Internet Technology
Prof. Indranil Sengupta
Department of Computer Science and Engineering
Indian Institute of Technology, Kharagpur
Lecture No #20
Other Technologies

In the last few lectures, we had talked about html forms, CGI scripts, image maps, the different ways of designing interactive web scripts. Now in addition to CGI scripts which traditionally is written in Perl or similar language with strong character or string manipulation capabilities, there are some alternate solutions also. Today in this lecture we would be talking about a couple of such alternatives which we have when you want to design such interactive web pages.

(Refer Slide Time: 01:25)

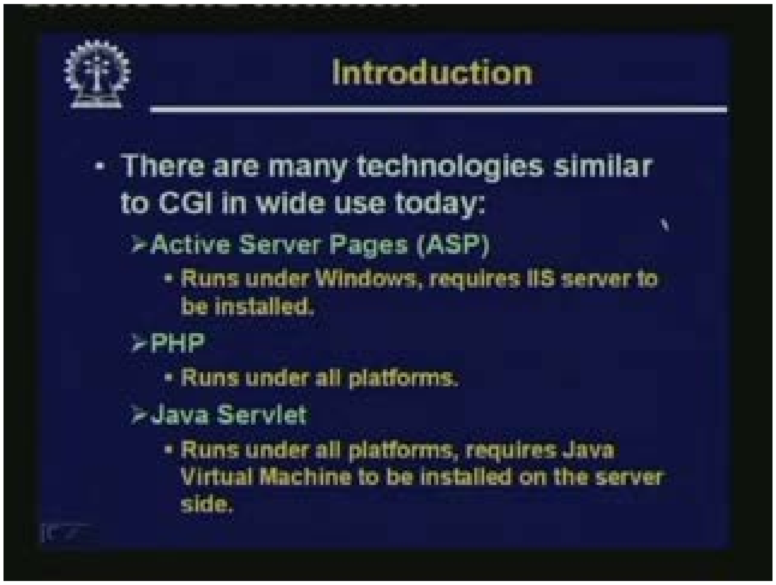
Indian Institute of Technology Kharagpur

Other Technologies

Prof. Indranil Sen Gupta
Dept. of Computer Science & Engg.
I.I.T. Kharagpur, INDIA

So under other technologies.

(Refer Slide Time: 01:30)

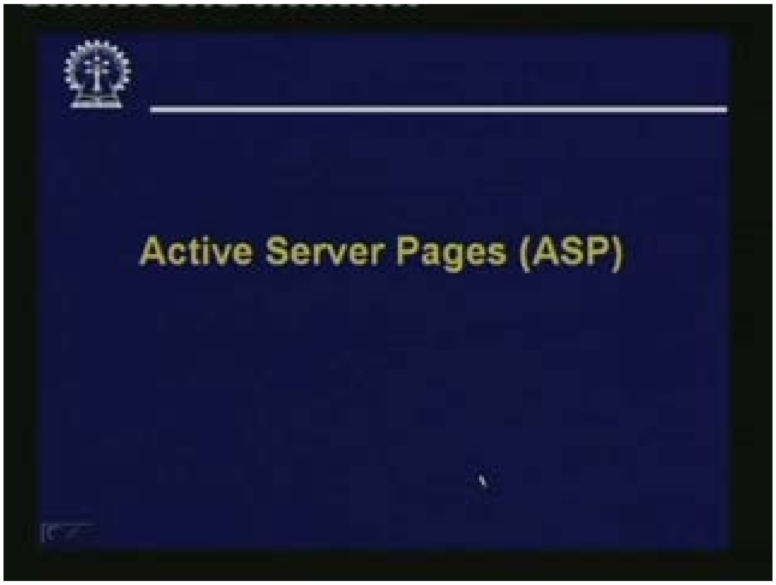


Introduction

- There are many technologies similar to CGI in wide use today:
  - ➢Active Server Pages (ASP)
    - Runs under Windows, requires IIS server to be installed.
  - ➢PHP
    - Runs under all platforms.
  - ➢Java Servlet
    - Runs under all platforms, requires Java Virtual Machine to be installed on the server side.

We would basically talking about active server pages ASP and this PHP. Well active server pages this is a Microsoft based technology. This typically runs under the windows operating system and requires their own proprietary web server IIS to be running on your system in order to have ASP installed. Of course you can have any other web server with ASP support. But IIS is the recommended one. However PHP, this is a solution which is available almost under all platforms. And now as the other alternative you can also have java servlets. Many people develop their interactive web pages using java using servlet technology. Because java is platform independent java servlets also enable you to develop a solution with platform independence only requirement is that java virtual machine or JVM need to be installed on your particular machine where you are trying to store the steps and execute them to generate the active documents. Now we first look at or talk about the active server pages ASP.

