B-6375

B.Voc,(Semister- VI) Exam-2017

Software Development & E-Governance

Paper No 601

AJAX & MVC

**Compulsory Part**

1. **Attempt all questions [3 x 4=12]**
2. What is AutoComplete

AutoComplete

The Auto complete widgets provide suggestions while you type into the field. In which programmatic some data can be pre stored so when user will type few character words will be display according to the predefined or pre stored words list can also be bind from the data base so it enhance the fast accessing and accuracy Here the suggestions are tags for programming languages.

<input id="myInput" type="text" name="myCountry"placeholder="Country">

//In Script tag

<script>

var countries = ["India","America","Japan","China"];

$(“#container”).autocompelete({

Source:countries

});

});

</script>

1. What is Web Development

**Web Development**

Web development broadly refers to the tasks associated with developing websites for hosting via intranet or internet. The web development process includes web design, web content development, client-side/server-side scripting and network security configuration, among other tasks.

Web development is the coding or programming that enables website functionality, per the owner's requirements. It mainly deals with the non-design aspect of building websites, which includes coding and writing markup.

Web development ranges from creating plain text pages to complex web-based applications, social network applications and electronic business applications.

**The web development hierarchy is as follows:**

* Client-side coding
* Server-side coding
* Database technology

1. Session in MVC

In MVC the controller decides how to render view, meaning  which values are accepted from View and which needs to be sent back in response. ASP.NET MVC Session state enables you to store and retrieve values for a user when the user navigatesto other view in an ASP.NET MVC application.

* 1. View Bag
  2. View Data
  3. Temp Data

**View Bag and ViewData**are almost same both are are to transfer data from control to view and maintain its Data.

**ViewData** is dictionary of objects and accessible through ViewDataDictionary class accessible using string. Whereas, in ViewBag we can access using any variable.

Example:

publicActionResult Index()

{

ViewBag.Name = "Abc";

return View();

}

publicActionResult Index()

{

ViewData["Name"] = "Abc";

return View();

}

**TempData:**

When data is transfer from one controller to another controller so it retain the value while transfer the data it does not loss.

TempData keeps the information for the time of an HTTP Request.TempData is also a dictionary derived from TempDataDictionary class and stored in short lives session and it is a string key and objectvalue.

When you redirects it helps to maintain data between those redirects. It is generally used to store only one time messages like error messages, validation messages.

Example:

publicActionResult About()

{

var model= TempData["ModelName"];

return View(model);

}

View

<div>

**<h2>Data Display using View Bag</h2>**

<ul>

@{

foreach(string n in ViewBag.res)

{

<li style="font-weight:bold;color:red;font-size:20px;">@n</li>

}

}

</ul>

<hr />

**<h2>Data Display using View Data</h2>**

<ol>

@{

foreach(string n in ViewData["stu"] as List<string>)

{

<li style="color:blue; font-weight:bold; font-size:20px;">@n</li>

}

}

</ol>

<hr />

**<h2>Data Display Using Temp Data</h2>**

<ol>

@{

foreach(string n in TempData["tstu"] as List<string>)

{

<li style="color:maroon;font-size:20px;font-weight:bold;">@n</li>

}

}

</div>

Controller

public class HomeController : Controller

{

//

// GET: /Home/

public ActionResult Index()

{

List<string> student = new List<string>();

student.Add("Mahira");

student.Add("Anees");

student.Add("Mahi");

student.Add("Seemab");

student.Add("Rizwan");

ViewBag.res = student;

//-------------------------------

ViewData["stu"] = student;

//--------------------------------

TempData["tstu"] = student;

return View();

}

1. Write a program to check number is prime or not using Razor View engine

Ans <h2>Prime Number Program</h2>

<hr />

<form method="post" action="/Home/index">

Enter Number <input type="text" name="txtnum" />

<input type="submit" value="Prime Check" />

</form>

@{

if(IsPost==true)

{

int num = ViewBag.res;

int i, c = 0;

for(i=1;i<=num;i++)

{

if (num % i == 0)

