Placeholder & Panel  
Contains Content  
Contains Markup

Use List View Like a regular bound control and also with its new format.

List View



Item Placeholder

### List View Structure :-

<asp: ListView DataSourceID = "MyDS"

item = "Server" >

<LayoutTemplate>

<UI>

It defines static markup  
(Layout template)  
to contain repeated items

<asp: Placeholder

ID : "ItemPlaceholder" → Layout template

item = "Server" /> must contain item =

</UI>

"Server" Control UI (with)

</LayoutTemplate>

"ItemPlaceholder" ID

It ← <ItemTemplate>

is repeated <i><%# Eval("value")%></i>

for each data </ItemTemplate>

Object </asp: ListView>

and contains

Binding statements.

### Other features

AlternatingItem template, Selected Item template,

Item separator template, empty data template

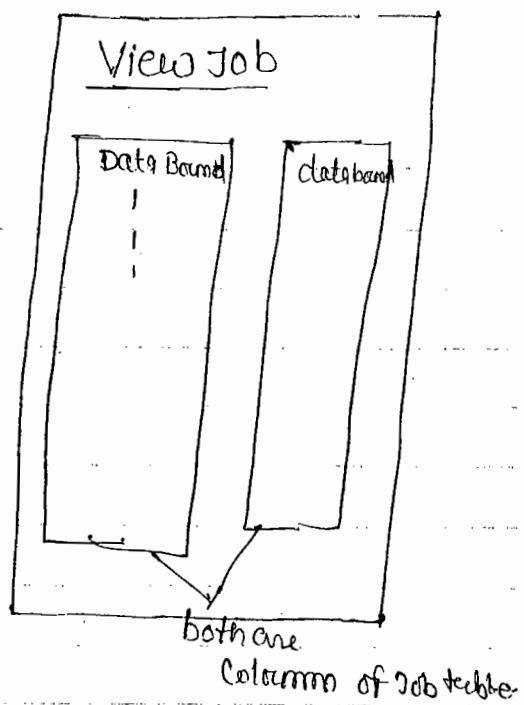
NOTE:- from .Net 4.0 Layout template is optional.

download that blog of Listview.

eval is used only where  
Itemtype is not Pagenj.

### Eg:1 Listview with simple presentation:

Step 1. Create one form Listview demo · put LinkButton & Listview



— Public partial class LvDemo : — aspx.cs

{

    Repo Obj = new Repo();

    LinkButton1\_Click —

{

    Listview1.DataSource = Obj.GetJobs();

    Listview1.DataBind();

}

— Source Code —

```
<asp:Listview ID="Listview1" Itemtype="Job"  
                Format="Server">
```

```
    <ItemTemplate>
```

```
        <br/>
```

```
    <asp:Linkbutton ID="Link1" Format="Server">
```

Text = '<% # Item-Job\_desc %>' <asp: LinkButton>  
&nbsp &nbsp <% # Item-min-lv1 %>  
<ItemTemplate>  
</asp: ListView>

### Eg2:- with Layout

<LayoutTemplate>

<UL>

<Img src = "1.png" height = "60" width = "60" />

<asp: Placeholder ID = "ItemPlaceholder" submit =  
"Server" />

</UL>

</LayoutTemplate>

<ItemTemplate>

<li><% # Item-Job\_desc %>

<% # Item-min-lv1 %>

</li>

</ItemTemplate>

</asp: ListView>

Eg3:- Steps  
SQL data source → Configure → Advanced →  
finish → ListView → choose datasource  
SQLDataSource → Config. ListView →

Step - in a new form place SQL data source or  
preferably Object datasource control and map  
them to relevant tables and methods.

We can perform with Coding also all our operation in that case instead of data source control place link button and write code to retrieve the data (as we have done in eg. 1 & 2) \*

2. Place list view controls & Bind it to the created datasource control and observe immediately all the code is written as part of source view. if we are not using datasource control we must manually write all the templates code (like our previous gridview & datalist examples)

3. Make changes ~~in~~ <sup>In</sup> created sourceview code according to requirement every change is possible in the generated code from smart tag when we select Configure list view and choose the layout we will get all the markup and in this Configure List View we get all types of samples layout with the list of feature to enable.

4. List view has many properties in order to customise the presentation. We can change them in property window. for eg. If we want to place insert option on top of the list view instead of default bottom position we can use Insert Item position. Similarly other properties.

Exercise: all gridview examples - repeat with listview

\* Project Description:- All databinding results are generated using the modern and preferred ListView Control.

date 02 May 2015

\* ASP .NET Dynamic Data :-

ASP .Net Code

ASP .NET Webforms    ASP .NET MVC



ASP .NET Dynamic Data :- The rich concept of data binding is dynamic data. It is one form of ASP .NET and it is built on top of Web form.

- The purpose of dynamic data is to create application rapidly using the data binding support of ASP .Net.
- It is design as a library which provides lots of controls and also built in code for performing data binding operation.
- When OEM is introduced in .Net with link to SQL, dynamic data is introduced which means dynamic data concept works only with model based programming.
- It is improvised in every version and today it can be used with dynamic data entities template which means the ORM will be created using ADO .Net EFW (Ent from loose).

Diff. b/w  
Listview and gridview.

se  
se

Like switch

cmd databinding results are produced with dynamic data.

→ Out of all these libraries and infrastructure dynamic data is used for the following requirements and features -

- i) easily create power data-driven web apps get a running app in under 3 minutes.
- ii) Unleash the power of Schema - (model)
- iii) Customizable and reusable.

Steps :- (is for 2013 same way)

- i) Start VS and start new Website ASP.NET
- ① Dynamic Data entities website.
- ii) Arrange or add db in App-data folder.
- iii) Add new Item → ADO .NET EDM & Create all the model classes for the required tables.
- iv) goto global.asax file which is present in root directory of project and mark the following changes, (in Global.aspx)  

```
return ((System.Data.Entity.Infrastructure.  
ObjectContextAdapter)  
new pubs2012Entities()).ObjectContext; q,  
new ContextConfiguration() { ScaffoldAllTables =  
true});
```

(model) Entity says to dynamic data about parent & child.

## \* Customising Dynamic Data:-

most of the changes require for our application can be change with the ext

Contents : The Global.asax file performs the default behaviour and provides various option to change them and this changes are already commented with a clear help also.

dynamic data is built on scaffolding pattern and in modern app development scaffolding is the most preferred method of building application.

Q: What is scaffolding? (using System.ComponentModel.DataAnnotations)

Ans:- the process of automating CRUD operations based on the given model classes is called as Scaffolding. In ASP.NET dynamic data is the first concept which implemented scaffolding pattern. ASP.NET MVC & even ASP.NET Web Forms today support this scaffolding pattern.

If we want a table to be ignored in scaffolding process then just go to the model class where it is present and add an attribute [ ScaffoldTable(false) ] (Write on top of the class Author) and if you want to escape from any column then also put scaffold above that column description.)

By default dynamic data provides separate page editing mode and other operations. If we want we can change it to 'in place' editing mode by commenting

the default code and commenting the  
Single ~~Code~~<sup>Page</sup> mode code.

Finally many changes in the UI  
and pages can be perform with the given files  
in the project the most important folder is dyna-  
mics folder where all the built-in code is present

Date 03/05/2015

### ASP .NET UI Features :-

- For every website User interface is also an important and required aspect.
- Generally for websites all the presentation is handled by designers.
- As a developer we have to consume those resources and fulfill our design requirements.

In ASP .NET today we have the  
following Concepts to handle user interface Of website

- i) Master pages
- ii) Bootstrap UI
- iii) CSS

- Earlier i.e. ASP .NET 2.0 themes and skins ~~were~~  
also used for designing a website.

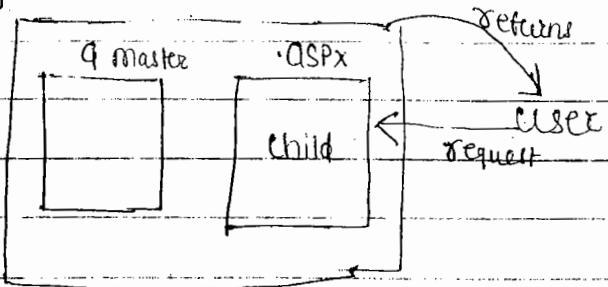
With introduction of bootstrap  
almost all site developer's built their sites  
were bootstrap UI. So themes and skins and all  
their UI concepts are replaced by bootstrap only.

## Working

### \* Master pages:-

In ASP.NET One good Concept for managing website efficiently is master Pages.

- When we want common Content in multiple Pages with design and functionality we can use master Page. A master page is also an aspx page which acts as a Container for many aspx pages. We will create a master page with common Content required for child pages and reuse it in all the pages. Like this we can reduce overhead and improve more efficiency for building website interface.



### Some points of master pages:-

- Consist of two pieces, the master page itself and one more Content pages.
- Can also nest master pages (means one master page can have another master page).
- IS an ASP.NET file with the extension .master (eg- Mysite.master) with a predef. layout that can include static text, HTML elements, and Server Controls.
- is identified by a special @ master directive that replaces that @ Page directive.

04-May-2015

## ASP .NET Web Forms Template & Project

### Bootstrap UI :-

→ Till now all our examples are developed using ASP .NET empty website template which is good to learn and also build application with complete customised behaviour. In real time for smaller applications with less load of resources and to build app with long period in hand we can use this empty website template.

If we want to build our application with industries standard covering different programming resources then it is recommended to use ~~website~~ project templates or ASP .Net web application project in new project option in a website template we will have the flexibility of building our website with individual program compilation and execution.

It also provides multiple language support where one project can be build with different languages like C#, VB .Net and some 3<sup>rd</sup> party languages. Very much simplified development is provided with website template option.

→ In case of new project based application we will not get all the flexibility like a website project but provides standard development option with single language for whole project & also with complete project compilation as a single unit.

2015

*	Web Site	Web app.
-	multiple lang.	- single lang.
-	Compile Conditional	- Compilation Unit
-	flexible	- Standardized

ed  
ich  
n  
al  
id  
loc  
state  
th  
oming  
form  
st  
2  
bsite  
utin  
t  
cent  
ty  
-  
b  
gent  
&

steps for website.

File → new project → ASP .Net Web Application

Web app forms

ASP .Net

In both cases projects in vs 2013 Bootstrap UI is used.

Q. What is bootstrap UI?

Ans. Bootstrap is the most popular HTML, CSS & Java Script framework for developing web apps with modern responsive ness feature & with mobile first approach.

→ Many websites on internet are today built with bootstrap UI and it is independent of languages & packages means any one can use. It is an open source and designed for everyone & more importantly every where.

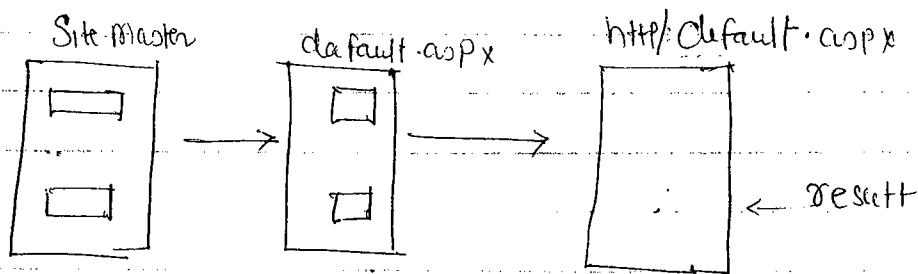
Bootstrap makes frontend web development lot faster and also easier. It is made for all levels of developers. As a visual studio user we have built in support for bootstrap UI. Our project of website when we create Content folder & script folder contain bootstrap CSS and bootstrap JavaScript files.

designer

Functionality part  
(was close by me)

## Master Page Basics :-

- Master defines Common Content and place holders (<asp: Content Place holder>)
- Content Pages reference masters and fill place-holders with content (<asp: Content>)



### Steps :-

- i) Add a new page website.
- ii) Add new Item - master page
  - Design master page content with a plan that contains common content and also place for child page[s].
- iii) After designing the master page add new item create web form → ensure that "Select master Page" option is checked.
- iv) Once master page and child pages are created with good planning we required these pages to communicate with each other that is a child page should refer the content of master page and master page should access the child control. We can do this in two methods:
  - a) Using find controls & master key word.

for Client.aspx.cs  
    {  
        — Page\_Load —

    Label1 = (Label)

        Master.FindControl("Label1");

        L1.Text = "Client - workshop";

}

Method2:- We can also create Component properties and other content in master page and access it from the child pages. This method of accessing is always highly recommended in applications.

→ 1. In master page :-

Public partial class Main : -----

    {  
        Public String title

            get { return Label1.Text; }  
            set { Label1.Text = value; }

2. → In child page :- Source code

<%@ Page Title

<%@ Master type VirtualPath = "~/Main.Master" %>

then in code we can write

→ Button\_Click

    {  
        Master.title = TextBox1.Text + " registered";



Minification :- minified versions of original JS & CSS files.

Advantages : Smaller size files and encourages to use more JS/CSS.

But very difficult to understand and debug that's why always during development we have to use regular version and in ~~int~~ production i.e. while deploying ~~int~~ we have to change to minified version.

### \* CDN - Content Delivery Network \*

- A place in internet where our CSS & JS files are hosted (Cloud version)

### \* Bundling :- Starting from .Net 4.0 Bundling

Concept is introduced in ~~app~~ asp.net application using this Bundling Concept we can bundle of JS files and CSS files into different units as bundles and ask for Optimization from asp.net runtime. Bundling & minification both are techniques which will help webpages to improve request load times.

Bundling improves the load times by reducing the no. of request to server. They also reduce the demand for repeated download of these files. And in .Net 4.5 in every asp.net project this is built in. As a developer in every .Net 4.5 & above project we must understand where this bundling is written and how to remove or add additional file to it.

( Web application → App\_Start → BundleConfig.cs )

In "APP\_start" folder bundle config CS file is the place where we can add / remove @out JS files.

original

bootstrap  
to [bootswatch.com](https://bootswatch.com)

changes

Select theme from this site & download bootstrap CSS

id

→ go to Content folder & rename and backup the original.css file.

ve

→ Add existing item and add the downloaded bootstrap.css file.

Note:- We can even get any modern UI because everything is showcased.

IG

We can replace the existing UI with our own colours & other parameters.

J  
P.Nd

nto :

log

ill

s.

ig

je

spot

homel

ove

-u.