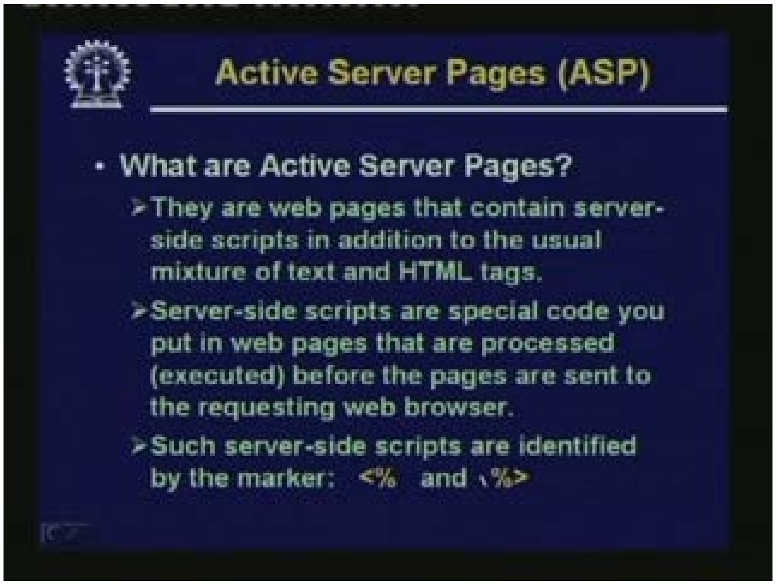
(Refer Slide Time: 02:57)



Active Server Pages (ASP)

So exactly what they are and how they can be used to design and implement this kind of so called interactive web pages.

(Refer Slide Time: 03:10)



Active Server Pages (ASP)

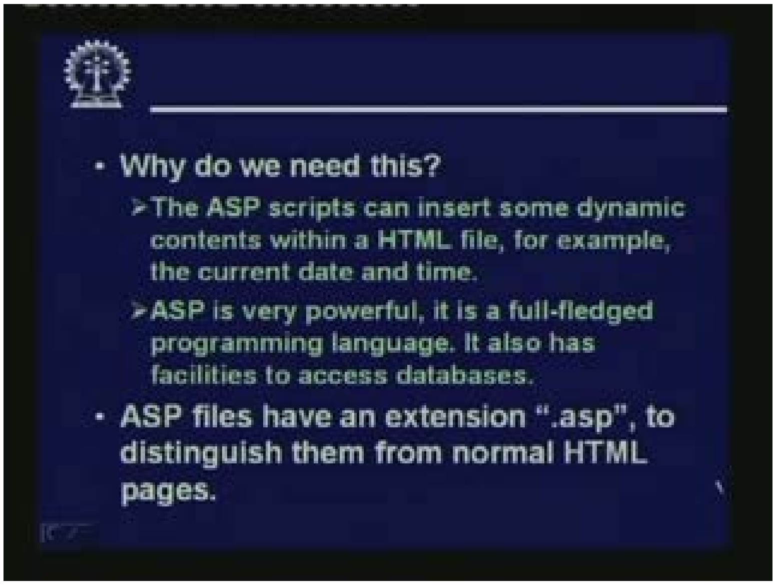
- What are Active Server Pages?
  - They are web pages that contain server-side scripts in addition to the usual mixture of text and HTML tags.
  - Server-side scripts are special code you put in web pages that are processed (executed) before the pages are sent to the requesting web browser.
  - Such server-side scripts are identified by the marker: <% and %>

First let us see what are active server pages? Well active server pages at the top level they are all web pages which are basically written in html. So in a typical active server page you will see that most of the body of the file is written in conventional html, with the conventional html tags. But you will find that there are certain sections in the document or in the file where some active server pages are ASP programs or scripts are embedded. This is how a web page with ASP looks like. Mostly html in between some selected section where ASP script is included. So these are basically web pages that contain server side scripts. Now we call the server side scripts, because these web pages are finally residing on the server, on the web server. And these program this ASP script programs they are executed on the server side itself. That is why they are called server side scripts. These are the web pages in addition to the usual mixture of text and html.

Now as I told you that this server side scripts are something special there are some special delimiting sequence which identifies that well this segment of code is the server side script code. In particular for ASP these special markers are used to identify the beginning and the end of an ASP code block. So in the html page if you have a less than percentage symbol somewhere, you will know that from there some ASP script program or code starts and it will continue till the place where you have the percentage greater than where it ends again you are going back to the html mode. So these scripts are special codes which you can embed in web pages like this. Now these special codes are processed. Processed means executed before the pages are sent back to the requesting browser. Now let us understand what is the meaning of this this web page processing or execution see you had a html page with some embedded ASP scripts in it.

From the browser I request for that particular page the web the web server before sending back the page inspects the page and finds out that well there are some ASP scripts here, so I need to execute them. So what the web server will do? Web server will be executing the ASP script. Means, ASP script in line within the html file and whatever the script generates as output will replace the body of the script. What I mean to say is that in the original html file there was a less than percentage. Percentage greater than there was a segment of code which contained ASP statements. These sequence of statements will get executed they will be generating some text as output that output text will be replacing this segment doc. So when something is sent back to the browser the browser will not see any of these ASP tags. To the browser it will be a pure html file minus the ASP tags. All the ASP tags will get replaced by the output that they generate.