{

c++;

}

}

if (c == 2)

{

<span>Number is Prime</span>

}

else

{

<span>Number is not prime</span>

}

}

}

**Controller Part**

[HttpPost]

public ActionResult Index(string txtnum)

{

int n = int.Parse(txtnum);

ViewBag.res = n;

return View();

}

**Unit 1**

1. **Write short notes on [3 x 4]**
2. Password Strength

PASSWORD STRENGTH

Password strength means the password should be strong with the combination of alphabets,digits and special characters and password length should not be very less,so if any user is typing weak password so developer can programmatically inform to the user that password should be strong according to the security compliances.

The following are some of the common properties of the Ajax PasswordStrength control:

* **BarBorderCssClass:** Used to set custom css class for border of PasswordStrength control.
* **DisplayPosition:** Sets the display position for strength indicator ,default is right.
* **HelpHandleCssClass:**Sets the CSS class for help link.
* **MinimumLowerCaseCharacters:** Defines the how many minimum lower case letter in password.
* **MinimumNumericCharacters:**Defines how many numeric characters in password.
* **MinimumSymbolCharacters:** Defines minimum occurrences of Special symbol characters.
* **MinimumUpperCaseCharacters:** Defines the how many minimum upper case letter in password.
* **PreferredPasswordLength:**Defines the length of the password.

1. HoverMenu Tab

Hover Menu

Hover menu is a kind of menu when the user will hover the mouse pointer on a particular menu tab list of option will be display under the menu and the option can be navigate to the corresponding page

Hover is a property of CSS(Cascading style sheet) in which we can select or simply create changes on applying mouseover event.

We can usually see this event in Menu’s, when you take your cursor over any list of Menu the sublists of that list appears.

Suppose we have a menu with list item as ABOUT, CONTACT, ENQUIRY, LOGIN.

<div id="menu4">

<ul>

<li><a href="#">HOME</a></li>

<li><a href="#">EVENT</a>

<ul>

<li><a href="#">Internation Event</a></li>

<li><a href="#">Domestic Event</a></li>

<li><a href="#">CorporateEvent</a></li>

<li><a href="#">CampusEvent</a></li>

</ul>

</li>

<li><a href="#">FEATURES</a>

<ul>

<li><a href="#">Internation Event</a></li>

<li><a href="#">Domestic Event</a></li>

<li><a href="#">CorporateEvent</a></li>

<li><a href="#">CampusEvent</a></li>

</ul>

</li>

<li><a href="#">CONTACT</a>

<ul>

<li><a href="#">Internation Event</a></li>

<li><a href="#">Domestic Event</a></li>

<li><a href="#">CorporateEvent</a></li>

<li><a href="#">CampusEvent</a></li>

</ul>

</li>

<li><a href="#">NEWS</a></li>

</ul>

</div>

Then the css for it be as like,

#menu

{

height:40px;

width:1200px;

//background-color:pink;

margin-left:100px;

}

#menuul

{

margin:0px;

padding:0px;

list-style-type:none;

}

#menu ul li

{

float:left;

//display:inline;

width:200px;

height:40px;

background-color:black;

opacity:.9;

line-height:40px;

text-align:center;

font-size:15px;

margin-right:2px;

border-radius:5px;

}

#menu ul li a

{

color:white;

font-weight:bold;

text-decoration:none;

display:block;

}

#menu4 ul li a:hover

{

background-color:green;

}

#menuul li ul li

{

display:none;

}

#menuulli:hoverul li

{

display:block;

}

1. Accordian.

**Accordion**

Accordion concept is basically used to utilise the space of the website so the less space be can display the large number of data in tab manner and we can also close the tab when there is no requirement .It can be implemented manually as well as with the help of jQuery library for implementing the JqueryCDN(Content Delivery Network) is also available.

Widget:-(a user interface component that allows user to perform a function or access to service)

Accordion is a type ofwidget in jQueryUserInterface that is a jQuery based expandable and collapsible content holder that isbifergatedinto sections and just looks like tabs. jQuery User Iinterface provides accordion() method to achieve thislibrary.