Up level - modern Browsers (all features)  
down level - Old (less featured browser,  
no Java script & CSS supported)

05/may/2015

## \* Validations & data Annotations :-

( Starting from ASP .NET 2.0 & to 5.0 )

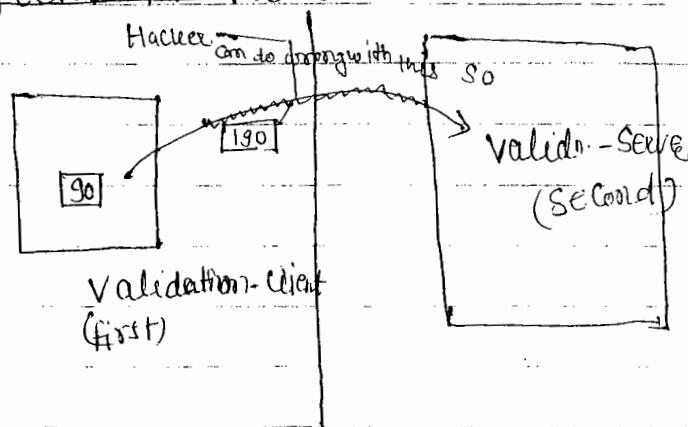
- The process of accepting valid input or required input for our program or application is called as validation.
- For every website irrespective of its type we have to perform validation. For maintaining proper integrity and also for better client site, server site processing we have to implement validations.
- In web application normally validations are 1<sup>st</sup> performed in client site using JavaScript and then at server site using Server site language based on requirement we can perform validations only in client site also or only in server site.
- As an ASP .NET developer we have several options to perform validations in our applications based on requirement and also the version of ASP .NET we have to plan & implement site validation starting from older version to the current version we have following choices for performing validation-

- i) ASP .Net validation Controls.
- ii) HTML ~~Form~~ validation
- iii) Jquery - validate library validations.
- iv) Data Annotations

why it does validation  
on modern browser but  
not in old browser

## a) ASP .NET Validation Controls :-

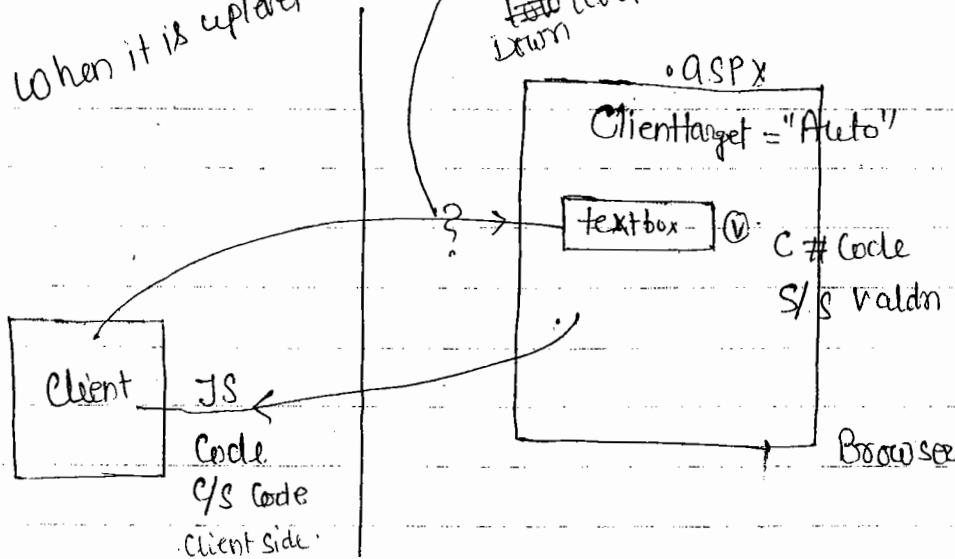
Starting from older version of ASP .NET we have a separate tab in controls called Validation where ASP .Net provides all its validation support. Every ASP .Net Validation Control performs validation targeting the client browser. If the client target is up level then it will perform 1<sup>st</sup> validation in the client by generating required JavaScript and then it performs the validation at server site again so that no Mal-functioning happens b/w the request. Mainly if the client target is found as down level which means a low featured browser then ASP .NET smartly doesn't generate Java Script for performing client site validation and performs the validation only at server site resulting in successfully performing the validation. This whole process is automated because the default setting of Client target is automatic which means ASP .Net checks for browser type & performs the validation.



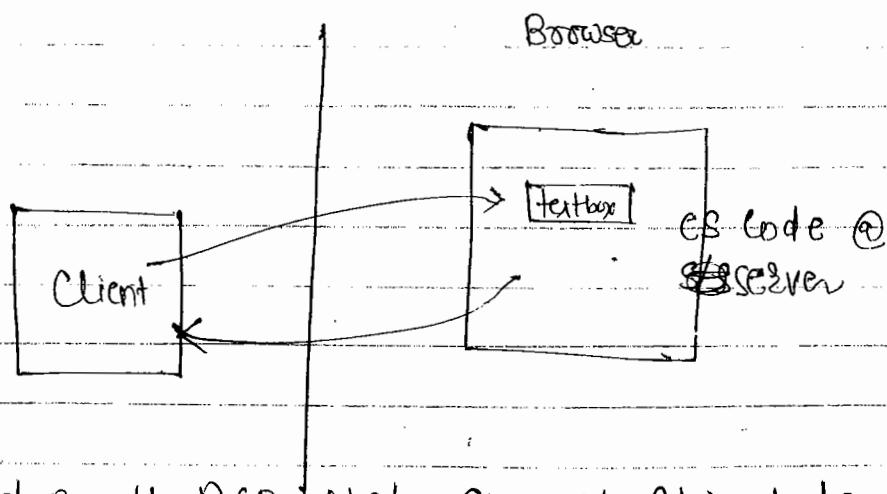
\* Textbox & Listbox  
Can be validate only

When it is uplevel

uplevel = new + all features  
old level = old + less features.  
down



When it is ~~down~~<sup>down</sup> level



Default ASP .Net support Client target validation.

Q: What Controls are available?

Ans: Required field validator

- Range Validator
- Compare Validator
- Regular Validator
- Custom Validator
- ValidationSummary

Required field validator :- using this Control we can check for null values and this is the only Control to check for null values. Other Controls perform ~~their~~ validation only when a value is given. They don't check nulls and if required we must use required field validator along with other validation control.

#### a. How to use ASP.NET validation Controls?

Ans. Just place them where we want to display error message and set the required property. the properties which are common for every validation Control and also for required field validator are -

ControlToValidate : <ControlName>

ErrorMessage : String message

Text : String message

\* EnableClientScript : true/false

Display : static / dynamic / none

ValidationGroup : groupName

SetFocusOnError : true/false

#### b) RangeValidator :-

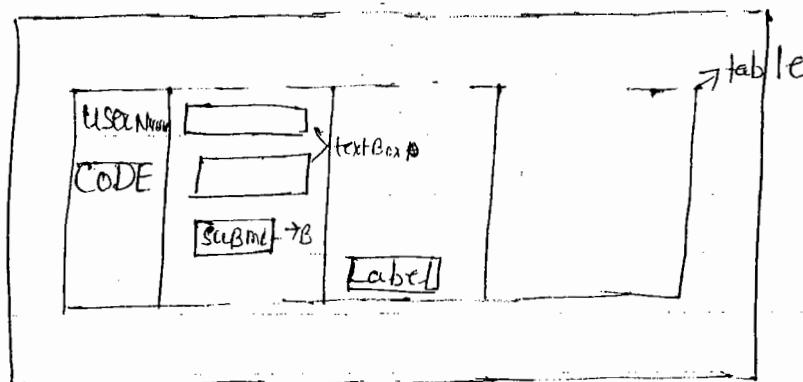
Using this Control we can check for numeric & date type of data for a range. Apart from common property we have MinimumValue, MaximumValue:

MaximumValue :

Type!

## For Password : Password property.

Take the webform



For text 2  
Set both property  
Range & Required  
~~Step~~

Write Code In Button.

### c) CompareValidator:-

Using this Control we can check for values b/w two Controls Comparison, a Control with Constant value Comparison and also a Control with datatypes (Three's)

Apaxl from Common properties we have Control to Compare:

Type : string

Operator : equal

Value to Compare :

Control to Compare TextBox1

Control to validate TextBox2

Eg :-

Password

confirm

Text3

Text4

Age CompareValidator

Front (Web Forms)

06 May 2015

## Regular Expression Validation :-

using this validate we can perform validation.

One of the powerful and recommended method of performing validation is with expression pattern. Regular expressions are the character which we specify to perform validation. Every character denotes a particular meaning and based on that validation is performed. Regex patterns is common concept and are supported by multiple languages. Commonly writing an expression required good knowledge and awareness of all the characters which is slightly complex task.

To overcome this complexity many third party tools are available to generate and test expressions. We also have websites which help in writing most commonly required regular expressions like <http://www.Regexlib.net>, [Codeplex.com](http://Codeplex.com) - Search for regex and many more.

Using all these tools & samples we can easily write any regular expression. Visual Studio and MSDN also provides many samples which can be used as it is or modified into requirement. Many complicated and time consuming validations and logics are simplified with regular expression & that is why they are very important for development.

Some sample expressions:-

1 - starting with

\abc entries should start with abc

\$ - ending with \d - digit \w - a word

{}, [] for a range

Eg. "IdIdIw\w" - 2 digits 2 words @

\d{5,9} --- min. 5 digits & max 9 digits

\w{3} --- 3 words

\d{10} --- 10 digits

[A-Z] --- only Capital letters

[Aa-Zz] --- any alphabet

Eg. phone no. - validate expression \d{10}

Country - validate expression [A-Z]\* or [Aa-Zz]  
(\s) space

Syntax

System.Text.RegularExpressions\*\* is  
the library for Regular expression

RegEx & many other classes

Console.WriteLine("Enter Email Id");

String s = Console.ReadLine();

If RegEx.IsMatch(s, "\w+([.-+]\w+)+@")

// ok

else

Console.WriteLine("Invalid email id");

content/blog: Regular expression  $\rightarrow$  Noga Sir.

### \* Custom Validator :-

When all above four validation control doesn't fulfill our requirement in performing validation then we can use custom validator & write our own logic. With custom validator we can do only client side or only server side and also both side validations. It depends on our requirements. different steps are used to perform different style of validation.

#### → Custom Validator Client Side Implementation :-

Step:- Take quantity textbox & take custom validator → Control to validate (TextBox9) → Client validation funct. CheckQty (method) → <sup>in</sup> sourcecode under Content

ASP: Content ID = "Content1" Content Placeholder ID =

<Script>

```
function CheckQty(x,y){
```

```
if (y.value % 5 == 0)
```

```
y.IsValid = true;
```

```
else
```

```
y.IsValid = false;
```

```
</Script>
```

#### → Custom Validator Client Server Side Implementation :-

```

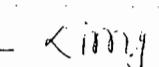
-- Button1_Click --
{
    if (Page.IsValid)
        Label1.Text = "Order Placed";
    else
        Label1.Text = "Correct the error";
}

-- CustomValidator1_ServerValidate --
{
    // serverside
    int v = int.Parse(args.Value);
    if (v % 5 == 0 & & v < 500)
        args.IsValid = true;
    else
        args.IsValid = false;
}

```

\* Validation Summary :- This control doesn't perform any validation but displays all the error messages of validation controls in a single location. Just placed this control where we want to display the errors & automatically get the messages. \* Just insure that either display errors individually or a summary below displaying errors in multiple places repeatedly doesn't look good.

static

Display property - ~~Note~~. Text,\*  
 Error message -  audio Src="Simple.  
 mp3"

NOTE :- Error messages needn't be always plain <sup>auto</sup> <sub>play</sub> text we can write any valid dynamic HTML also has our error message that gives more interactive and user friendly output

which is very important

10 May 2015

## \* Validation using JQuery validate & HTML5:-

### ASP .Net Validation Controls

perform all the validation required at client site and server side. These validations performed by ASP .NET internally used Java Script and also JQuery libraries. In Addition to that from .Net 4.5 they performed Unobtrusive style of Java Script validation which is most preferred way of writing Java Script. Even though validations are performed perfectly the user Interface and modern method of Validations are not presented by ASP .Net Validation Controls.

JQuery validate is also <sup>the</sup> most widely use JQuery library for performing validations using JQuery. This library that is .JS file is not available by default in script folder of <sup>.NET 4.5</sup> Project. If required we have to externally add a Using " Nuget Package Manager".

Right On project & Select Manage Nuget packages → select JQuery validation → After installing it from nuget we have to add it to our page or to bundles and then start writing validations attributes as part of our controls. It is very simple to perform

Age  → watermark  
When we enter something  
in text box then it will  
disappear

ASP.NET validation control  
jQuery - validate only Client Side  
HTML  
Data Annotations Client Side &  
Server Side

Validation using JQUERY validate library but  
this validation will be only Client Site  
validation. Server side we have to explicitly perform  
the validation. When JQUERY validation are  
implemented we will get rich user interface and  
also scope for all client site rich validation.

The following steps should be performed  
to implement validation in HTML and ASP.NET  
forms.

- 1) Install JQUERY validate from nuget.
- 2) Add to page using `<Script src="....>`  
(or)  
in bundleConfig.cs

- 3) Add required Validation attribute for html or  
ASP.NET Control.

```
<Form id="form1" runat="Server">
```

```
<asp:TextBox ID="TextBox1" runat="Server"  
cssclass="Required"/>
```

↳ JQUERY validate attribute

- 4) When form is loaded we must also run &  
`$('#form1').validate();`  
method

Eg:

```
<Script>  
$(document).Ready () {.....  
$ ('#form1').Validate();
```

### \* By HTML :-

<input type = "text" ----- Required ----->

<input type = "email" ----- />

<input type = "number" min = 10 max = 20 ----->

<input type = "Url" ----->

### \* From .net 4.0 (in asp using HTML)

<asp: TextBox ----- Required >

<asp: TextBox ----- type = "email" ----- />

\* HTML file validations:- more then Jquery validate and any other 3rd party library we have html file validation which provide most rich user interface and also all types of client site validation. In the beginning only HTML controls were supported with HTML file validation starting from .Net 4.0 we can add HTML attributes to our existing ASP .Net controls and get rich validation. So instead of using Jquery validate or ASP .Net validation control for client site HTML is more preferred. Samples with ASP .Net Controls -

<asp: TextBox ID = "TextBox1" runat = "server"  
required > </asp: TextBox>

<asp: TextBox ID = "TextBox2" type = "number"  
min = "10" max = "100" runat = "server" > </asp:  
TextBox >

<asp: TextBox ID = "TextBox6" type = "email"  
placeholder = "Email Id" runat = "server" > </asp:  
TextBox >

Textmode property of TextBox Cm  
say what u can use for HTML validate.

## \* Data Annotations :-

In .NET 4.0 Data Annotations concept for web form was released. First it was implemented in MVC and now in Web Forms also. Data Annotations are classes provided to us in the form of attributes and can be implemented in every Model based programming methods.

Every validation is provided as an annotation class and we have to apply this to our model class generated by Entity Framework & other ORM designs options. Once annotation is applied at model class then automatically whenever model based binding is implemented there automatically validations will be performed. More interesting is this validation is performed using Jquery & HTML file for client site and also at server site with a valid serverside code.

- To implement annotation a different methods of validations for databinding code must be written. The following are steps to perform model based databinding (highly preferred) and also model based annotation.
- 17. After creating EFWI go to model classes & add annotations as per requirement.

generally in previous example scaffolding was doing for only 1 column but here it works for all content it is showing.

## Using System.ComponentModel.DataAnnotations

for  
mented  
1  
ented  
2ods  
8 m  
to  
3k &  
here -  
red  
also  
le  
written  
sed  
bel

→ go to Job

[Required] → (it will work for all job id in project.)

public short job\_id { get; set; }

[StringLength(20, minimumLength = 5)]

public string job\_desc { get; set; }

[Range(10, 20)]

public byte min\_lvl { get; set; }

[RegularExpression(@"\d{3}y")]

public byte max\_lvl { get; set; }

Once annotations are written in all our data-binding examples wherever item type equal to Model class is used there automatically validation will be performed.

→ 11 May 2015 →

\* Model based Binding with data Annotation for Validation :-

Model based binding is completely new and preferred method of performing data binding operations. Many advantages of model based operation are provided for an application. One big advantage is we will get validations also in the preferred client side and server side model.

details view  
default mode - insert

## IQueriable <Job>

↳ Interface (Base type)

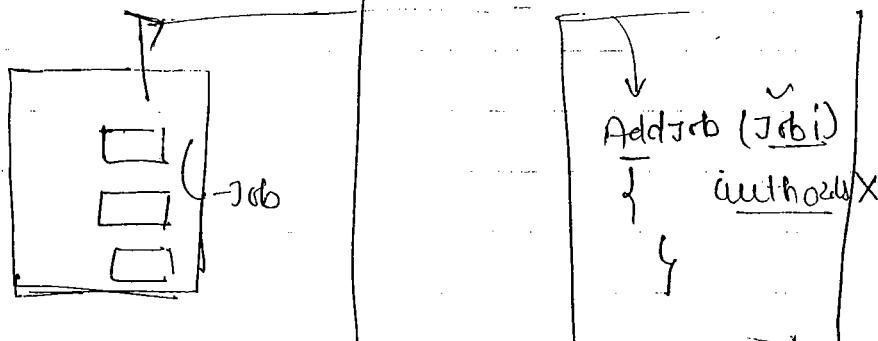
All generate edit → true  
& delete

To perform model based databinding for all our existing data bound Control we have to perform the following steps -

- 1) Create Entity Frame Work or any other Model based classes.
- 2) As discuss add annotations for all the model class members where we want to perform simultaneous validation with data binding.
- 3) Create a repository class that performs all the required "CRUD" Operation for our Model classes.
- 4) Now Create a form and place the required data bound control and then provide methods which ~~are~~ are asked by data bound Controls for the relevant operations means the data bound Control will itself provide properties to attach our method for performing retrieval, add, update and other operations.