(Refer Slide Time: 07:20)

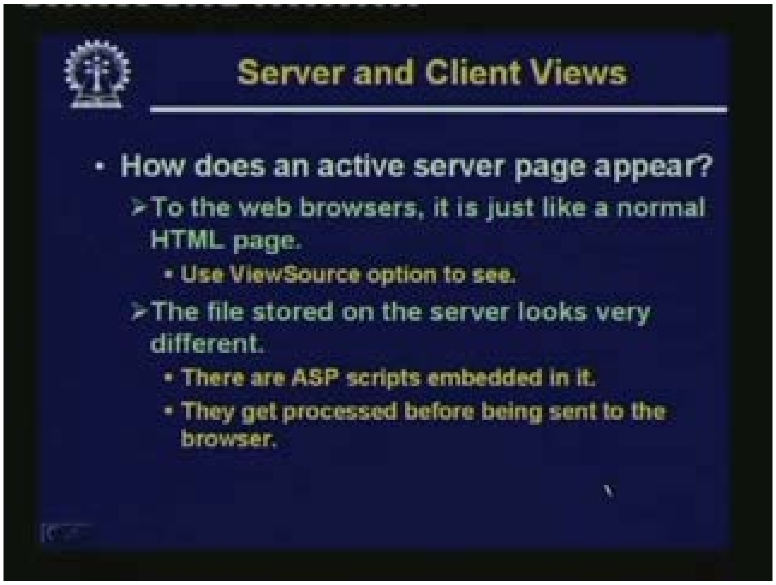


- Why do we need this?
  - The ASP scripts can insert some dynamic contents within a HTML file, for example, the current date and time.
  - ASP is very powerful, it is a full-fledged programming language. It also has facilities to access databases.
- ASP files have an extension ".asp", to distinguish them from normal HTML pages.

Now you can understand that we require this capability where the ASP script can insert some dynamic content within html file. Well you can take the example of a search engine or you can take a simpler example. Suppose in my website whenever a visitor visits it, I want to show the current date and time, for that I can write a very small ASP script inside my code which will be retrieving the local time using some function call and will be printing it. So the time will replace the code and will be there, as part of the html file when it is sent back to the browser. Now ASP is pretty powerful. This is a full-fledged programming language with all the standard features.

In fact it also has the facility to access databases. So that using ASP, you can develop complete applications. You can develop complete 3-tier architecture applications whereby you can process the front end you can have a back end database connectivity. You can do whatever you want. In particular in the web based scenario this is an extremely useful software platform or a tool to develop such applications. Now browsers identify ASP files by looking at their extensions .ASP. So if a file has .ASP extension, only then the browser will look into the body of the file and will find out if the special ASP tags are present or not.

(Refer Slide Time: 09:07)



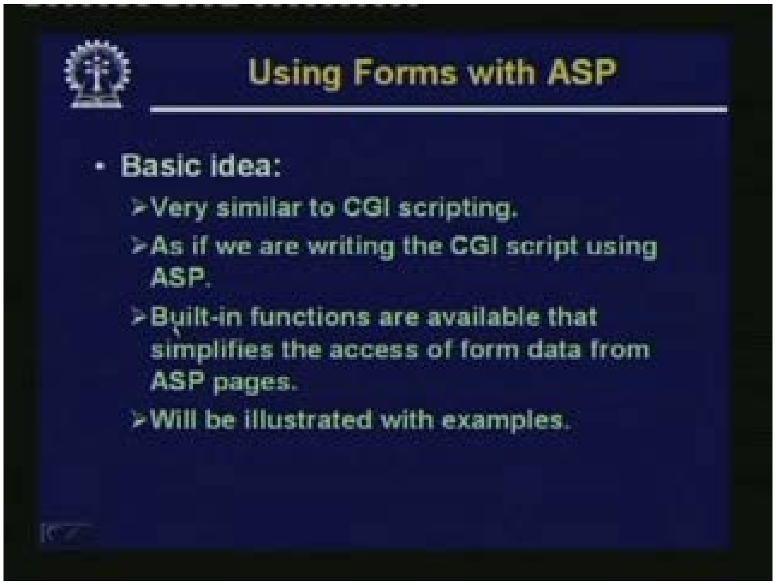
Server and Client Views

- How does an active server page appear?
  - ➢To the web browsers, it is just like a normal HTML page.
    - Use ViewSource option to see.
  - ➢The file stored on the server looks very different.
    - There are ASP scripts embedded in it.
    - They get processed before being sent to the browser.

So with respect to the views of the server and the client, let us try to see how does an ASP page appear? Well when you are viewing a page which was a page continuing ASP code on the web browser, it will be viewed just like a normal html page. Now assuming you are using internet explorer, if we use the view source option to look at the corresponding html code, you will see that what you will get. There is a pure html code without any craze of ASP in it. That is actually what web server sends back to you. But on the web server side you have the html file with the ASP script embedded in it. So the file stored on the web server looks different as I said there is ASP scripts embedded which will get processed before they are being sent to the browser.