**Example:**

**<script>**

**$(document).ready(function() {**

**$("#accordion-1" ).accordion();**

**});**

**</script>**

**//**

**<div id=”accordion-1”>**

**<div id=div1>**

**<h3>Tab 2</h3>**

**<p>This is the First Tab</p>**

**</div>**

**<div id=div2>**

**<h3>Tab 2</h3>**

**<p>This is the Second Tab</p>**

**</div>**

**<div id=div3>**

**<h3>Tab 3</h3>**

**<p>This is the Third Tab</p></div>**

**</div>**

1. What is Ajax, Why we use in website development? What are resizableControl? [**12 marks**]

**What is AJAX**

**Stands for Asynchronous JavaScript And XML**

* **AJAX** is used as an extension for ASP.NET to develop and implements the AJAX functionality. ASP.NET AJAX has both client side and server side component to develop the web application **that can update the information on a web application without reloading the page completely. This means that it is possible to update parts of a web page, without reloading the whole page.**The following are the advantages of using AJAX:
* **Asynchronous**Enable **Asynchronous** call to a web server without making the user wait for the data.
* **Minimal transfer of data** Helps in sending only a part of the modified data to a web server to minimize the network traffic and perform the operation quicker.
* **Minimal Processing on a web server** Help in minimizing the processing on a web server as only the necessary data is sent to it. Moreover the web server is not required to send a full page back to the user.
* **Context** Help in reducing the burden on a web server by sending a request back to the server through the client side script. AJAX- Based application implement partial-page post back instead of full-page post backs, it reduce the data traffic between client and server

**AJAX IN WEB DEVELOPMENT**

The use of the AJAX in the web development is to enhance the performance of the website,it is used for partial rendering means without uploading the entire page we can only upload the specific portion of the website,so the entire load of the website will not go to server.

* The method of exchanging data with a server, and updating parts of a web page – without reloading the entire page.
* Ajax is a [client-side script](https://www.seguetech.com/client-side-scripting-performance/) that communicates to and from a server/database without the need for a [postback](http://www.c-sharpcorner.com/uploadfile/2f73dd/what-is-postback-in-Asp-Net/) or a complete page refresh.
* “Asynchronous” means that multiple events are happening independently of one another.
* Benefits of Ajax

1. **Callbacks:**Ajax is used to perform a callback, making a quick round trip to and from the server to retrieve and/or save data without posting the entire page back to the server.

By not performing a full postback and sending all form data to the server, network utilization is minimized and quicker operations occur.

There is no need to process all form elements, process the ViewState, send images back to the client, or send a full page back to the client.

1. **Making Asynchronous Calls**: Ajax allows you to make asynchronous calls to a web server. This allows the client browser to avoid waiting for all data to arrive before allowing the user to act once more.
2. **User-Friendly:**Because a page postback is being eliminated, Ajax enabled applications will always be more responsive, faster and more user-friendly.
3. **Increased Speed:**

Ajax callbacks can be done by instantiating an XMLHttpRequest object in the client-side JavaScript. The XMLHttpRequest object can be used to directly call server-side objects like pages and web services. These pages and web services will either save and/or return data.

**Implementation of Ajax can be done in two way in ASP.Net Application**

* using Update Panel and,
* using jQuery

**Techonologies with AJAX:**

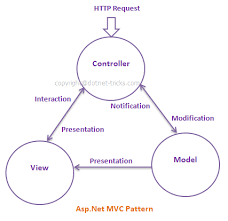
* By using jQuery and JSON Web Services, Ajax callbacks have become standard programming practices for designing and developing web applications.
* jQuery is used to easily write client-side JavaScript to navigate and manipulate a page and make asynchronous Ajax callbacks.
* JSON (JavaScript Object Notation) is much easier to use with JavaScript than XML. When it comes to Ajax and JavaScript, JSON Web Services are replacing XML Web Services.
* **RESIZABLE**
* The jQuery UI Resizable plugin makes selected elements resizable, Means, they have draggable resize handles.
* As per the size of text user can increase or decrease text area. It is basically used for the space utilization and avoids the proper flexibility, easily resizable with the help of mouse.
* It Enable any DOM(Document Object Model, all the controls, interfacing User to manipulate data or manage data) element to be resizable. With the cursor grab the right or bottom border and drag to the desired width or height.
* <script>
* $(document).ready(function(){
* $("#container").resizable();
* });
* </script>
* Here, container is the id of tag to which the function of resizable is to apply.