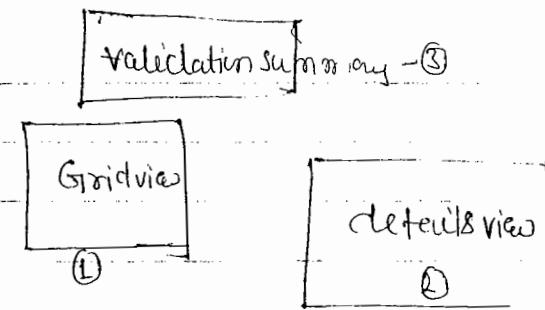
We must write these methods also according to our requirement but with the aspects syntax.

model Binder  
(Program)  
.aspx



look for matching data if true push it or mismatch  
then ~~don't~~ don't do my thing.

Properties to be set for gridview  
auto generate <sup>edit</sup> button, auto generate delete button  
for details view → Auto generate insert button.



for Gridview in source -

```
<asp: GridView ID="GridView1" runat="Server"
    SelectMethod = "GetJobs" UpdateMethod = "Update
    Job" ItemType = "Job" />
```

For details view :-

```
<asp: DetailsView ID="DetailsView1" runat="Server"
    SelectMethod = "GetJobs" InsertMethod = "AddJob"
    ItemType = "Job" />
```

MBINDDEMO.aspx.cs :-

Public Partial class MBINDDEMO : System.

```
{ Repo Obj = new Repo(); }
```

```
protected void page_load = --
```

```
public IQueryable<Job> GetJobs()
```

```
{ return Obj.GetJobs().AsQueryable(); }
```

```
public void AddJob(Job j)
```

```
{ Obj.AddJob(j); }
```

Unobs

empty website  
<configuration>  
<appsetting>

## Advantages :

- Model based programming is itself a plus point
- Model binder is the program which checks for incoming data and automatically pushes values to the relevant parameter resulting in lots faster and accurate method of coding.
- Annotations add a greater support not only for validation but also for other presentation task. data annotation is added advantage every where we use them because they perform client site validation using Jquery HTML file and server side with the relevant language.

In addition to this they perform a modern unobtrusive Java Script Coding which provides clean Separation of Markup & Java Script Code.

NOTE:- In webforms site template all validations are performed by default in recommended unobtrusive & Jquery based validation but when we write OR use validation Control & annotation concept in an empty website then default unobtrusive style throws an error specifying the missing mapping stmt. and also the required JS file. To continue our validation in old style we have to write the following setting in web.config file -

< Configuration >

< app setting >

< add key = " validation settings & Unobtrusive  
validation " >

value = " None " > → old method of validation  
Webforms → new Unobtrusive Method

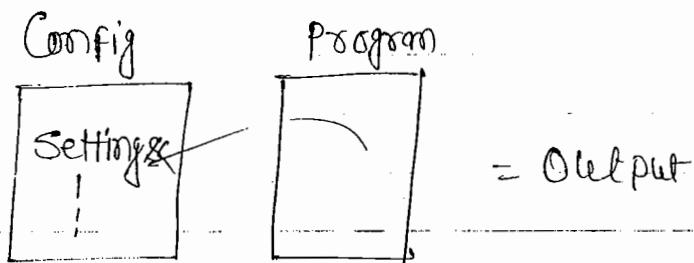
< /add > (requires mapping)

< /appsetting >

May 12, 2015

## \* ASP .NET Configuration :-

It is always important in web app. to write configuration based programming instead of direct programmable statement. Configuration Means we will have a Config file where we will write all the setting not the program and the separately program file which reads the settings from Config file & produces the output. Lots of advantages are found in Configuration based programming.



Asp .Net has very rich support for building app. using configuration files it provides two imp. files for supporting Configuration based development and before using them it is very important to understand about these files & their location -

- 1) Machine.Config.
- 2) Web.Config.

Important Common points -

1. a Config file is an xml formatted file which can be easily edited with any simple textual editor. using Visual Studio it is more simplified to handle these files.

(ii) They are processed in hierarchical manner which means every Config file in herite the setting of its parent configuration file & the root for all configuration heirarchi is machine.config.

→ They are cached in memory implicitly for better performance and automation based on our current location of running program system will automatically load the related configuration file.

Machine.config :- It is located in .Net framework folder not in our project & all settings present in this config file are applicable to all websites running in the current server.

i) Only one machine.config is allowed per server (per platform) that is why it is called as per-server basis file.

ii) The settings defined in this file are by default overridable by the child config files unless specified as can't be overridden.

iv) Normally this file is handled by administrators only.

Web.config :- This file is called as application Configuration file and it is present as part of our website project.

Net present  
in windows file

c:\windows\microsoft.net\framework

v4.0.30319\config is the place  
for config file.

- iii) This file contain project specific settings which are newly written as well as which are overridden values of parent config file settings.
- iv) We can have multiple web.configs in single project that means for each folder in our website we can have one web.config file. This file is completely handled by the developer only and most part of it is handled at design time & some parts at run time.
- v) .Net provides System.Configuration.dll assembly which contains Configuration Manager and Web Configuration Manager as the key classes to handle config files. These classes contains various method for design time & run time handling of config files.

config  
eg. should  
be done in  
empty web

### \* Structure of Config File:-

<Configuration>

<Section>

<SubSection>

</Configuration>

### Settings:-

#### i) <appSettings>

(ie.) in websites creating application wise static variable is highly recommended

web.config is the only config file.

Where appSetting Section we must avoid maximum the uses of static keywords for a variable because it will result in memory-leaks. With app Settings Section we can get Configuration based Static variables and this Section is directly return under Configuration Section i.e. Root. Another important thing is if any user defined sections are present in Configuration file then we must write app Settings after that sections.

eg: <Configuration>

- <appSettings>

<add key = "Logo" value = "Main.jpg" />

<add key = "Title" value = "Online shopping" />

</appSettings>

<System.web>

<Compilation debug = "true" />

always after creating Configuration setting we have to read them in our program & we have two methods to read -

i) in markup using <%\$ Section: key %> syntax -

always markup method is more preferred than any other method\*\*.

ii) in program using

ConfigurationManager.AppSettings [<key>]  
(or)

WebConfigurationManager.AppSettings [<key>]

Ex. in Source file :-

```
<asp:Image ID="Image1" Format="Server"
    ImageUrl="<%$AppSettings:Logo%>"
    Height="121px" Width="126px"/>
<br/>
<asp:Label ID="Label1" ...>
```

### System Configuration

```
public partial class Default : System.Web.UI.
    Page
{
    protected void Page_Load(object sender, EventArgs e)
    {
        Label1.Text = ConfigurationManager.AppSettings["Title"];
    }
}
```

13 May 2015

### Connectionstrings :-

Using this Section we can define the Connection information required to connect with database for entire application. It is industry standard that is MSFT Standard to define connection in web.config and use them as part of our application. Data source control & Entity framework all use this section only.

(for)  $\forall$   $\exists$

For Managing their Connection information.

Eg:-

```
<Configuration>
  <AppSettings>
    <add key="Logo" Value="Main.jpg" />
    <add key="Title" Value="online" />
  </appSetting>
  <ConnectionString>
    <add Name="sqlcn"
      ConnectionString="DataSource = (LocalDB)\M
      V11.0; AttachDbFileName =
      ProviderName = "System.Data.SqlClient" />
  </ConnectionString>
```

ASPX.CS :-

Protected Void Page\_Load --

Under Button1\_Click :-

```
String Cnstr =
ConfigurationManager.ConnectionStrings
["sqlcn"].ConnectionString
SQLConnection Cn = new SQLConnection(Cnstr);
Cn.Open();
Label2.Text = "Connected";
```

View in Browser is faster than (IntelliJ)

## \* <Compilation debug = "true/false".... /> (Error handling & Debugging)

→ For any Project error handling & Debugging is very important.

↓  
· .Net & VS.NET & many other tools provide very rich error handling & debugging options.

↓  
It provides multiple options in different ways

- In the form of debug windows
- In the form of menu options
- Code breakpoints & intellitrace

→ In the form of config statements  
- try... catch block for program statement  
- different events @ Control Page & Application level

&

finally in the form of tools also.

→ With Compilation tag we can specify whether our project should be compiled in debug mode or non-debug mode. If debug attribute is set as true then the compilation will have extra code and also extra debug symbol & when we set debug as false then ignoring all debug symbols and code we will get compiled version of code. In false state we can't perform any debugging. So it is recommended to use debug as true during development and

## Trace window

Set it false in production i.e. before deployment.

Date 14/05/2015

### \* ASP .NET Tracing (Errors Handling & Debugging)

→ With tracing Concept we can get run time information which is executed by ASP .NET file running any or a resource. Tracing can be done during development and also after the development with the help of tracing lot of information can be known about the page and also we can track errors and other activity related to the page.

- In Asp .Net tracing is One Concept and it is supported in 3 different methods or in 3 different types -
- 1- Application level tracing.
  - 2- Page level tracing.
  - 3- Statement level tracing.

We can Combinly use all these tracing Methods in Order to produce some useful information about execution.

→ Application level tracing:- in Order to enable tracing for our project we can use trace tag (`<trace>`) of configuration file and implement or enable tracing for our website. When we use the trace tag

requestLimit = "4"

pageOutput = true means

remaining = 6 means  
6 is

in root config file it is applicable for entire project & hence it is called as application level tracing. Some settings are possible only at application level tracing.

Eg. <Configuration>

<appSettings> ---> </appSettings>

<connectionStrings> -----> </connectionStrings>

<System.Web>

<trace enabled = "true" pageOutput = "true" />

<compilation debug = "true" tra

It will  
written in  
source

→ If we specify pageOut as false then no trace results are generated in the page and we have to see them using trace utility.

→ \* Trace utility means as part of browser we have to remove page name and write "trace.aspx". When we type this we will get all traces that are generated during our browsing. By default there is a limit on number of trace result that are generated and the default is 10. We can increase or decrease this using Request "requestLimit" attribute of trace tag.

→ Another attribute of trace tag is "localOnly = "true/false". Using this parameter we can specify the trace result only in local host system and ignore it for our customer or user.

Eg. <trace enabled = "true" pageOutput = "true" localOnly = "true" requestLimit = "4" />

iii) Page Level tracing:- Instead of entire application we can perform tracing only for particular page and also when application level tracing is on we can switch off tracing for a page using page level tracing options. Page level tracing is implemented using trace attribute of the page directive.

`<%@ Page language = "C#" Trace = "true"  
TraceMode = "SortByTime" AutoEvent`

*It will be written in source code of the page*

iii) Statement Level tracing:- this is also important trace option and it is implemented using trace object. We can use this object as part of our programming statements and generates some output as part of trace results. Using this object we can also find whether tracing is enabled or not and some other parameters. For writing information as part of trace results we have "Write" method and "Warn()" method. Write() generates outputs in black coloured text and Warn generates in red coloured. Base on requirement we can use it.

`using System.Web`

## \* CustomErrors:

Another very useful error handling option is custom errors. In a website or any program displaying runtime errors is not good and also a threat for website because with runtime errors our source code and some important parameters might be disclose to e.g. we must handle that error and display some other errors message or userfriendly message.

(do some mistakes in config file and run the project by Ctrl+F5 and look the errors)

```
try {  
    string Cnstr =  
        ConfigurationManager.ConnectionStrings["SqlCn"].  
        ConnectionString;
```

```
    SqlConnection cm = new SqlConnection(Cnstr);  
    Cn.Open();
```

```
    Label2.Text = "Connected";
```

```
}  
catch (exception)
```

```
{  
    Label2.Text = "try after some time";  
}
```

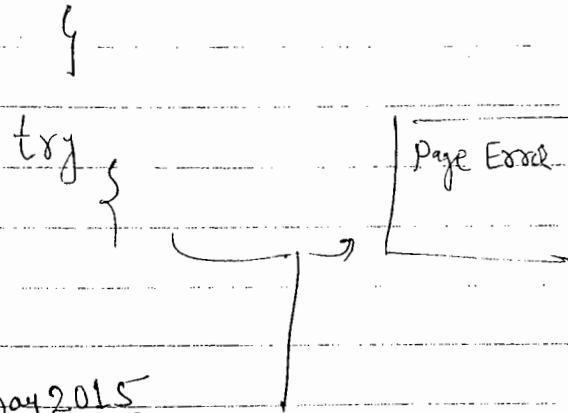
In order to trace or catch the errors and display user friendly message we have to use different levels of handling on errors: the lowest level of handling is error is using try catch of onet - for eg. (look above eg.)

Even though we write try catch some errors can't be caught while that block & sometimes we don't write try catch. in such cases the next level of error handling should be handled & in asp.net we have pageerror event to do the page level error handling task:

\* (do some mistake in page-load like this)

Eg. Protected void Page\_Error (Object sender, EventArgs e)

Response.Redirect ("error.aspx");



Date 15 May 2015

\* <customErrors> ... </>

→ When try catch, page error doesn't handle the error then we can use custom errors sections of web.config. This section is mainly for handling http related errors.

→ Every http execution will have a status code whether the request is executed successfully or not. And for every error related output there is http status code. These errors are not handled by .NET and ASP.NET.

## debgay\_Buld

statements and events using custom errors we can specify the action to be taken when some http error occurs.

eg. <customErrors mode="On" defaultRedirect="error.aspx" > </customErrors>  
or error.aspx?q=1

this means any error related to http when redirect user in .aspx page if required we can also pass some query string parameters to find the location & reason for errors.

eg. <customErrors mode="On" defaultRedirect="error.aspx?q=1" >

<error statusCode="404" redirect="error.aspx?q=2" />

<error statusCode="501" redirect="error.aspx?q=3" />

</customErrors>

— Under Button Click —

try

{

Response.Redirect ("nopage.aspx");

}

Catch (Exception) // will not handle

{

Response.Write ("No such page");

}

## - 6 Application - Errors Event :-

Apart from these 3 i.e. try catch, Page Error & Custom Error we can use Application - Error Event in "global.asax" file. This event also enables user to handle the errors which are not caught at lower levels. In this event also we can write code to Redirect user to some information page or write any other logic so that we can track & correct the errors later.

e.g. { void Application - Error (----) }  
for this  
Add Application  
global  
Global.asax  
// Code that runs when an unhandled error  
occurs.  
Response.Redirect ("error.aspx?Q=10");  
?Q=1"

\* < Server Object's role in errors (Handling) :-

1> Asp .Net Server object has very important role in handling the errors it has methods which provide the errors information for our programs and using this errors info we can maintain a log in database or in some other file so that we will rectify them over a period of time & make our application error free application. Remember it this process of passing errors and storing them somewhere we should not write very big logics because they might again through some errors leading to Cyclic.

## (Error Logging Modules and Handlers)

Net Connected → Project (Right Click) → Search  
Check it <http://site.com/elmah.axd> (Run your website, local host / elmah)  
NuGet Packages → Elmah → Install →

Redundancy Problem to which are very tough  
in any application to handle. Some simple  
and successful log writing process can be  
performed like writing error information to an  
xml file or plain text file which doesn't  
require many resources and also which never  
fails.

Server object has methods like  
Server.GetLastError() which provides the last  
generated error message in the form of  
exception. We can use properties of this method  
like Server.GetLastError().Message and  
other info. It also has Server.ClearError()  
(which removes the last thrown exception). Like  
this server object can be used in the best  
possible way of collecting error information. One  
good use as an example -

```
void Application_Error()
{
    Response.Redirect("errors.aspx?Q=10&
        Info=" + Server.GetLastError()
        () .Message); }
```

```
eg. else if (Request["Q"] == "10")
{
    Label1.Text = "App Error - " + Request["Info"];
    /*
}
```

```
DataSet ds = new DataSet();
ds.ReadXML(MapPath("errors.xml"));
/*
ds.WriteXML(MapPath("errors.xml"));
**/
```

IIS can also be used as  
SMTP, HTTP & FTP  
which means  
server which means  
we can configure IIS with .NET  
people uses.  
3rd party SMTP Server so  
that it can send the email & also we can configure it for local  
pc which means  
the message send will be  
stored in one of the directory  
we specify. In real  
time application  
both cases  
of IIS are  
not useful →

### \* <MailSettings> & SMTP:-

- 16 May 2015

SMTP :- Simple Mail Transfer Protocol

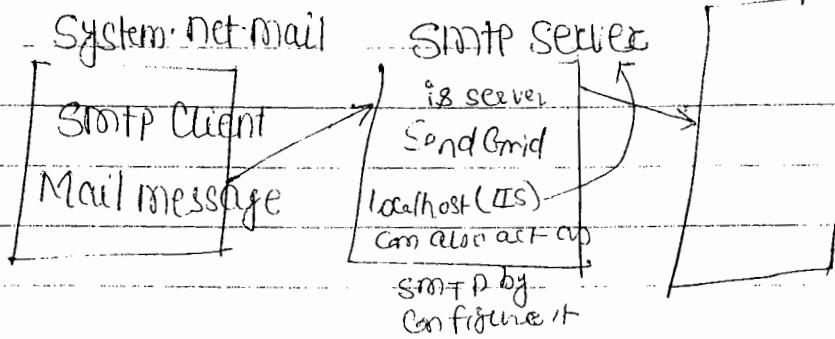
HTTP is for Request/Response &  
SMTP for sending emails.