So this is how the overall thing works. Now as I said the server side scripts are identified by the beginning tag and the end tag like this and all server side script the ASP code is included within these begin and end tag. And in html you can insert such ASP code anywhere means anywhere means in fact anywhere even within html tag you can put in such scripts. Suppose html tag has begun, it has not yet ended. Between that also you can put in some ASP code. Whatever that generates will replace that segment. Well, we will see an example later where this kind of a replacement is done where by something within an html tag is getting dynamically refreshed or dynamically updated.

(Refer Slide Time: 11:17)

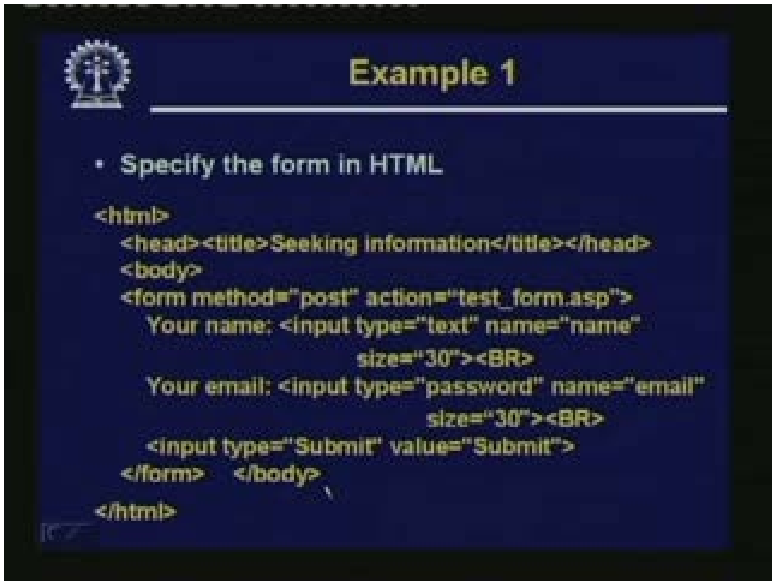


Using Forms with ASP

- Basic idea:
  - ➢Very similar to CGI scripting.
  - ➢As if we are writing the CGI script using ASP.
  - ➢Built-in functions are available that simplifies the access of form data from ASP pages.
  - ➢Will be illustrated with examples.

So, one main application of ASP is its use very similar to CGI script in conjunction with a form. Basic idea is very similar to CGI scripting as if instead of Perl we have written this CGI script using ASP. Now let us see how we can do that we will see some examples. We will also see that ASP supports some built in functions which greatly simplifies the access of form data. So there are some functions which are specifically designed for accessing the data which are sent through forms. So let us take some examples.

(Refer Slide Time: 12:04)



Example 1

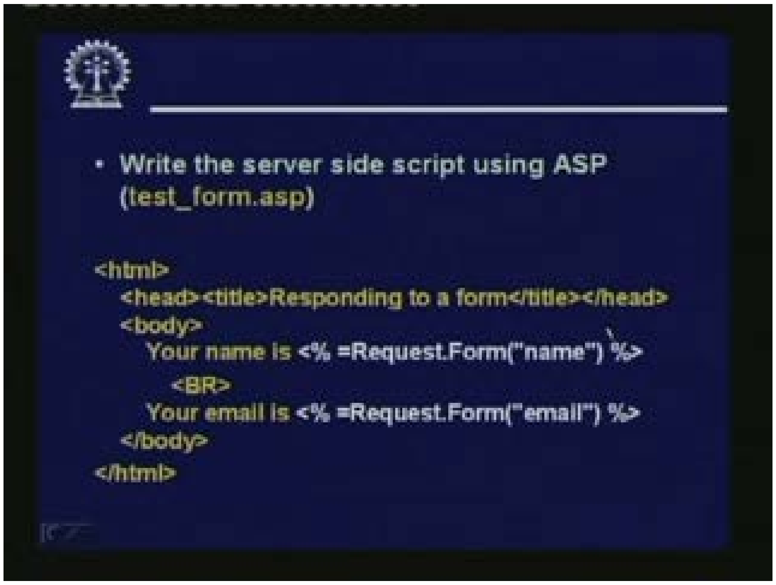
- Specify the form in HTML

```
<html>
   <head><title>Seeking information</title></head>
   <body>
   <form method="post" action="test_form.asp">
      Your name: <input type="text" name="name"
                           size="30"><BR>
      Your email: <input type="password" name="email"
                                size="30"><BR>
      <input type="Submit" value="Submit">
   </form>    </body>
</html>
```

The first example, well here we are seeing a document which contains an embedded form. It is an html document; some heading is displayed here. Within the body this is the description of the form. You see in the form we have identified the method as post I mean action we have given a file name, test form dot ASP. So instead of CGI script Perl, for Perl we had given an extension dot pl. Here we give an extension dot ASP which actually is an indication of the fact. That in this case the server side script is written in the language ASP. So this dot ASP extension of the action gives you this particular indication. Then the form elements are put in.