**Unit 2**

1. What are the merits of MVC over Asp.net. Explain Model View Controller [**12 marks**]

**Merits of MVC over .NET**

* MVC is lightweight as compare to Asp.net and follow MVC model
* (Model, View, Controller) pattern based development model that
* hold separation of concerns where view and logic are kept
* separately that supports effective enhancement and deployment.
* It provides view engines which helps in mark up syntax that
* facilitate to embed server base code into web pages due to which
* load on server is less.
* It is more secure than ASP.net technology that lets down the cross
* scripting done by intruders.
* In MVC it supports multiple views in one controller.
* MVC provide full control over mark up and support many features
* that allow fast &amp; agile development.
* MVC also provide Scaffolding technique that generate code for
* CRUD operations, which saves time as compare to ASP.NET
* MVC provides route based URL technique which holds easy and
* secure traversing.
* No page life cycle is stand in MVC due to which the deployment is
* fast.
* It also provides filter technique which keep application data
* integrity.
* Model
* Model View Controller is a design approach to separate the application object model from GUI, in which all the data related logic are kept. This can represent either the data that is transferred between the view and the controller or any other business logic. Database related all the operation are performed in this segment
* For example Student Object will access the student information from the data base manipulate it and store back the database.
* View
* The View is the component in which user interact with application it is a user interface all the designing which is required for the application are place in View all kind of component such as textboxes, dropdown list, radiobutton, checkboxes are placed in View
* Controller
* Controller is responsible for all the programmatic logic of application. It act as n interface between model and view components to process all the business logic and incoming requests



1. What is MVC Scaffolding write the proper step to implement the MVC Scaffolding [**12 marks**]

**Ans MVC Scaffolding**

It provides readymade code for CRUD operation on the basic of entity frame works internally it is technique to create the automatic codes for data base operations. MVC scaffolding use in rare cases because it generate the automatic code and some time these codes not matched with the architecture of project. For fast and quick demonstration it is ok but for professional and enterprise project it is not used.

Some time generated code is not completely understand by the programmer.

It is nothing but an technique which provide the

Step1

Create a class in model with property getter setter and also define a key(as primary key) and key is generated by key attribute and key attribute is available in

**using System.ComponentModel.DataAnnotations;**

Step2

Build solution using Build solution option in Build menu

Step 3

1. Add Controller (Name Home)
2. Choose Template (MVC controller with read/write action and view using Entity Frame work)
3. Model Class (Actual (c#)Class which we have already created in step 1)
4. Data context Class (This class represent the data base in Entity frame work)
5. View (Razor)
6. Advance (Unchecked layout master page)
7. Add
8. **Run Project**

**Note**: If we do any kind of changes in the class then we have to rebuild the solution its very important

Table will be created in data connection we can expand and see simply

**Unit 3**

1. How to Use Razor Engine Describe with the help of example and

using Foreach Loop show how to transfer data from controller to view [ 8marks]

Answer

View

<div>

**<h2>Data Display using View Bag</h2>**

<ul>

@{

foreach(string n in ViewBag.res)

{

<li style="font-weight:bold;color:red;font-size:20px;">@n</li>

}

}

</ul>

<hr />

**Controller**

public class HomeController : Controller

{

//

// GET: /Home/

public ActionResult Index()

{

List<string> student = new List<string>();

student.Add("C++");

student.Add("Java");

student.Add("Asp.net");

student.Add("MVC");

student.Add("PYTHON");

ViewBag.res = student;

return View();