When we want to send an email  
through program then we must use SMTP protocol  
for it. SMTP servers are softwares which follows  
SMTP protocol for sending email. We have to use  
some SMTP servers and use .NET Libraries to  
communicate with them.

.NET provides System::Net::Mail namespace  
for SMTP related classes. SMTP Client & Mail  
Message are two classes for preparing the  
mail content and also for sending the email.

The architecture for sending mail

Recipients



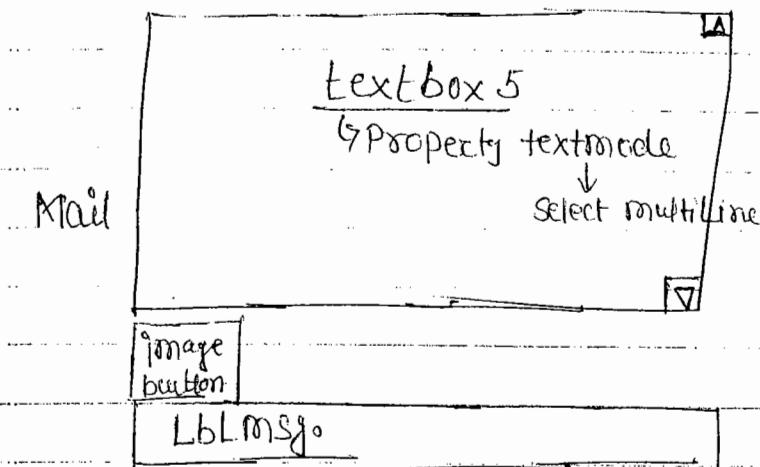
Q. What is the role of .NET email program?

Ans - .NET Provide classes to communicate with  
SMTP Server and as part of .NET program  
we have to specify the settings of SMTP Server  
and complete our program.

We use third party server like Sendgrid and send the mail successfully. We can find SMTP settings in IIS with SMTP Email feature.

PavanBhende@gmail.com  
From  
Password  
TO  
Subject  
Attach  
[Label 7]  
[Label 8]

NIT Mail Application  
for no 1  
1 → txt box 1  
2 → txt box 2  
3 → " 3  
4 → " 4  
Browse → File Upload Control  
Select file and upload it from any place on whatever  
[Label 9] (Pop que bed)  
[Label 10]



### - .ASPX -

Using System.Net;

using System.Net.Mail; // Old is System.Web.Mail

public partial class Default : System.Web.UI.Page

// send button code.

MailMessage MsgObj;

protected void ImageButton1\_Click ( )

SMTPClient ServerObj = new SMTPClient();

ServerObj.Credentials = new NetworkCredential(

txtBox1.Text, txtBox2.Text)

Gaurav

> proxy

Connection  
with server

Send  
gs in

Port no:  
HTTP - 80  
FTP - 21

Attachment  
is the class of Attachments  
Collection.

Mailer demo  
baconmail

application  
for local  
host do  
not access  
net  
ServerObj. Port = 587; // 25. → address  
ServerObj. Host = "Smtp.gmail.com";  
ServerObj. EnableSsl = true // Secure Socket Layer  
by encryption

Fixed program part never be  
changed

(Preparing the message) msgobj = new MailMessage();  
msgobj. From = new MailAddress(TextBox1.  
Text, "Microsoft", System.Text.  
Encoding.UTF8); ↴ I got the mail from perfson  
collection (for multiple users sending mail)

msgobj. To. Add(TextBox3.Text);

msgobj. Subject = TextBox4.Text;

msgobj. Body = TextBox5.Text;

// msgobj. IsBodyHTML = true;

msgobj. Attachments. Add(new Attachment  
(mappath(Label17.Text))); ↴ filename which is in  
my system.

msgobj. DeliveryNotificationOptions =

DeliveryNotificationOptions.OnFailure;

ServerObj. Send(msgobj);

lblmsg. Text = "Mail Sent successfully --- !"; ↴ fu

\* Under attach button Code -

Protected void LinkButton1\_Click(...)

{ // Attach Button Code

FileUpload1. PostedFile. SaveAs

(mappath(FileUpload1.FileName));

Label7. Text = FileUpload1. FileName;

Label8. Text = "is uploaded --- !"; ↴

Technical ~~skill~~ - Security implementation for my proxies  
Strength website by ASP .Net  
~~was done by me. Can be~~  
~~implemented by me.~~

Q. Write an Email program which will read records from a table where every row has description and email id. When we click on send mail it should send mail to all users of the application.

18 May 2015

### \* Security Configuration :-

Web applications are by default not secure as they travel in plain textual format and also in a public manner. Externally we have to provide security in different methods for a website. The most common security levels that we have to implement are

#### \*\*- Transport level Security

- Message level Security (Services)
- Operating System or Server level Security

- Web Server

#### \*\*- Site Access Level

→ As a developer we can implement all these levels of security but the most important are transport & website level of security.

→ Site level security means providing access to our resources or pages only to authenticated & verified users. ASP .Net provides very good support for implementing site

Proxies  
IP Net  
se  
j more.  
incoming & outgoing msg. taken care  
by firewall but  
if it ~~fails~~ anything goes wrong taken care by  
antivirus.

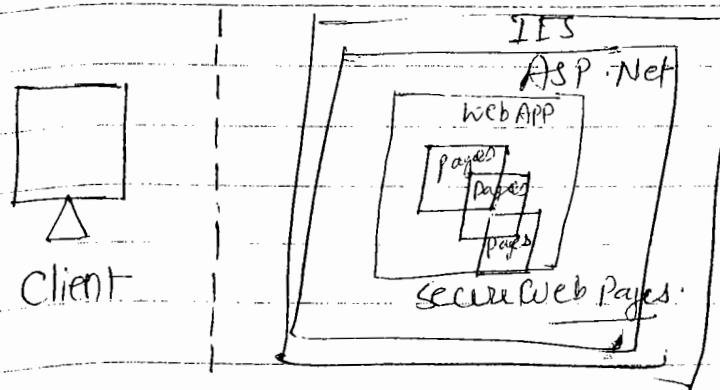
level security and also to integrate with  
other levels of security.

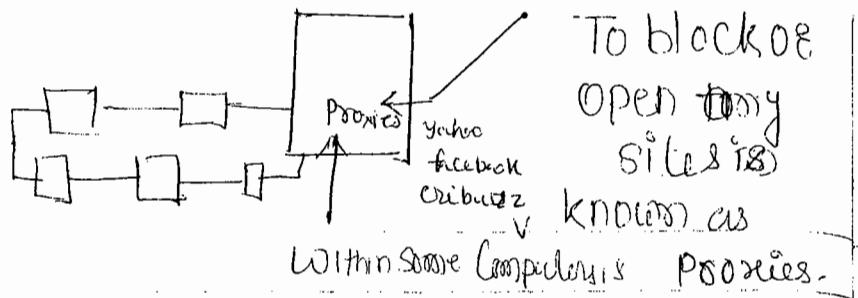
- ASP .Net provides two concepts or processes for implementing site level security -
1. Authentication
  2. Authorization

Authentication means the process of verifying user credentials and creating the identity. As long as identity is present and valid user is treated as authenticated user.

Authorization is the process of allowing or denies the requested resource base on authentication and other factors.

- As a developer if we combine authentication and authorization according to our project requirements then we will get the best security for our application.





Date 29 May 2015

## \* Types Of Authentication:-

Authentication + Authorization = Security (site)

1. Windows Authentication
2. Forms Authentication
3. Open Authentication (Social Networking Authentication)

ASP .Net Identity (OWIN implementation)

<sup>most used</sup>  
Windows Authentication:- This is one Method of authentication and in this

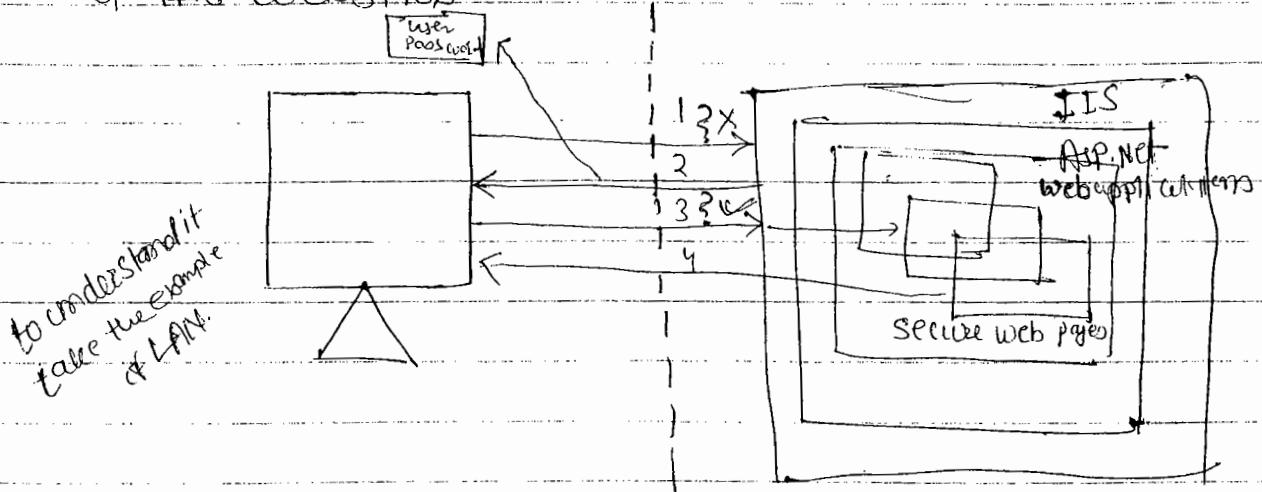
<sup>IIS + windows</sup>  
<sup>will check for verification</sup>  
Authentication windows performs the user credentials and identity process. It is suitable for intranet type of website as user requires the account in windows in order to access the Secured Content of the website. The following steps are performed when user request Secured web page and gets it after providing the Credentials -

Step 1: User request a Secured web page from IIS .Net websites.

Step 2: IIS at Server stops the user checks the identity

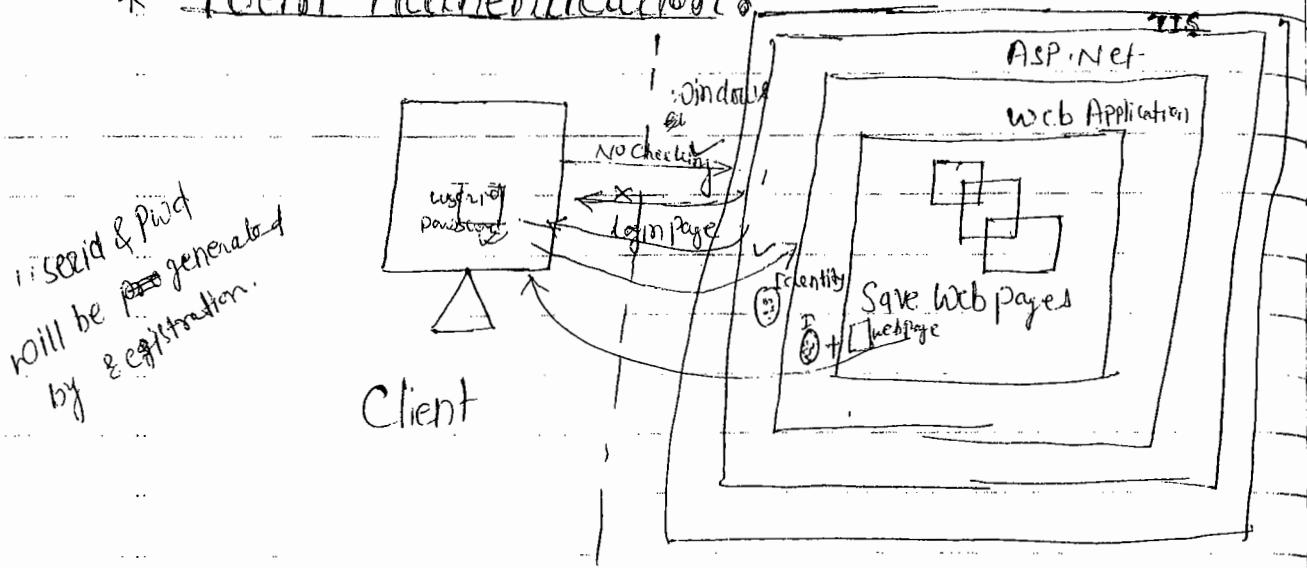
and when not found redirect an instruction to the Client for displaying login window.

- 2015
3. The Client Computer displays login window and User enters the required Credentials which are available of which are provided by server administrators.
  4. These Credentials are again submitted back to IIS as an identity created in the Client System. IIS verify the identity and when it is found valid it redirects user to ASP .Net.
  5. ASP .Net returns secured web page to the client as the request include valid identity like this all users who has an account with Server System can access Secured pages of this website.



NOTE:- User id & Password is created on Client P.C. that means identity is created on Client. But verified on Server.

## \* Form Authentication :-



In Form authentication ASP .Net itself performs the entire authentication process but as the user has to come through IIS we must set IIS Mode of authentication for our website as anonymous (अन्योनीमस).

Q. What is anonymous authentication?

Ans- It is a setting that we specify at IIS level for our website and which means that when ever user make a request for secure page IIS will allow the user as anonymous user by providing credentials by itself.

The following steps are performed when we implement Form authentication in our website -

1. Client makes a request for a secured webpage.

2. IIS allows user as anonymous  
3. IIS redirect user to asp .Net website . asp . Net this time checks for valid identity of forms cmd. when not found it will redirect login.aspx page to the client which is displayed in the browser it self.

4. Client enters the available credentials submits back to Server.

5. IIS again allows user as anonymous and redirect to asp .Net . asp . Net takes the login Page Content checks for validity cmd then creates the identity.

After creating the identity asp .Net redirects secured page along with identity created to the client as long as the client comes to server with this valid identity server will recognise user as authenticated means doesn't ask for login.

### \* Implementing windows / forms authentication:-

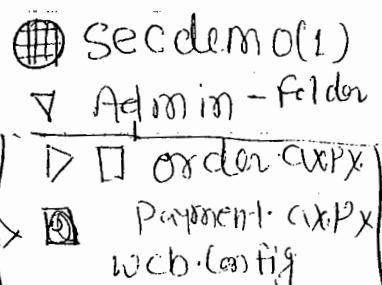
1. Asp .Net provide Configuration based Settings for implementing security of a website in order to develop a web application we have to plan for public and private pages and then implement security for private pages. the following are steps to create a website with secured web pages -

defaults  
authentication, cookies  
authorization, allows all user

old security can be done. In 2013  
or ~~so~~ with empty website.

In .Net 4.5 i.e. in VS 2013 we can implement the old windows and forms authentication only in empty website template because the default webform template is implemented with ASP.NET Identity which is a new method of providing security for website.

- Step1. Create an empty website and create a folder so that we can maintain all private pages inside this. Then add some pages inside the created folder and also add web.config (webconfigwithfile) from add new item window.
- Step2. In Root directory of the project create home page i.e. default.aspx and provide hyperlinks which navigate to private pages or to the secured folder Content.
- Step3. By default ASP.NET maintains windows as the authentication and authorization to all users. Because we want to implement security for private pages we have to change the default authentication & authorization. For authentication we have to use <sup>root</sup> web.config and for secured folder we have to create web.config and write authorization.



cryptography namespace  
provide manual

all security classes  
available in system.web.  
security upto 4.0.

- ▷ default.aspx
- ▷ login.aspx
- ▷ Web.Config

Con

plate:

S

his

for

a

write

Config

te

2

Or

cls

l  
curity

ult

cation

ed

file

)

for

PX

PX

## Root Web.Config :-

```
< Configuration>
  < System.Web>
    < Authentication mode="forms" />
    < Compilation debug="true" />
```

→ sometimes we write within the tag  
sometimes body of the tag when

## Web Config Of Admin folder :-

```
< System.Web>
  < Authorization>
    < deny users="?" /> → anonymous or unauthenticated
    < allow users="*" /> → all users
  </ Authorization>
```

- We can write multiple  
allow/deny's

- Order of writing in also  
important.