First one you display a text your name followed by a text box whose type is a text box and the name of the box you have given as n a m e. Size is 30, then you give a line break go to the next line display. This text your email colon, colon then again another box. This is a password box and the name of this box you give as email. The size is also 30 and of course there is a submit button which is labeled as submit. So this form when you submit will be sending back two values one name equal to something and email equal to something. This is how the form data will be sent back. Now let us see how this test form dot ASP program will look like. Well the test form dot ASP program looks like this.

(Refer Slide Time: 14:04)



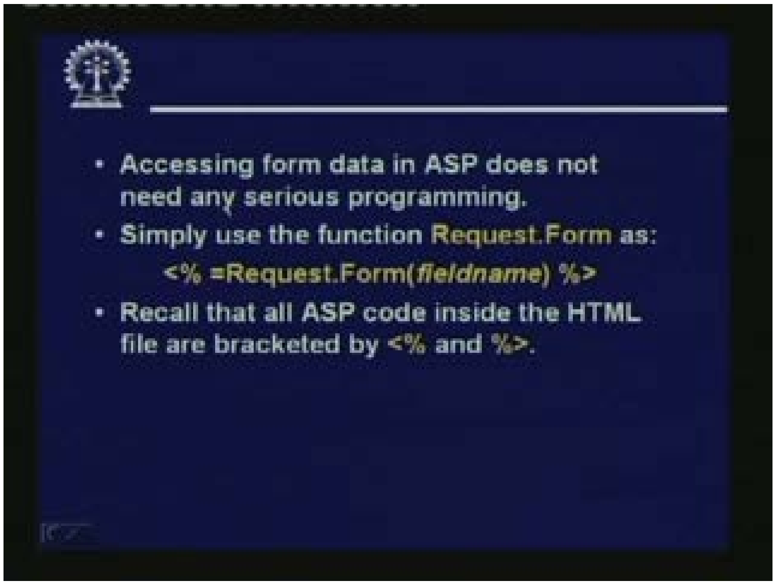
- Write the server side script using ASP (test_form.asp)

```
<html>
  <head><title>Responding to a form</title></head>
  <body>
    Your name is <% =Request.Form("name") %>
      <BR>
    Your email is <% =Request.Form("email") %>
  </body>
</html>
```

This is a very simple representative server side script. What it does is that? Just to see that we can write a script with the values that I have entered simply it sends back a message to the browser saying that your name as you have typed is this. Your email address you have typed is this. It sends back html page. Now you see in a CGI program it was basically you were genetical html code as output. So means you started with that print, print equal equal equal whatever you have to generate it but here the file itself is an html file. So you need not explicitly print the html part of the program. Let us see as you can see the test form dot ASP this file is essentially an html file with some portions which are marked by a different color which are in ASP just you see what it does. It is a normal html file with head title body and within the body there are lines your name is something your email is something. Now let us look at this something your name is here.

This script says there is a function called request.form. Request.form takes as a parameter the name of a text box. You may recall when we have defined the text boxes the first one we had given a name n a m e name the second one had a name of email. So in the first one, we say request form name. Second one request form email so the first one returns the value of this name field of the table of the form and the second one returns the value of the email attribute of the form. This is actually whatever returns will get displayed will get replaced here actually. Suppose I had given a name say xyz. So it will come as your name is xyz. Similarly your email is say abc.com something. So now after the ASP code gets executed as I said what you get is a pure html file which will be sent back to the browser and the browser will display it accordingly. So you can see that writing a server side script in ASP is really very simple.

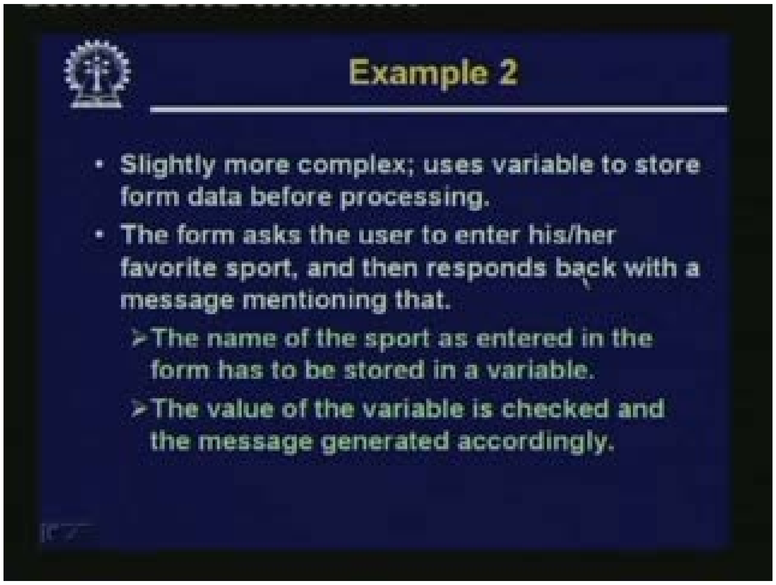
(Refer Slide Time: 16:54)



- Accessing form data in ASP does not need any serious programming.
- Simply use the function Request.Form as:
  <% =Request.Form(*fieldname*) %>
- Recall that all ASP code inside the HTML file are bracketed by <% and %>.