}

1. Difference between Razor Engine and ASPX Engine. What is the syntax of using RazorEngine in MVC [8 marks]

**Difference between ASPX View Engine and Razor View Engine**

|  |  |  |
| --- | --- | --- |
| **s.no** | **Razor View Engine** | **ASPX or Web Form View Engine** |
| 1 | It is advance view engine that was introduce with MVC3 | It is the default View Engine for Asp.net MVC and it is included from the beginning. |
| 2 | The name space for the Razor View Engine is **System.Web.Razor** | The name space for the Aspx View Engine is **System.Web.Mvc.WebFormViewEngine** |
| 3 | The extension of Razor View Engine is **.cshtml (Razor with c#)** | The extension of Aspx View Engine is **.aspx** |
| 4 | Razor has new and advance syntax which is easy to understand and usable and provide very clear view and reduce typing. | Comparatively ASPX View Engine Code is complicated |
| 5 | Razor use **@** symbol to make the code  **For Eg @{**  **int a=2,b=4,c=0;**  **c=a+b;**  **}** | Aspx View Engine use **<% and %>**  **For Eg <%:**  **int a=2,b=4,c=0;**  **c=a+b;**  **%>** |
| 6 | Razor does not support design mode in visual studio mean we cannot see the design without running the application. | While Aspx support the design mode in visual studio we can see the design without running application. |
| 7 | Razor View is little bit slow in comparison of Aspx View | Comparatively faster |
| 8 | Razor View Engine prevent **Cross Site Scripting Attack**s means it encodes the script or html tags before rendering to view | Aspx View Engine does not prevent |
| 9 | Razor Engine Support Test Driven Deployment | Aspx doesn’t support Test Driven Deployment |
| 10 | The Razor View Engine is compatible with a unit testing framework | Not very much compatible with the unit testing |
| 11 | Razor also supports the concept of layout pages | Aspx support the concept of Master Page |

**Razor Code Syntax**

1. **Razor Expression**

**These are single Line C# Statement**

**@Statements**

1. **Razor Block**

**These are multiline Statement**

**@**

**{**

**Statements**

**}**

**Note: So due to these Razor engine is capable to identify which is HTML code and What are c# codes**

1. Explain the use of Routing with the help of diagram and what is the use of routeConfig [8 marks]

Ans Routing in Asp.Net MVC

Routing is a mechanism which is define that what action method is executes into controller class. Routing is a pattern matching system that monitors or checks the incoming request and takes the appropriate decisions what to do with that request. At runtime, Routing engine use the Route table for matching the incoming request's URL pattern against the URL patterns defined in the Route table. All the configured routes of an application stored in RouteTable and will be used by routing engine to determine appropriate handler class.

When the routing engine finds a match in the route table for the incoming request's URL, it forwards the request to the appropriate controller and action

**Inside App\_start there is a file called RouteConfig.cs which is use to define the multiple routes it has a single method RegisterRoute and also contain the default Routing configuration with some Default property**

**Url Patterns means what exactly the way to action which controller and which action method**

1. {controller}/{Action}
2. Home/Index
3. {Controller}/{Action}/{ID} Note : ID is optional

**Url Pattern can be customize when we define our own routes**

=>into the ControllerClass we can define two types of method : -

1)ActionMethod

2)Non-ActionMethod

We can also configure the multiple Route in a single application as per need of Application so configuration of multiple route we have to create the new route in RouteConfig.cs

**User Define Route only Change the action**

routes.MapRoute(

name: "Route2",

url: "R1/",

defaults: new { controller = "Home", action = "index2", id = UrlParameter.Optional }

);

**User Define Route change the controller and Action Method**

routes.MapRoute(

name: "SR2",

url: "SR1/",

defaults: new { controller = "Second", action = "Index", id = UrlParameter.Optional }

);

**Default Route**

routes.MapRoute(

name: "Default",

url: "{controller}/{action}/{id}",

defaults: new { controller = "Home", action = "Index", id = UrlParameter.Optional }

);

**Unit 4**

1. What is Minification [6 marks]

Minification techniques were introduced in MVC 4 to improve request load time. Bundling allow us to load the bunch of static files from the server into one http request.