Redirect from login page it will identity Create  
method it will bring to Secured Page (which Page user request)

Login

User Name

Password

Remember me

Button ←  [Label1]

System.Web.Security

— Login.aspx.cs —

— Under Buttons - Click —

if ( TextBox1.Text == "SCOTT" &&  
    TextBox2.Text == "Tiger" );

forms Authentication. Redirect from LoginPage  
( TextBox1.Text, CheckBox1.Checked );

else

Label1.Text = " Invalid user id & Pwd";

21 May 2015

## \* Managing User Information in Security:-

NOTE:- Forms authentication is one important ASP.NET security class present in System.

... web. security : RedirectFromLoginPage

Method of it performs two task -

- \* i) Creates an identity with the given user name and the same name is referred in allow, deny tags of authorization. The identity name always need not be user name based on requirement we can write any other ~~Name~~ also.
- ii) This is a boolean value and which specifies whether the identity should be persistent or not. If true is given the identity will be stored in client system for 30 minutes and if false is specified it will be a variable as long as user is working with our websites based on user choice only we have to specify this parameter value.
- iii) The above 2 points are the inputs for this methods also. In addition to this tasks it will also redirect user to the requested secure page by user.

Q. How ASPX page knows about the requested secured page (login.aspx page)

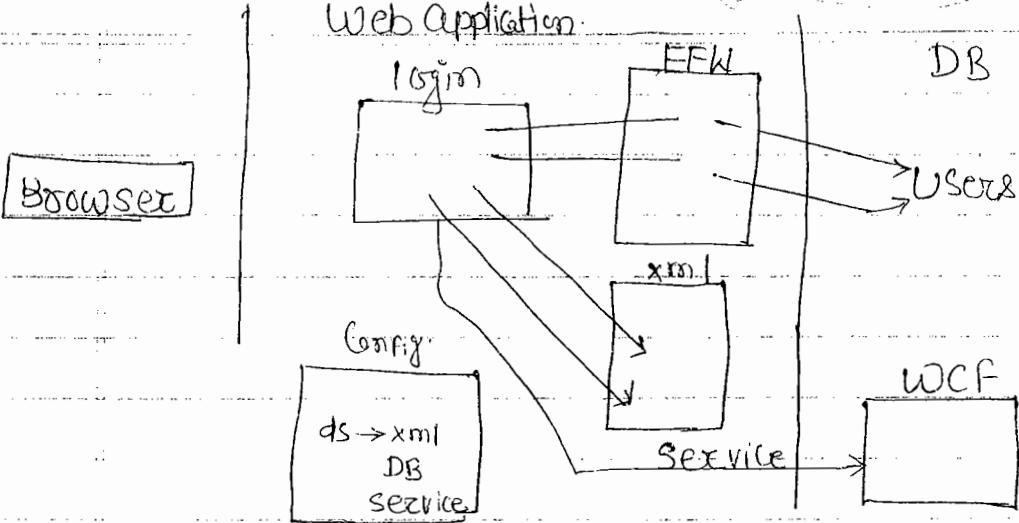
[B]

Ans:- Return URL is a query string parameter which will be added to Login page by the system implicitly.

→ When no return URL is specified system will redirect the user to home page that is default.aspx.

In forms authentication managing user information is dependent on developer planning in simple words we can store user information in any place and check for their validity. In best & higher level multiple sources can be created and based on some setting we can redirect user for particular datasource. In our eg. Let

us prepare two data sources for user information and based on configuration setting we will check user information which developing real time application this way of configuring multiple data sources results in high level of manageability and scalability.



We can maintain 2 ds only.

### Web Config

```
<appSettings>
  <add key="dslocal" value="DB" />
</appSettings>
```

we can change it with XML.

→ Write click on app data in folder → SQL Server →  
myuser.mdf → app data in project not in ~~app~~ folder

→ make a table by Username, Password, Remarks,

& id → add new item EFW in main site →

Create repo class?

→ in repo class:-

```
{ public bool ValidateUser (String Uname, String Pwd)
```

```
myuserentities objx = new myuserentities();
VCL x = (from n in objx.Users
```

where n.Username == Uname &&

n.Password == Pwd

Select n).FirstOrDefault();

```
if (x != null)  
    return true;  
else  
    return false;  
}
```

→ under Button1\_Click — RepoObj = new  
Repo();

```
{  
    String s = ConfigurationManager.AppSettings  
        ["dslocn"];
```

```
    if (s.ToUpper() == "DB")
```

```
{  
    if (obj.ValidateUser (TextBox1.Text,  
        TextBox2.Text)) → Create the identity  
        FormsAuthentication.RedirectFromLoginPage  
        (TextBox1.Text, CheckBox1.Checked);  
    else
```

```
        Label1.Text = "Invalid user/pwd";
```

```
}
```

```
else if (s.ToUpper() == "XML")
```

```
{ // XML file checking code }
```

22/05/2015

Q. do the above program by XML?

## \* More Security Tasks & Settings:-

Like Creating & Authentication we ~~get~~ also have other methods and properties to handle the authentication ticket. One important method is signout this method destroys the created identity both in memory and storage we can use this methodology where required and give a provision to user to logout of the project.

in Order.aspx

Logout button

LinkButton

It can be placed anywhere in this form or page.

LinkButton1\_Click -

//Logout button code -

FormAuthentication.SignOut();

Response.Redirect("~/login.aspx");

When user logs in to our site ASP.NET provides User.Identity where we can get all the principle identity information related to our user. If identity is not present it would return null other values for eg.

Date: 10/10/2023

When user logs in to Secured Page  
we want to display the identity name  
which is user name of authenticated  
User we can use `User.Identity.Name`.  
Other properties can also be used which  
are related to authentication & identity.

in order  
place label  
and  
write

```
in order
place label
and
write
{
    Label1.Text = "Hi," + User.Identity.Name;
}
```

### \* Login Controls of ASP .Net :-

To Simplify Security related  
User interface ASP .Net provides  
Login Controls instead of manually  
writing forms authentication & user  
identity code we can use these controls  
to get all our security base UI.

Among all login controls some of them  
are dependent on identity and some  
are related to ASP .Net membership  
concept. In visual studio 2013 member-  
ship is not supported 98 new security  
systems are added that means in login  
controls identity based controls can be used.

- Logout action - Redirect
- Login text - Sign in

any where and membership based  
should be avoided or handled manually.

- LoginName: to display Username of Authenticated user.  
if not authenticated - blank output will be displayed.
- Login status: display login or logout based on user authenticated status - moreover they perform required action also of redirecting.

Many Properties are available for each Control to customize its presentation.

- Loginview :- Using this Control we can display authenticated Content and unauthenticated different. It allows us to customize our output for both these type of users.
- Login, CreateUser and other Controls cannot be used without membership - But if we are interested then we can place them & use manually.

→ Login Control Manually :-  
Under Login - authenticate  
if (Obj.ValidateUser(Login1.username,  
Login2.Password))  
e. authenticated = true;  
else  
e. authenticated = false;

→ <Forms> Tag Under <Authentication>

Using forms tag Several important  
Settings Are provided Like we can change  
the default time out, change Login page  
name, home page name, protection level,  
SSL mode etc.

→ In root web.config File —

< System.Web >

< AuthenticationMode = "Forms" >

< Forms TimeOut = "1440" >

    LoginURL = "Valid.aspx"

    DefaultURL = "Home.aspx" >

</Forms>

→ requireSSL = "true" means authentication  
Should work only if SSL is enabled in the  
project.

in login page → sign in settings →  
F12 developer tools  
→ network → start review  
→ logs

Note:- (Requires SSL Or any SSL settings  
requires SSL to be installed & Configured  
in our website)

1) Forms authentication ticket is internally  
Created as cookie variable and by default  
the name ".aspxauth" - It is recommended  
to change this default name to some  
unique project name and for this we have

" Name = <name>" property

e.g. .aspxauth = " " Identity value → encrypted.

< forms timeout="1440" Name = "ProjIndia" >  
</ forms >  
</ authentication >

date → 23/05/15

ASP .Net State

X"  
SPX" /

tication  
the

23/05/2015

## \* ASP .NET State Management:-

Q. What is state and how it is related to web?

Ans:- In any project state refers to identifying user and all their content in smart way. In order to implement state management we have to follow several logical techniques and also <sup>take</sup> the supports provided from ASP .Net.

<sup>Imp</sup>\* In web application every output and every response <sup>request</sup> ~~is taken as~~ identify or taken as is stateless (default). <sup>request response that we do</sup>

<sup>Imp</sup>\* Stateless environment means every request is identified or taken as new request and server doesn't provide any memory management for our program data.

## \* ASP .Net Supports for state Management:-

→ Before implementing any logic from any site first of all we have to utilize the support provided by ASP .Net.

→ In web application state management is provided in two ways -

i) Client Side state

ii) Server Side state

97885  
h@gmail.com

12015

## Client side state means

using client resources in order to manage some state related data. Even when data travels b/w request response then also it comes under Client side state management.

## Server Side state means using

server resources for managing data related to our program in Server Side State management. Data will not travel.

- \* ASP .Net has following options for managing Client Side & Server Side State.

## ASP .Net State

### Client side

- \* - ViewState
- \* - Cookies
- Hidden fields
- Query string

### Server side

- Application
- Session
- Cache
- Profile
- database
- Server side.

## ViewState in ASP .Net:-

- In ASPX every page that we create requires state for Controls and Variables.

System - ViewState

Base64 is used for  
encoding (It is not readable)  
so we use it to  
read

- All ASP .Net Controls are implicitly provided with State management using viewstate Concept.

enableViewState : true/false and  
new version (4.0) ← ViewState mode : enable/disabled/inherit  
are 2 properties which we can use to Control the state of Controls i.e. to disable or switch off state management.

- ASP .Net Page Variables are also stateless which means we have to provide state for them and same Viewstate concept can be applied explicitly for these variables.

Q: How Viewstate works?

Step1: Client makes a request to a page

Step2: ASP .Net process the page and produce result at server. This result is concatenated into string. The concatenated string is converted to "base 64" format.

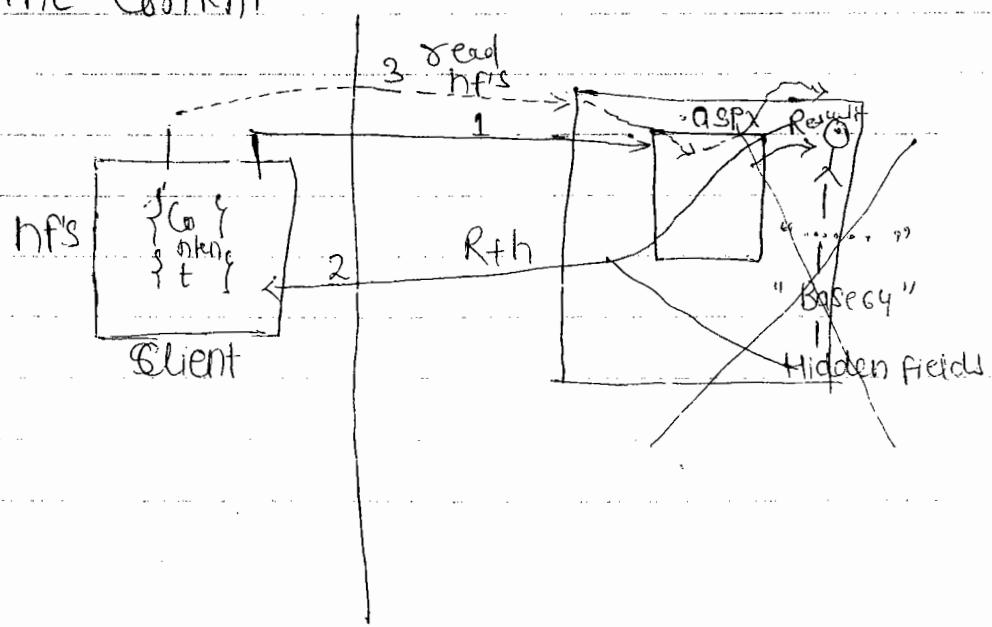
↳ encrypted (not readable) ↳ encoded format by (converted but readable)  
For security not for security  
↳ is for understanding

what is ASP.NET  
page variables?

licitly using Step 3: The "Base64" Encoded format is now stored in one or more hidden fields.

A hidden field is just like text box which will never be visible in the browser output but in view source we can see that we can use hidden fields in our normal programming also by creating it in markup or by doing drag drop from tool-box.

Step 4: finally server returns the result along with hidden fields to client and as it is stateless all the generated content on server will be destroyed after dispatching the content.



server is  
stateless

class demo: object

{ }

For Controls all this work is carried

out implicitly - for Variable [S]

explicitly "ViewState" Collection property  
should be used.

Eg:-

`ViewState["varname"] = value;`

When we write this statement value  
will be stored in the running hidden  
field with the given name.

\* ViewState is of type "StateBag" &  
Statebag is the class which actually  
performs or executes entire viewstate  
flow.

back

StateBag (ViewState) is of type Object  
which means we can store any type  
of value inside it (Condition exist)

Demo:- Build an online exam with 10 Question  
with 4 multiple type choice answers  
for each - When exam is finished show  
the score - all in single page - only require  
retrieval of questions and answers can be  
done from data source

## Complex type data & primitive type data

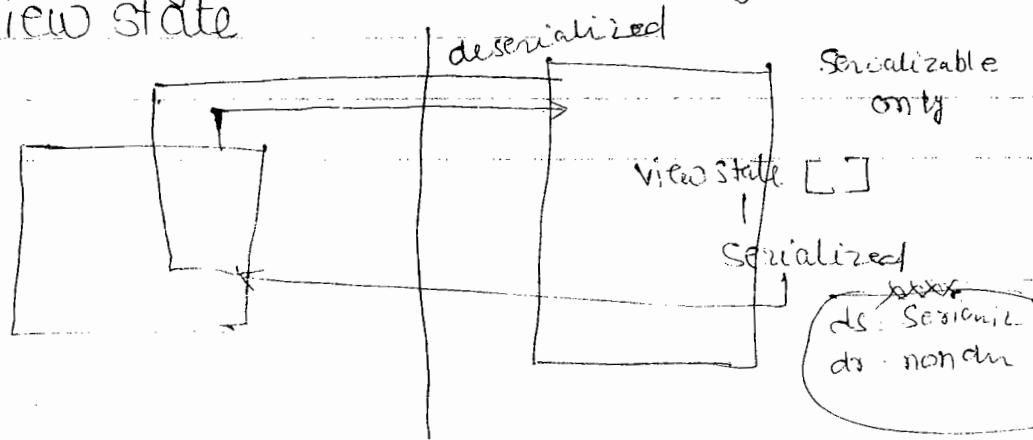
25/05/2015

### \* View State with Complex type:-

→ View State when used with primitive types will not have any impact on performance and load on server. but when it's used with complex types it has to undergo serialization and de-serialization process.

→ Server has to serialize the data sent to client because complex type of data can't travel as it is from server to client. When the data is sent back by client to server then server has to deserialize the data and then read it. because of this process it is very important to use less complex types in view states.

\*\* Another important point is view state can't store an object of complex type which can't be serialized. this is the only condition for storing data in view state.