This we had already seen that accessing program data does not need any serious programming. Just calling a particular function request form, this will serve your purpose. So, but do not forget to put this function call with in the ASP delimiters. Because, this part of the ASP language and wherever you use it has to be between the ASP delimiters.

(Refer Slide Time: 17:30)



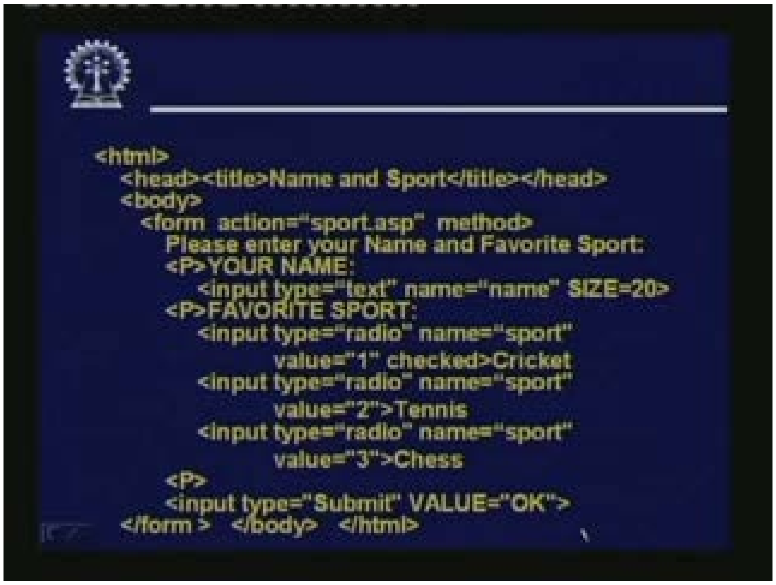
Example 2

- Slightly more complex; uses variable to store form data before processing.
- The form asks the user to enter his/her favorite sport, and then responds back with a message mentioning that.
  - ➢The name of the sport as entered in the form has to be stored in a variable.
  - ➢The value of the variable is checked and the message generated accordingly.

Let us take a second example. Now in the first example we had simply retrieved the contents or the values of the form elements and we had used it directly as part of the html page. But in this second example we would see how we can use ASP variables. We can store the form data in variables which you can later on check or process in whatever way we want. Well we are not formally showing you the syntax of ASP language. But rather we are giving some examples through which you will understand how an ASP code will look like and you can easily modify this kind of programs to create the program of your choice. So the example two is an application where we are designing a form. The form will ask the user to enter his or her favorite sport.

There is a choice of course cricket or tennis or chess and then it should respond back to the user with some suitable message mentioning that. So we will see how we are doing this. Now the way you have implemented or written this application is that the name of the sport as the user enters is first stored in a variable. Then using some conditional, the value of the variable is checked and depending on the value that has been found a message is being generated accordingly. So this example illustrates two things. How to use variables in an ASP court and how to use means if then else kind of structure conditional structure to check the value of the variable. Now let us see how the code look like.

(Refer Slide Time: 19:46)



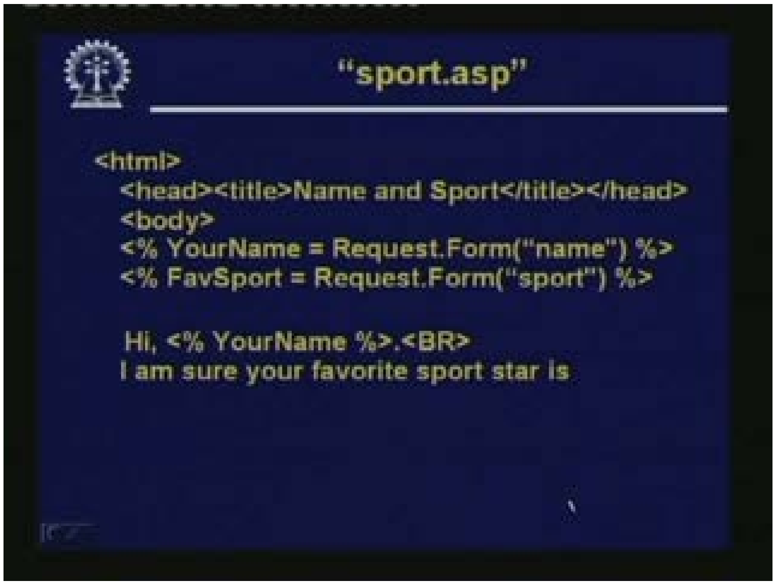
```
<html>
  <head><title>Name and Sport</title></head>
  <body>
    <form  action="sport.asp"  method>
      Please enter your Name and Favorite Sport:
      <P>YOUR NAME:
         <input type="text" name="name" SIZE=20>
      <P>FAVORITE SPORT:
         <input type="radio" name="sport"
                value="1" checked>Cricket
         <input type="radio" name="sport"
                value="2">Tennis
         <input type="radio" name="sport"
                value="3">Chess
      <P>
      <input type="Submit" VALUE="OK">
  </form >   </body>   </html>
```