**MINIFICAITON**

1. It improves the web page load time.
2. This is the performance optimization technique
3. MVC framework provides ScriptBundle, StyleBundle and DynamicFolderBundle classes.
4. ScriptBundle does minification of JavaScript files.
5. StyleBundle does minification of CSS files.

Minification reduces the file size so overall load of the website will be reducing. So how the file in minimize in minificaiton process it removes the comment, Remove white spaces, Shorten Variable name so after doing these sort of minification we received the minified version of java script and css files. After making the javascript or css file we can minified these file so the overall size will be reduce and performance of the website will be increase minification can be done online most of the site are available for minfication process we only have to put the complete java script file and online site will produce the minified form of the java script file and then we can use the minified files for example JSCOMPRESSOR

1. What is JSON How to transfer data and receive data using JSON [6 marks]

**JSON** is very commonly used concept in MVC and other technology. It is a data interchange medium and a very light weighted code between client and server. It is language independent so any technology and language can use the concept of JSON. It is mainly use when AJAX call and functionality implement in project so it provide the partial rendering without refreshing the entire heavy page of web page it can transfer the data to server as well it can receive the data from server.

**JsonResult is actually a special ActionResult , which suggest the View Engine that the object of JSON type will be returned rather than normal HTML**

1. JSON objects are surrounded by curly braces {}.
2. JSON objects are written in key/value pairs.

Keys and values are separated by a colon.

**View Coading**

$.getJSON("/Admin/GetAttendence", {Rn:rollno,Atten:attendance}, function (msg) {

if (msg == "success")

alert("saved records");

})

**Controller Method**

public ActionResult GetAttendence(string Rn, string Atten)

{

string msg = "success";

return Json(msg, JsonRequestBehavior.AllowGet);

//return View();

}

10 What is filter in MVC? Explain ValidateAntiForgeryToken Filter, OutputCache Filter, Authorize Filter [12 marks]

**Filters**

Filters are basically use to perform any logic before or after an action method is being called so according to the need of project a single or multiple filters can be applied in a controller. There is a provision of built-in filter and custom filters in MVC.

Filter general meaning though which something has to pass before actual processing take place it change the flow of execution.

**List of common Built-in Action Filters**

|  |  |  |
| --- | --- | --- |
| **S.no** | **Name of Filter** | **Purpose** |
| 1. | OutputCache | It will cache the last state and proceed according to the condition specified in outputcache |
| 2. | Authorize | Only authorized user will access the action method no anonymous user are permitted |
| 3. | ValidateInput | Turn on or off request validation |
| 4. | ValidateAntiForgeryToken | Help to prevent the cross site request forgeries. |
| 5. | HandleError | Using in Excepiton handling cases |

***Example of OutputCache Action Filter***

[OutputCache(Duration=15)]

public ActionResult Index()

{

string dt = DateTime.Now.ToLongTimeString();

ViewBag.dtime = dt;

return View();

}

***Example of OutputCache Authorize Filter***

[Authorize]

public ActionResult Process()

{

return View();

}

**ValidateAntiForgeryToken**

**Some illegal user can copy the code from one site and paste or integrate the code in their site and can submit the data in my site so we can prevent this kind of copied by ValidateAntiForgeryToken**

**STEAL CODE**

**<form action="http://localhost:1336/Home/Process" method="post">**

**Enter Project Name <input type="text" name="txtname" />**

**<input type="submit" id="btn" value="submit" />**

**</form>**

**So it a two step process to prevent**

**Step1**

[HttpPost]

[ValidateInput(false)]

[ValidateAntiForgeryToken()]

public ActionResult Process(string txtname)

{

ViewBag.result = txtname;

return View();

}

**Step2**

<form action="/Home/Process" method="post">

@Html.AntiForgeryToken();

Enter Project Name <input type="text" name="txtname" />

<input type="submit" id="btn" value="submit" />

</form>