- Add a web form in project  
using System.Data;  
using System.Data.SqlClient;

public partial class VSComplex :

{  
String CnStr = "-----";

LinkButton1\_Click

DataSet DS;

if (ViewState["dsJobs"] != null) // Present

{ ds = (DataSet) ViewState["dsJobs"];  
Label1.Text = "Data from Application";

}  
else // not present

SQLConnection Cn = new SQLConnection  
(CnStr);

ds = new DataSet();

SQLDataAdapter da = new SQLDataAdapter  
("Select \* From Jobs");

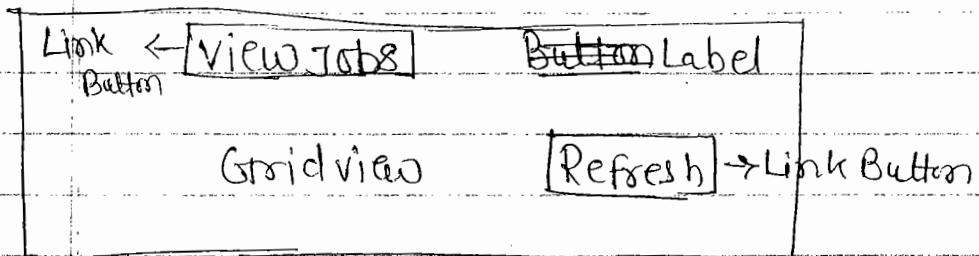
da.Fill(ds, "Jobs");

ViewState["dsJobs"] = ds;

Label1.Text = "Data from db";

}

GridView1.DataSource = ds;  
GridView1.DataBind();



— Link Button2\_Click —

{ // refresh

DataSet ds;

SQLConnection cn = new SQLConnection(cnStr);

ds = new DataSet();

SQLDataAdapter da = new SQLDataAdapter();

("Select \* from jobs", cn);  
da.Fill(ds, "jobs");

ViewState["dsjobs"] = ds;

Label1.Text = "Data from DB";

GridView1.DataSource = ds;

GridView1.DataBind();

}

NOTE: DataSet is a serializable class and we can store it in view state as we did. If any non serializable class is present we can't store in that way.

\*\* Security Of ViewState:- By default ViewState data is not secure in most cases. If we want to make sure that ViewState data is secure then we can use "ViewStateEncryptionMode : Always" as part of Page directive. In web Garden & Web Farming environments also to make sure ViewState run properly & securely we can use ~~any~~ "enableViewStateMac = true/false" which stands for ViewState enabled with machine address.

We can configure this machine address using "`<machinekey>`" tag in web.config file and the conclusion is ViewState encryption mode and "enableViewStateMac" can combinedly provide better security for our application.

\* If we add encryption to ViewState then more performance will be effected as ViewState has to encrypt its data also.

Eg:- `<system.web>` in web config (Root)  
`<machinekey validation="md5">`

i) in source code

`<%@page language="c#" enableViewState="true" ViewStateEncryptionMode="Always"`

\* the size of Viewstate is same as the size of Page. Means we beyond page limit we can't store data in view state (officially). However we can restrict the max. amount of data / page using configuration file parameters. Most of the page related settings are written under system web pages tab

<System.Web>

  └ <Pages> ----->

e.g. in web.config file of Root

<System.Web>

<Pages enableViewStateMac="true">

  viewStateEncryptionMode="Always"

  maxPageStateFieldLength="1024" >

</Pages>

this is for all pages of a project.

With all above ViewState Concept we can provide state for a single page if we want state management for multiple pages or between multiple pages then we have to use other options like 'Cookies' (clientside).

Q. do the previous demo also by this concept?

Browser will decide about Cookies.  
as its like Parent for cookie.

Date 26 May 15

## \* Multi-Page State Using HTTP Cookies:-

multi-page state means creating data in one page and accessing the same in other pages. Multiple Options are available for implementing multipage-state and one client side useful option is http cookies.

Q → What is a cookie?

Ans: It is a small piece of information which stores data in the form of Name, value, Text and which has the ability to travel between request response.

→ Web application developers and asp.net implicitly use Cookies concept in order to get multi-page state.

→ Cookies are based on the domain of site that we create which means every time when the request or response is performed based on the site name a cookie value will travel.

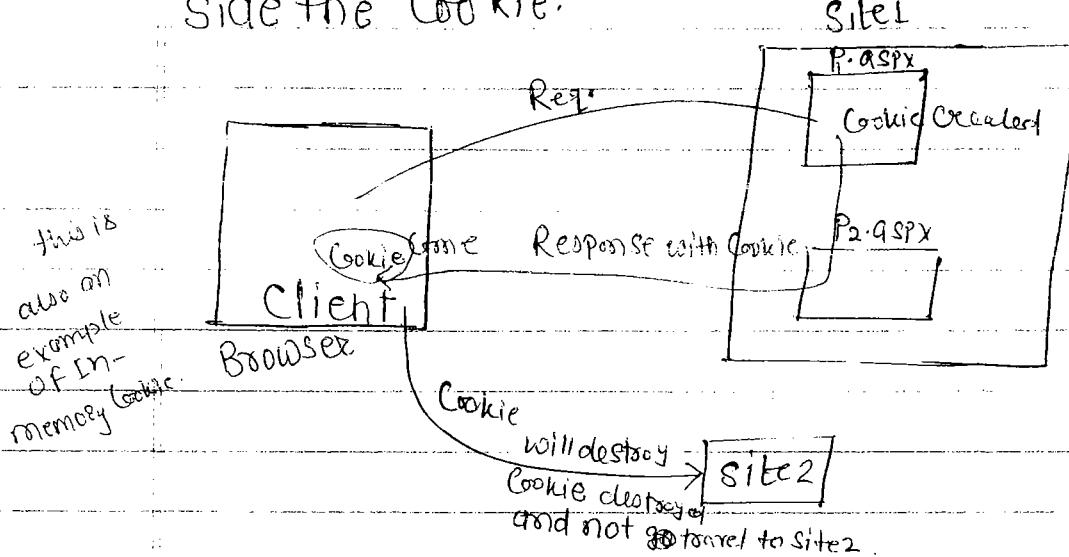
→ Cookies are managed and maintained by browser which is very important because most of the activities related to cookie are performed by browser only.

I.E → Settings →  
Security, Privacy, High

Cookie is  
same as variable

6 May 15

- 3 :- → Browser Limits the no. of the Cookies for a website because it can't manage all the multiple Cookies created by every domain. And the Limitations are -
- a) 20 Cookies per domain.
  - b) 4 kb of Size per domain.
  - c) Only simple type of data is stored i.e. no complex types of data can be stored inside the cookie.



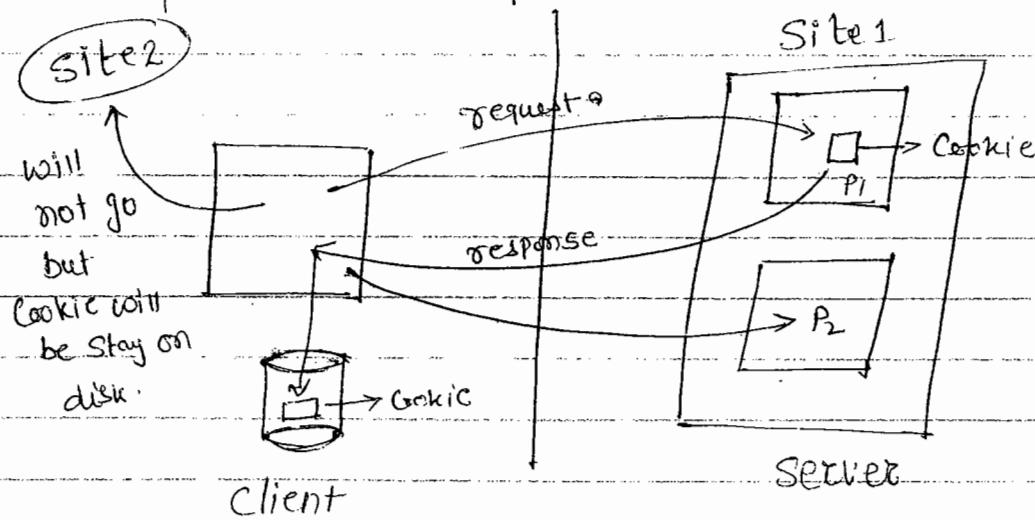
→ In order to Create a cookie either Client side or server side browser should allow the cookie. Otherwise ASP.NET also can't create the cookie. Every browser has a settings where we can allow or deny cookie.

→ We can create two types of cookie

- 1) in-memory cookie :- A cookie which is created and which is available as long as user is working with

Website : Once browser is closed or user is redirected to another website then in memory cookie is lost.

\* 2) Persistent Cookie :- A cookie which is created with expiry date and time is called as persistent cookie. This cookie will be stored in temporary internet files location and again browser manages the date and time to remove. In most of the websites authentication ticket is provided as a persistent cookie.



#### \* Creating Cookies in ASP .Net :-

System.Web.HttpCookie is the class which used to create cookie in asp .Net.

It is preferred to create cookie using http.cookie class in our cookie creation process we can use old method.

or user  
then

Response.Cookies(<Cookiename>) = Value;  
(this method is not preferred)

→ While Using Cookie it is always important to use it for small information. Some common cookie examples are user information like name, Country and Shopping Cart information, ~~using~~ user preferences, Authentication tickets etc.

e. In  
ticket is

Step:- take a form, <sup>(Change.aspx)</sup> → Listbox → add names in it →  
checkbox →

Select the Country

USA	→ Listbox
India	
Australia	
UK	

Remember me

→ Button

Under — Buttons — click —

```
HttpCookie obj = new HttpCookie("Cname");
obj.is value = ListBox1.SelectedValue;
if (checkbox1.Checked)
    obj.Expires = DateTime.Now.AddDays(7);
```

Response.Cookies.Add(obj); // will go to Browser  
to take permission to  
create cookie

Cookies are based on domain (site)  
text or simple type of data can be  
stored in cookie.

Response.Redirect ("home.aspx");

→ Home.aspx Page Created or Create → LinkButton;

— Page Load — of Home.aspx

if (Request.Cookies["Cname"] == null)

//exist

LinkButton1.Text = Request.Cookies["Cname"].Value;

else

LinkButton1.Text = "United States";

— LinkButton1\_Click — of aspx of Home

Response.Redirect ("Change.aspx");

date-27 May-15

\* Single-valued & Multiple valued Cookies:

Single valued Cookie means a cookie which stores a single value with its name.  
A multi value cookie means cookie which stores multi values inside it. ~~multiple~~ like an array. A multi value cookie is also called as cookie dictionary.

In m

in (Site)  
be  
cookie.  
x")  
  
Http traffic tools (developer tools)-  
- web developer helper,  
- fiddler - firebug

- > LinkButton → My Cookie - Saves the number as well as saves the memory
- Even though a multivalued cookie looks more flexible it is not recommended in programming because with multivalued we can easily store the values but at the time of editing we can't modify a single value. Changing one value will result in loss of all other values which means we have to handle logically all the process.

- ) ; → Syntax for creating a multivalued cookie example

May-15

Cookies:

kie  
Name  
rich  
e am  
llied

HOME PAGE		LinkButton
User Name	<input type="text"/>	→ textbox
Email ID	<input type="text"/>	
Phone	<input type="text"/>	
Company	<input type="text"/>	
<input type="button" value="Login to chat"/>		

— Buttons\_Click { // Creating multivalued cookie

    HTTPCookie Obj = new HTTPCookie

    ("UserInfo");

    Obj.Values["Name"] = TextBox1.Text;

    Obj.Values["Email"] = TextBox2.Text;

    Obj.Values["Phone"] = TextBox3.Text;

    Obj.Values["Company"] = TextBox4.Text;

    Obj.Expires = DateTime.Now.AddYears(2);

    Response.Cookies.Add(Obj);

    Response.Redirect("Chat.aspx");

— in Chat.aspx Page —

— under page-load of this page —

    if (Request.Cookies["UserInfo"] != null)

    { // Present

        HttpCookie Ud = Request.Cookies["UserInfo"];

        Label1.Text = "Welcome" + Ud.Values["Name"]

        + " Of " + Ud.Values["Company"];  
    }

else

    Label1.Text = "Welcome Guest";

Singh

Network + State  
read

to find Cookies information.  
F12 developer tools → network + Start + Refresh +  
check chat - cookie

Firebug  
Cookie

Cookie basic

info");

### \* Security OF Cookies:-

- text;

- ext;

- ext +

→ Cookies are not secure and they are the only means for any 3rd party user to enter into our site.

ear8(2e),

→ The reason Cookies are not save is because they travel in plain textual format in http headers which any user can read and manipulate.

### Q. HOW TO make Cookies save?

Ans- In order to secure Cookies we have to encrypt & values with our own encryption algorithm and store them in cookies. This option is user based and not supported by system means entirely dependent on user encryption method.

else [Name]

Company];

Another method of Securing

Cookie is to use "Secure = true" property of Cookie. The meaning of this is to provide access to cookie only when the page is running in "https" mode (SSL). The advantage here is cookie will be secured under the page security mode not individually but it is secure.

Q1: Are Cookies Secured?

2. How to make cookies secured?

- <sup>use</sup> https support with secure
- + true
- encrypt & store.

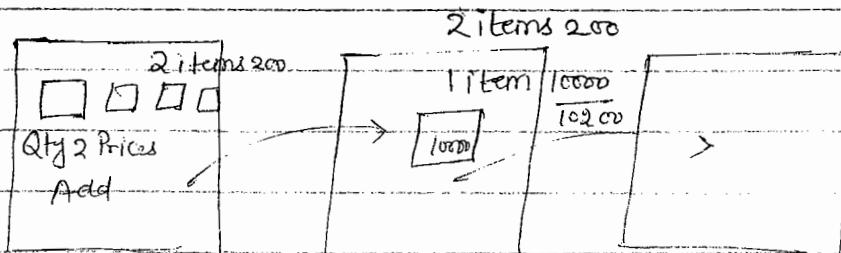
3. Can both two security methods be combined?

Ans: Yes. But it will make it slow.

Demo of Cookies:-

Design a Shopping Card from where with multiple pages on "electronics", "Home Appliances", Mobiles allow user to select product and the quantity to order.

In every page On top display the Shopping Cart with total cost, items & their prices.



## \* Server Side State Management :-

ASP .Net Objects

Application

Session

Cache.

Profile(s)

DB's

Services

alternatives

→ Among list of ASP .Net Objects we have Application, Session, and Cache Objects. These objects provide server side state management and they play very important role in running ASP .Net programs at server.

All these objects come under core part of ASP .Net which means they are common for all types of ASP .Net applications.

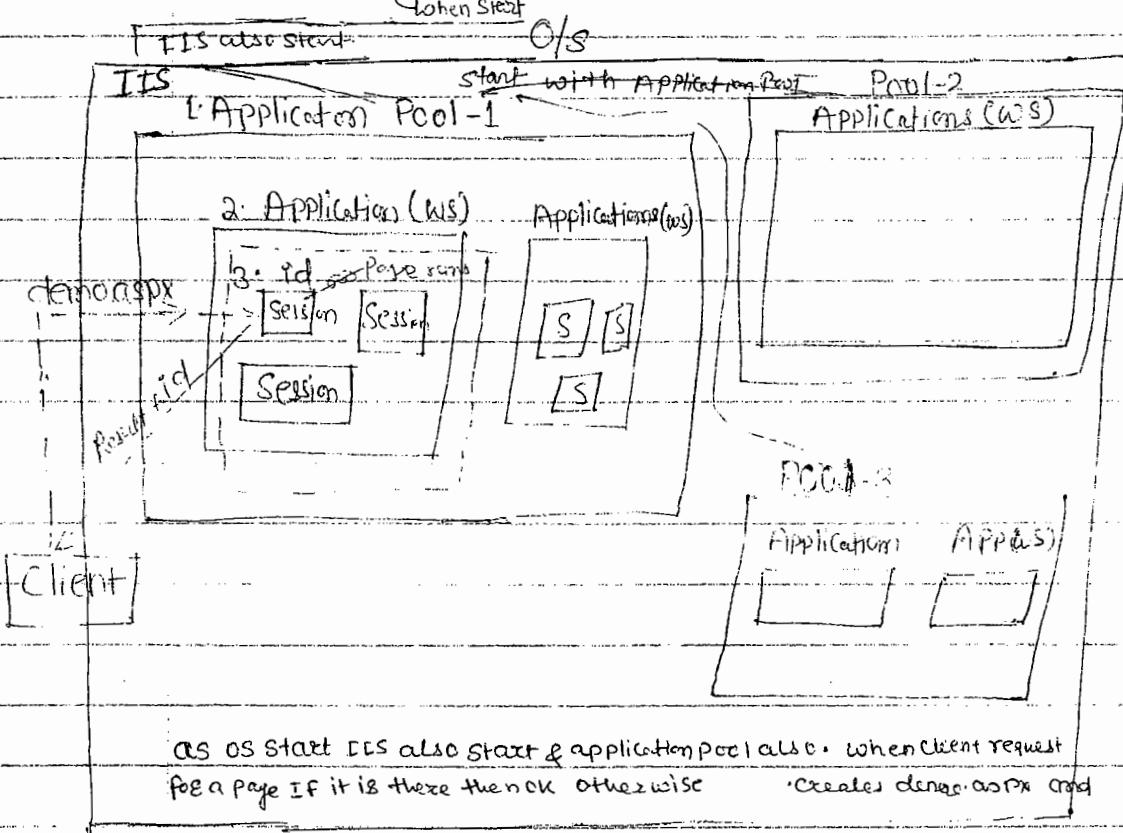
→ Server side state management using server resources mainly server memory and alternately the storage and other connected servers.