First, this is the body of the original html file which contains the form. Just have a look at this. Html this is the heading as usual name and sport. So this comes within the head and the title tags. Then within the body tag the form definition starts here up to here. Now, within the form you will see in the first case, we have defined action as sport.ASP. This is the ASP file method. Method suppose, you give here method equal to POST, so this will be given. Now then we display some text please enter your name and favorite sport. Then your name followed by a box. It is a text box with a name given as n a m e, name then there is a heading favorite sport. This favorite sport is followed by a radio button definition. As you can see, there are three buttons in this set now.

That these three buttons belong to the same set is known from the fact that all this have the same name sport. If a set of radio button or for that matter check box is also has the same name assigned to it. It means that they belong to the same group. So these belong to the same group you see first one says value equal to one. Second one says value equal to two. Third one says value equal to three. What this means is that on the web page when it is being displayed there will be three radio buttons displayed. Well, if you click on the first one then a value one will return. If you click on the second one a value two will return and third one three. And you also note that the first choice has an extra attribute called checked. What does this mean?

Now if you recall, I told you that in a radio button exactly one of the options must be selected at a time. So but it very definition in a radio button one option is selected. So the one where I have used the checked attribute that will be turned on by default. So whenever the page is in for the first time you will see that the first option is being selected by default. But you can select the other option when the first option will get deselected. Then of course the description of these three will be given. First one is cricket, second one is tennis, third one will be chess. So this text also comes on the side so that you can know that means which is what. So by the side of the buttons these names will appear. Now of course there is a submit button which you have to click this is how the form is defined. Now let us come to the ASP code.

(Refer Slide Time: 23:21)



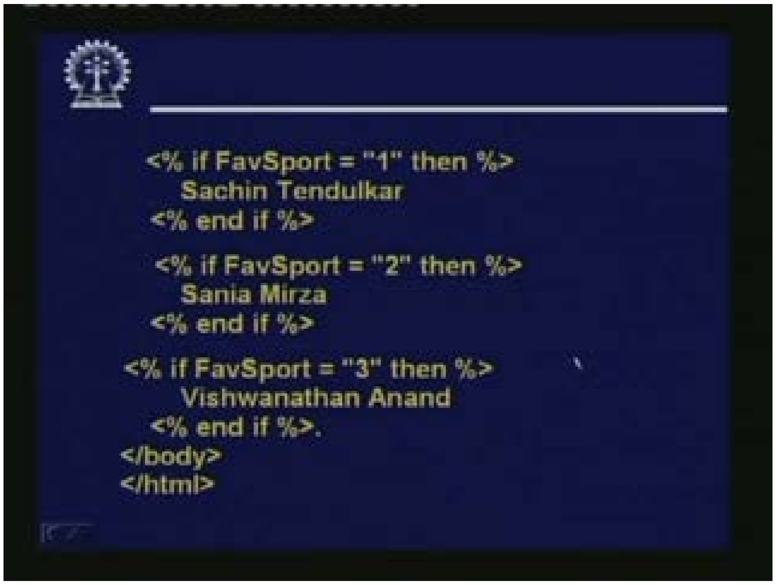
"sport.asp"

```
<html>
  <head><title>Name and Sport</title></head>
  <body>
  <% YourName = Request.Form("name") %>
  <% FavSport = Request.Form("sport") %>

  Hi, <% YourName %>.<BR>
  I am sure your favorite sport star is
```

The ASP code starts like this. The first three lines are standard html lines. It gives a heading, body. Then you have two ASP segment lines here you have used request form name and request form sport. These you have assigned to variables your name and favsport. These are two variables. So whatever data you have entered in the form for name and which ever button you have clicked for sport, then this will return a value either one, two or three that will get stored in favsport. And your name will get stored in the variable your name then comes a welcome message. Well, here what I want is that suppose I have typed my name as Indranil Sen Gupta.

Then I want a message to come, hi Indranil Sen Gupta. But you understand that this variable your name that I have defined and the form data have been stored there. This, your name variable is part of ASP. So whenever you want to use the value of your name, that cannot be done directly through html that has to be within an ASP block. That is why whenever I am trying to display the value of the variable. I have enclosed with in ASP. Hi comma whatever is the value of this variable will come here. So whatever name was entered, hi that name a line break. Then I am sure your favorite sports star is then comes a check on the favsport what he has entered.