→ As a developer it is very important to understand how these objects are handled by ASP .Net implicitly and then use it for our own stateful requirements.

## Infrastructure As A Service - IaaS

by default port 18080

When a request is made ASP.NET uses the following infrastructure in terms of allocating memory & managing the program for successful execution.



### \* Application pool :- Starting from IIS Version 7 all ASP.NET

Websites are compulsorily load in application pool. a web server can

have multiple application pools. And every application pool is collection of ASP.NET

applications or websites. every website

that we develop should be kept in application

Pool otherwise ASP.NET application will not run. Sometimes when we deployed our website to IIS it will not get mapped to application pool. In such cases our website will not run. In IIS console we have a setting where we can convert our ASP.NET project to application and map it to the pool then our project runs.

→ Application pool is started automatically along with IIS.

2. Application:- In ASP.NET programming we refer our website as application because application object of ASP.NET refers to the loaded website. Application doesn't start on its own. We can manually start it otherwise by default IIS activation feature will implicitly start ASP.NET application.

\* When the first user makes a request then ASP.NET application starts because IIS will check for the app & when it's not found it will automatically load it (IIS activation model). The started application is not for only single user but for all users of website.

System will create the session

Session:- For every new user by default ASP .Net starts a Session which is another process and which runs by default inside application process. Session is created to uniquely identify user and for this every Session is created with a unique encrypted id and this Session Id travels between request & response in the form of cookie. This cookie is implicitly created by asp .Net with cookie name as "ASP .Net \_ SessionId".

Date 22 May 2015

### \* Creating Application Pool & Assigning Website to it :-

Q: What is Application pool when it starts?

Q: Why IIS doesn't run my website directly in its memory or instead of running in the pool because it increases the security.

Q: Application pool can have single or multiple applications?

Q: What is an application & how ASP .Net loads it?

Q: In Server Side State what are the advantages & disadvantages?

Q: When Session is created inside application process is completely safe in terms of

Security or does it require any additional security measures?

Q: Inspite of server side state why sessions are vulnerable or not completely safe?

Q: Why ASP .Net application is created and when it is created?

Q: By default sessions are created for every new user when ASP .Net creates sessions - Mention atleast 3 different cases when it creates them?

Q: ASP .Net creates session for what purpose in application?

Q: Compared with C/S state management how S/S state is different? (5 differences)

Q: When we build an application as an application developer what kind of state management mode we should prefer & why?

Q: Is it good to create sessions in the way ASP .Net creates it? Explain (Automatic, Smart & manual)

Q: What is Session id and by default how it travels between request & response?

Q: What is the cookie name the ASP .Net implicitly creates for a session?

## System/website / Application

IIS Console is required to Create application pool & assign a website to it.  
So start IIS Console ~~and assign~~

Steps - Select "Application pools" & then click on add app pool - Specify name and the target version  
→ Go to websites → Select the website  
Ensure that it is running or marked as application - if not Convert it to application →  
If not Convert it to application - To push out website into the Created pool select the site  
Go to basic settings and change the pool.

Q: Why Application pool - why not in IIS directly? We can manage properly that's why.

Ans - Better execution & Manageability can be achieved using Application pool.

So many features that we can't provide from programming can be provided using Application pool.

All these features are also features of IIS hosting.

Q: What features?

Ans: Recovery : App Pool provides very Strong Recovery Options when a website hangs or crashing because of memory and other

get to windows Dev -> Advanced Settings (ctrl + F5)

↓

problems: 100% Recovery of Site can also be  
clone if proper or recommended  
architecture is implemented.

↓

In app pool settings Rapid Fail protection  
Options provides the many ~~option~~ Settings.

Recycling :- An application should be always  
recycled in healthy environment. Memory  
leaks and long time running, Overload can  
cause application to slow down - to overcome  
this app pool provides recycling of app which  
makes sure it is always in healthy state in app  
pool recycling Options provide how we can  
recycle

based on request  
time  
memory

Web Gardening :- We can provide settings in  
app pool related to multi  
processing Options of website.

Other settings like Cpu time, multiprocessor  
allocation, process model time all can be  
specified in the pool.

Q. What is failover? :

\* based on application pool it depends which 1000 by default for pool. If only our site exists in the pool then 1000 request can be taken.

\* in Process model → Maximum worker processes (by default) = 1 if it is more than 1 so then it is web garden. If we will increase it process will be increased.

Q. When application & Session Ends?

Ans:- In asp.net when created it is allocated a time of 20 minutes of expiry which means if user doesn't comeback in 20 minutes of time the session will be expired - for a every request a renewal of 20 min is performed.

Asp .Net application ends when all users leave the site and an idle timeout of 20 minutes occur - this can be configured in the pool.

date 30 may 2015

\* Application & Session Object Uses :-

As a developer one can also use application & session objects for

Statement management requirement.

Using application object we can create globally accessible data to all the users. Application data is created using application object.

We can create any type of data.

and also anywhere in the project for application wide data.

The data created with application object is accessible as long as application is running in server. So it

is very important to manage most required and minimum data as part of application object. When we store complex type of data it is very important to know the volume of that data because a server

storing more than 10 mb kind of data throughout the project execution might

affect performance and also lead to memory leaks. One more important

issue with application object is concurrent access. Every user can read volatile

application data simultaneously which

results in conflicts and also abnormal

output. That is why it is very important

to use "LOCK() UNLOCK()" methods of

application object to avoid concurrency

issue. LOCK() method will lock application

data so that no other can access that

data until particular user releases the

lock the application data can access

again. So it is very important to use LOCK() UNLOCK()

methods to avoid concurrency issue.

So it is very important to use LOCK() UNLOCK()

methods to avoid concurrency issue.

till an unlock statement is raised. If unlock is not specified then ASP.NET will not apply the lock affect also that means a lock should be followed with unlock statements.

Eg. Application["<value>"] = value; // my type of value // anywhere,

we can write:

Application.Lock();

Application["a"] = 10;

Application.Unlock();

Application.Add("a", 10);

Application.Remove("a");

in order to manage better application wide accessible data it is good to use Cache objects which is similar in scope with application data but which is "self managed" by system.

Cache data is managed by system so that when a memory is required system will clean the cache data and make server run in healthy state all cache data is self locked data no need to apply any explicit lock. Consider using Cache object more than application object in ASP.NET websites.

eg. Cache["a"] = 10;

→ Application object also has events (not for Cache Object) these events are very very important for a website and some tasks can be performed only with these events. We must write this event in a special file called "Global.asax" file. It is important to know about this file also and some of the important points are -

### \* \* \* Global.asax :- (globally) accessible

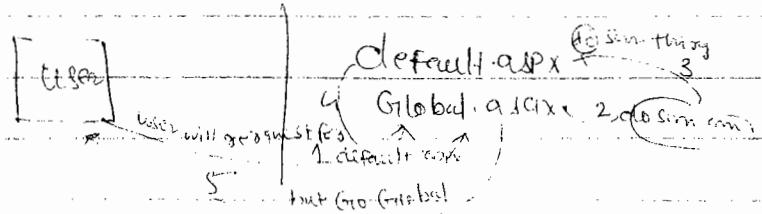
i) It is called all active Server Application file.

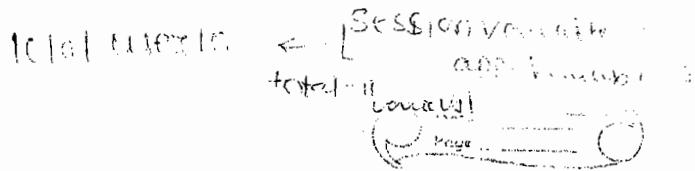
ii) Should be placed in root directory of the project.

iii) One project - One global.asax only.

iv) Application/Session Objects events and static data can be created in this file. →  
using object type & using <Object> ...

v) For every request and response 1st & last global.asax file will be executed.





### \* Session Object :- (Local & Private)

this Object is used to create user specific data which means data will be stored in Session Object which is created for user and it is accessible to all projects that user navigates to.

\* Concurrency will not occur in Session & life <sup>span</sup> of Session is small in comparison to Application Session.

→ Session object also events which are available global (SAX only) and Session data can be created anywhere.

Session["a"] = 100;

Step - take webform

Shopping Cart Label

Page\_Load

username

[Button] submit

if (Application["Advt"] !=

Null) // present

Label1.Text = Application["Advt"].ToString();

else

Label1.Text = "Iphone 4 for 999/-";

Application["Advt"] = "Iphone 4 for 999/-";

- e) Button1\_Click
  - {
    - if Application can be here but problem is global
  - Session["username"] = TextBox1.Text;
  - Response.Redirect("products.aspx");
- 4
- 1-8 Add New page products.aspx
- son to
- Page\_Load - under

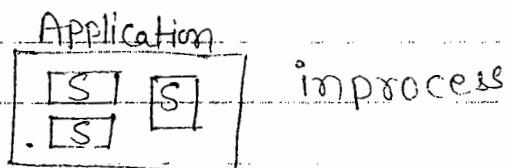
```
Label1.Text = Session["username"] + " you got" + Application["level"]  
to String();
```

31/may/2015

Sixty One

May 2015  
Old

Session State Management :- The method that we follow to manage sessions & their data refers to session state management. By default ASP .Net provides sessions as part of application memory.



the fastest method of accessing the Session data or its state is with this kind of session process Running Inside Applications. This method of creating Session are called as Inproc (Inprocess Session) the meaning is with the process of Applications. Even though the method is fastest in accessing session state data. From load balancing point of view it is not effective for better load balancing we have to implement web Gardening and web Farming.

Web Gardening :- In this method we will distribute our website into multiple process

default  
server  
sites

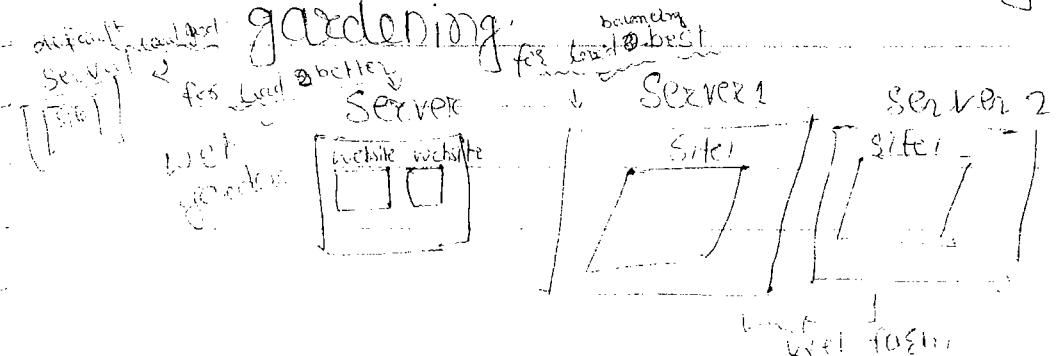
## Method

\* Web gardening Farming:- The process of distributing one website into multiple processes running in multiple locations or servers is called as web farming. This is higher end of implementing load balancing solutions.

Q: How to implement web gardening & web farming.

Sol:- Both these IT principles can be implemented with logic which means dividing our programs into multiple instances or by using existing support from ASP .Net concepts. 3rd party softwares like citrix, VMware and cloud also provide this kind of environment.

In ASP .Net we can create a web gardening environment by using application pool "maximum worker process settings". This property help us to increase ASP .Net worker processes and take more request that is load resulting in web gardening.



## \* Outprocess Session :-

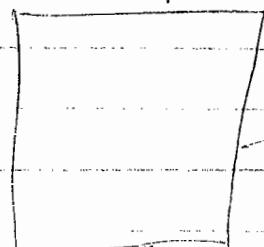
We can change the default in-process sessions to Outprocess.asp

.Net provides a separate service called ASP .Net State Service which is designed to manage sessions outside the application. This environment also provides web garden and web farming principals.

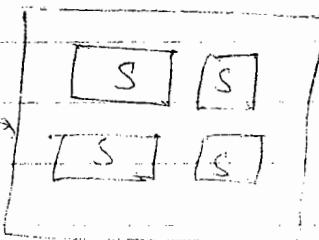
~~Advantages :-~~ Effective Load balancing is the first choice of any multi-process website execution and the same is provided by Outprocess Session.

→ Programmatically the benefit is application sessions are now independent of each other. If app is restarted then sessions will not have any impact on it. Similarly if state service re-start app will not have any effect.

APP



ASP .Net State Service

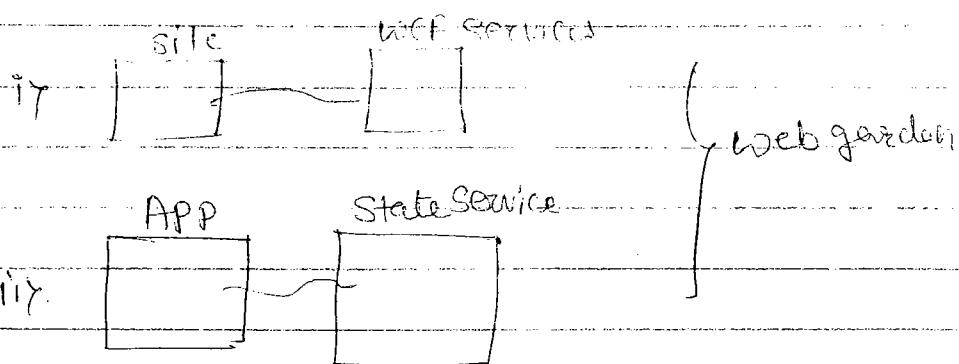


Control panel → Application → Site Services → Application  
site services →

Date \_\_\_\_\_  
2023  
Start the service

### imp disadvantage:-

- performance is effected because sessions are out process the data b/w app & session should travel and when travelling complex type of data undergo serialization & deserialization.
- cost is involved maintaining multiple processes & multiple server required more investment the higher end because most costly the environment is.



### Q. How to implement?

- Ans:- This service is installed along with ASP .NET installation & our job is just to start this for out of process session.
- go to project i.e. our website and in system.web using session state tag specify "State Service" in the mode.

```
<configuration>
<system.web>
  <sessionState mode="State Service" />
</sessionState>
```

Note:- instead of ASP .Net State Server for Out process we can also use SQL Server database which is least preferred and which is also very slow in performance practically Or in real-time most of the user use ASP .Net State Service Only.

for multiple system

StateConnectionString = "tcpip=192.168.100"

Write this in SessionState mode of

date  
18/6/2015

back example

NOTE:- in Out process session management in .Net 4.0 one new feature is added which is going to enable performance of website better by following compression technique -

### \* ASP .Net cache :-

as part of Session State tag

When Out process is used we can specify "Compression enabled = true". When we write this; the data between application & session when they are in Out process travel in compression mode which leads to less volume of data and also faster storage and retrieval.

Eg. <System.Web>

<SessionState Mode = "StateServer">

Server      CompressionEnabled = "true"

use

preferred

name

be user

Q1. What is application objects and how many ways developers can consume it in their apps.

→ 5 differences

Q2. What are the differences b/w Sessions & Cookies?

Q3. What is the default session state mode & what its means?

Q4. Which tag of ASP.NET Configuration Section specifies the cookieless session management?

Q5. Why cookieless sessions are important when cookies based is faster?

Q6. What kind of data we can store as part of application & Session Objects and why?

Q7. Even though Session State is server side we are not totally secured & how.

Q8. Can we have Global.asax file and can we directly request this file from UI?

Q9. What is the difference between web.config and global.asax?

Q10. What is web gardening & web farming. How to implement them?

Q11. In process of S/S State what are the 2 important considerations we have to take?

Notes

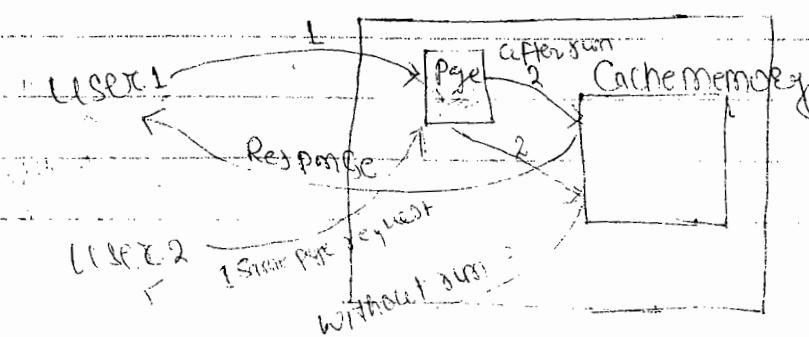
most cases here Assembly Load  
to Caller  
In life cycle

- Q. What are the drawbacks of application object? How to overcome them?
- Q. What is the life cycle of session variable and where we can create it?
- Q. Mention atleast 5 events of application object and their uses?
- Q. What is ASP .Net state services & it is used where? How many ways we can change default session timeout?
- Q. Can we print SessionId generated by ASP .Net and also can we change it?
- Q. What are the adv's and disadvantages of Client process sessions?

### \* ASP .Net Caching :-

Caching means "programmed memory

Ajax



In Cache  
In Client  
By Client

ion → When we run a program or set of statements then the result of it is generated given to user and then destroyed where as

object with caching the generated output is preserved at a separate memory location so that for further requests result can be directly given from cached memory location.

of ASP → Then many Caching locations & concepts are implemented but as in ASP.NET developer we have 3 types of Caching -  
i) Page Output Caching  
ii) Fragment Caching  
iii) Data Caching.

All these perform caching but the only difference is what Caching they perform i.e. the data.

Memory  
\* Page Output Caching - In this method of Caching we will process entire page result and caches its result by default the location is "Any" which means it will store cached data in Server, a middle tier or in the client mostly it will store in server.

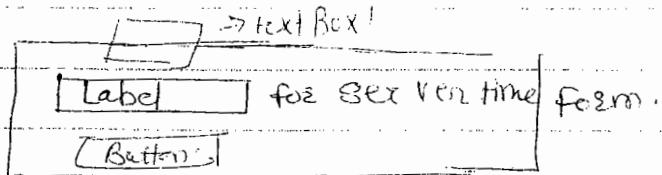
We can specify the location explicitly using location property. But Recommended setting is also <sup>"Any"</sup> heading. While implementing page output caching we must specify duration in seconds and this duration is expiry time of cache the page. Another mandatory parameter is ~~Vary~~ "Vary By Param" which is used to specify a parameter based on which page output caching result is created. We can specify "none" when we don't want any parameter and only single output is required.

How to implement :- It is very simple ASP .Net provides

<%@ OutputCache Duration = "n" Vary By -  
Param = "none" %>

directive to convert a normal page to cached page. We have to design page normally and then add this directive.

Eg:-



<%@ OutputCache Duration = "60"  
Vary By Param = "Text Box!" %>

Inside varyByParam we can specify multiple parameter also separated with Semicolon:

```
<% @ OutputCache duration = "60"
```

```
VaryByParam = "TextBox1; T2; T3%">
```

→ Apart from these Compulsory arguments we can also write many other vary by options to our output cache directive like varyByHeader = "Host", varyByCustom = "Browser".

With varyByHeader we can give any http header option that will act as parameter for changing the cache output and varyByCustom is also very powerful as it differs processed or not cached based on custom parameter like browser which is predefined custom parameter or any other parameter created by user.

03 May 2015

blocks	<%, €	Extensions
extensions	<%, #	File & Properties
	<%, \$	Open
	<%, %>	Save

## Fragment Caching:-

It is also called as

"partial page output Caching". In this method of Caching we ~~can~~ Cache some portion of the page instead of entire page results.

Fragment Caching is implemented with a concept and not with any command which is specific to fragment Caching. different logics can be implemented for producing result of fragment Caching. One standard MSDN method of implementing Fragment Caching is by using "Web User Control".

## Steps of MSDN Method with imp points:-

1. We have to create Web User Control in order to implement fragment Caching and also to create some user defined controls for our application.

Q. What is a Web User Control?

Ans. In ASP .Net Web forms one of the methods of creating user defined controls is with Web User Control.

For every type of application user defined control is very important and they are very useful also in application because the repeated

add → web user control (time)

Content Integers Can be created once  
as User defined Control and use them  
in multiple locations.

\* Practically a web user Control is a file  
with extension .ascx (active server  
control) and which can't be directly  
requested from browser (internally)

Configured: It is also just like aspx  
page <sup>but</sup> derived from "UserControl" class

\*\* It has %<% @ Control---%> directive  
instead of page directive. It doesn't  
have any default Content like page  
& when completed it will have only the  
UI element code that we create for  
a Control. Reason is all this control  
Content will go and get merged with  
some aspx page.

Apart from these differences all  
remaining development is just like  
a page. Using add new item (we can  
create this file or control and use  
it according to requirement).

Time.ascx

Label

Label.Text = "Hello";

2) add output cache directive to the CreatedControl - for web user control when we add this directive our intention is to go for fragment caching otherwise just like a normal control we can use it.

<%@ Control Language = "C#" AutoEventWireup = "true" %>

<%@ OutputCache Duration = "60" VaryByParam = "none" %>

3) Now we have to consume the created control in page and in ASP .Net page consuming any user defined control we must first register it (compulsory) and ASP .Net provides another directive for it called "%@ Register".

this directive should be return as part of the page in the following manner for web user control:

add a page demo.aspx and in that

<%@ Page Language = "C#" %>

<%@ Register TagPrefix = "Nit"

Tag Name = "Timer" Src = "~ / time . ascx" %>

Tag Prefix  
Tag Control  
<asp: Button>

Created  
we add  
for  
normal

→ Once Control is registered ++  
we can create it using the tag  
prefix and the tag name just like any  
other ASP.NET Control to create our  
Control the following markup -

</head>

<body>

<form id = " " >

<div>

<Nit: timer ID = "NT1" runat = "Server">

</div>

After creating user defined Control

We can create other portion of the  
page with require controls and perform  
the processing.

in demo.aspx.cs it has a level as follows

— Button1\_Click —

{ TextBox1.Text = DateTime.Now.

ToString();

}

= "Nit"

.aspx"

">

Output

Label 17:15:56

17:15:58

Button

What is the use to create a runtime control

Some more important point about user defined control :-

at run time if we want to create user defined control then we must use "LoadControl(Controlname)" this is a method of the page and a sample to create control at run time and present it in form will be like this -

Var xc = Page.LoadControl("Time");

X. prop = Value

X. prop = value

Panel1.Controls.Add(x);

11. where panel1 is panel control.

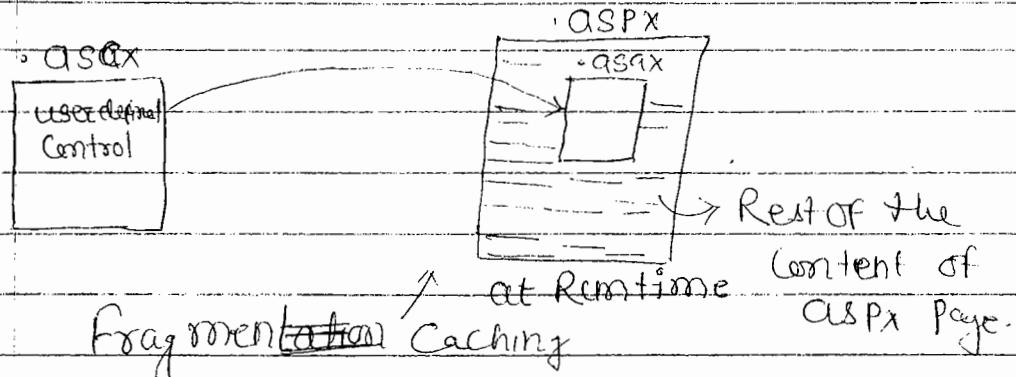
→ as part of good practice & patterns a control should not have only business related functionality. It is very important to add component content to every control like properties, methods & events. otherwise a control be come not only useful to user i.e. unusable and also it is considered as poor control.

```
public Colour TimeColour  
{ get { return Label1.ForeColor; }  
set { Label1.ForeColor = value; }}
```

Time  
Po Cache --- <% @ OutputCache %>

Fragment = " + WebUser Control + Content"

Data Cache - Cache Object



Code in Bullets - Click of demo

Date 04 June 15

### Data Caching :-

With data caching we can cache any data which is programmatically prepared that means data which may or may not be related to output.

→ Data Caching is implemented using Cache Object which means with application scope we will create our content as we discussed application object has several drawbacks which we have to overcome with Cache Object.

→ In application it is recommended to use Cache Object only in place of any other application related scope objects. Because of the following reasons like also the advantages.

```
Cache.Insert("dssconer", ds,  
new System.Web.Caching.CacheDependency  
(mapPath("ScoreXML")));
```

## OF Cache Object -

### Locking -

1. Self Login Object:
2. Locks only specific variables that are consumed but not all the cache data.  
(Application.Lock() ----) locks all variables.
3. Time based Expiry - we can create cache data which expires after specified time. It can follow absolute expiry or relative expiry which means we can specify fix time of expiry or based on user. We can remove the cache data.
4. dependency based expiring: - instead of time we can also create cache data by depending on some other data object. Data object can be a table in database, any key like variable and most important is it can be a file resulting in file dependency kind of storage. For different dependency we have different classes.

→ By using all the about advantages caching concept can be more productive in website development.

Cache.Insert("dsscore", ds, null, DateTime.

" Now Add minutes(1), Time.Zero); // Time

Boxed expiry.

Right Click & add XML file named scope.xml

<RootScope>

<Scope>

<Over> 1 </over>

<sums> 10 </sums>

</Scope>

1

1

<RootScope>

<Scope>

<Over> 50 </over>

<sums> 396 </sums>

</RootScope>

Add a page C2.aspx

Link Button

view score

Label

Grid view

— C2.aspx.cs —

— LinkButton1\_Click —

DataSet DS;

if (Cache["dsscore"] == null)

{ ds = (DataSet) Cache["dsscore"];

Label1.Text = "Data from Cache";

else

{ ds = new DataSet();

ds.ReadXML (MapPath ("scope.xml"));

//Cache["dsscore"] = ds //Lifetime

seconds Label1.Text = "Data from data source".

dependency - ?

Page 10

Gridview 1: DataSource = d8

Gridview 1: dataBind()

Y

as long as data will be  
on app there cache will also be there.  
Performance & integrity will be  
high.

Some program with

Button

— Button Click

{ // code to add data

Y

date  
05 June 2015

WEB SERVICES

Blog → ASP .Net WebServices or XML WebServices



this is web specification

## \* Develop XML Web Services using WCF :-

→ Rule

XML Web Service[s] - W3C Reg. (2000)

(⇒ ASP .Net Web Services) (.Net 1.0-2.0)

Software

System .Web

System .Web .WebService

(2000-2005) → many services.

✓ 2006 → many SOA developments

MS .WCF

Starting from .Net 3.0 you can start  
use WCF

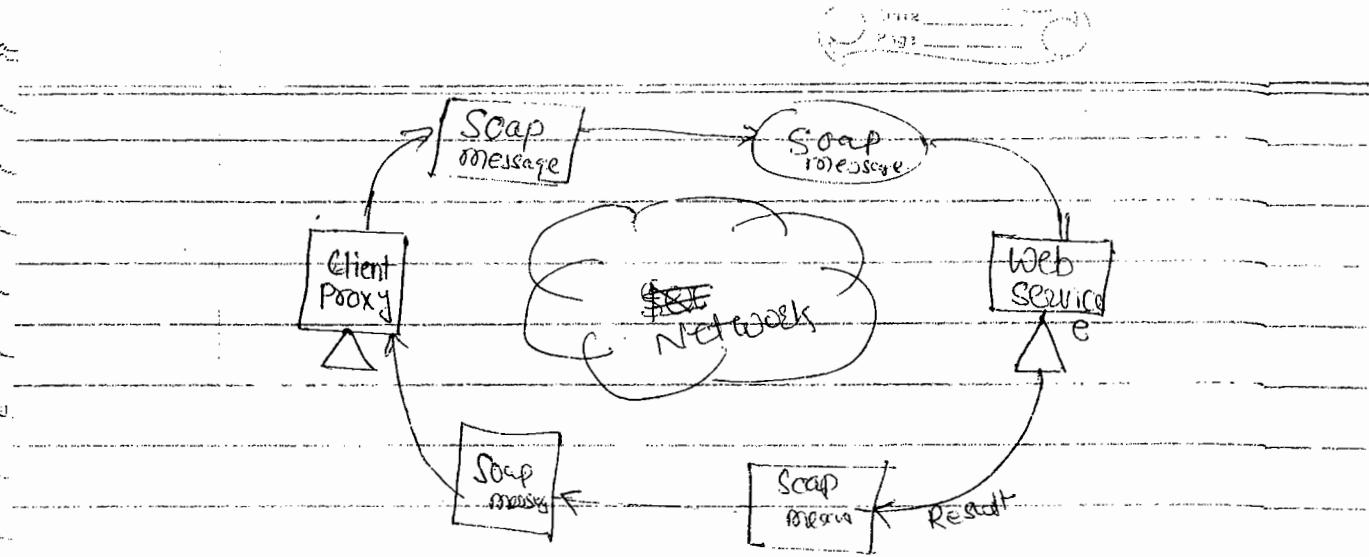
2008 → WCF - followed by all

Web API - Open Source - Light Weight

lot of features (2014-15)

WCF - 2015 May - is now open source

As a .Net developer today we have  
both these options as most important  
Service Oriented development



07 June 2015

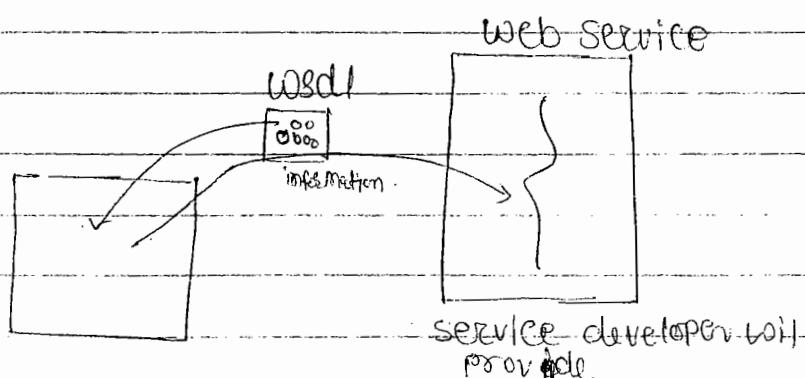
- \* Creating WCF Services for XML based communication:

SOAP - simple object access protocol  
in XML web services entire  
request response is performed using  
SOAP only. SOAP is derived from  
XML and it is specially designed for  
XML web services communication. In  
order to build SOAP based services  
WCF provides by default a binding  
called basic http binding. This binding  
provides http based SOAP communication.  
The following are steps to create  
WCF services and provide WSDL for  
the client.

Q What is WSDL?

- SOAP: Its stands for web services description

language and it is one of the W3 standards in order to provide service information to consumers.



2015

i) File → New Website → WCF Service base

We will get by default service files with some sample codes - delete these.

② Files and add new item → WCF Service → items

Result 2: files are created one items.

CS & Items: SVC.CS where we are

supposed to write the code.

2) Add or arrange database and create Entity framework for the same tables.

3) go to interface file which is called as ServiceContract in WCF - and this is used to define operations required for service oriented methods. The other job is to write operation contract as service interface.

public interface Items

{

[OperationContract]

List <Product> GetProduct();

[OperationContract]

product Getproductinfo (int prodid);

// similarly other methods

}

- 4 Once interface is created we have to implement it in the class i.e. write our logic for methods defined in interface.

public class Items : Items

{

Eshop2012 entities objctx = new

using System  
on items  
and add  
option interface

public List <Product> GetProducts()

{

var x = From n in objctx. Products  
Select n;

return x. ToList <Product>();

}

public Product Getproductinfo (int prodid)

{

var x = From n in objctx. Products

(where n. Prodid == prodid  
Select n). FirstOrDefault();

if (x == null)

return x;

else

throw new Exception ("Data Not found");

}

5. Run the WCF Services so that we can test it using WcfTestClient utility which automatically get invoked and also by to start OurService then provide URL for Consumers. It is also important to provide WSDL to Clients.

http://localhost:10823/Items.svc

service

?WSDL

http://localhost:10823/Items.svc?WSDL

ducts

+ prodid)

(+)

282