(Refer Slide Time: 25:15)



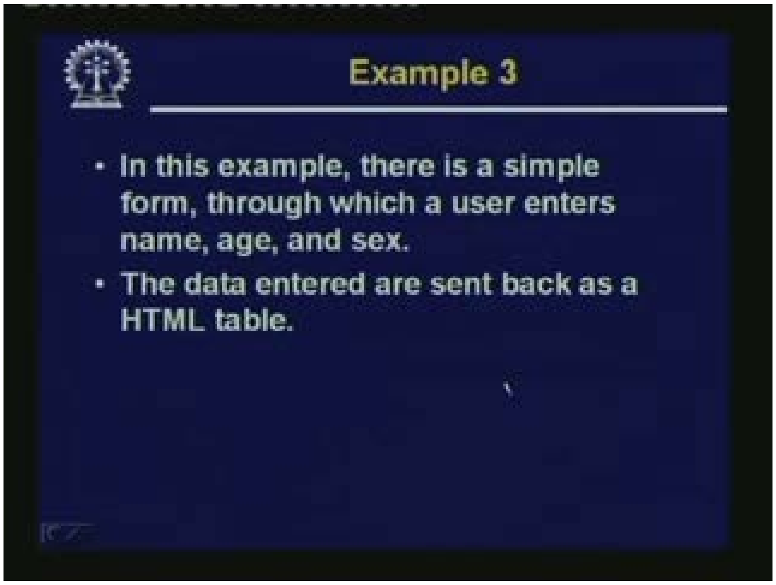
```
   <% if FavSport = "1" then %>
      Sachin Tendulkar
   <% end if %>
    <% if FavSport = "2" then %>
      Sania Mirza
   <% end if %>
 <% if FavSport = "3" then %>
      Vishwanathan Anand
   <% end if %>.
</body>
</html>
```

Well you see there are some if statements. If favsport is equal to 1. Equal to one means crickets then I give a string here Sachin Tendulkar and this if block ends with an end if block. End a space if this is also ASP. If favsport is two which is tennis, then suppose I have written Sania Mirza, if favsport is 3 chess then Vishwanathan Anand. So in this way I go on. Actually if you look at the whole core. What it does? It read the value of the favsport and it prints I mean the html file which will get generated. Firstly here whatever you have entered, that name will come these two lines will not be present in the output html file.

And I am sure your favorite sports star is some name will come here. A single name and that single name will depend on the outcome of the if-statements. If you have clicked on one, then this name Sachin Tendulkar will come otherwise Sania Mirza. Otherwise Vishwanathan Anand. So this example illustrates how I can use variables along with conditioners to check the value of the variables. So let us take a third example where I will illustrate that that means I mentioned something earlier. That you can use ASP scripts even inside html tags. Now this example shows you exactly that this is an example where you display a form whatever data, you enter in the form.

Suppose your form has three fields name, age and sex. You have entered these things and whatever you want; I want the server side program or script to send me back the same thing on my browser. But in the form of an html table, but if the value has to come back, as a form of the table. You know there are so many table tags that need to be used. Table th, td, tr and whatever value I have entered those can be stored in some variables and the value of the variables have been put inside those tags. Now putting these variables inside that have to be done through ASP only. Because the variables are accessible only through ASP scripts from html you cannot access them directly. So let us see how this example looks like.

(Refer Slide Time: 28:06)

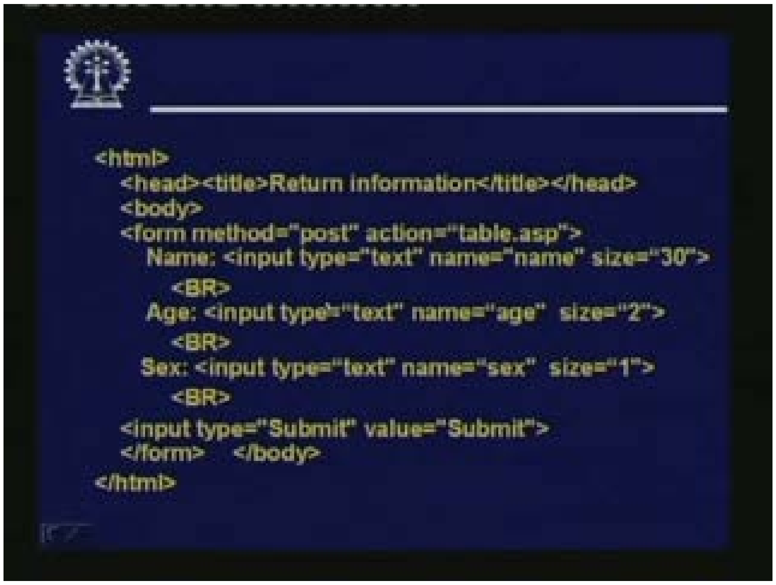


Example 3

- In this example, there is a simple form, through which a user enters name, age, and sex.
- The data entered are sent back as a HTML table.

So as I said this example consists of a simple form which enters these three values. The data entered is sent back as an html table.

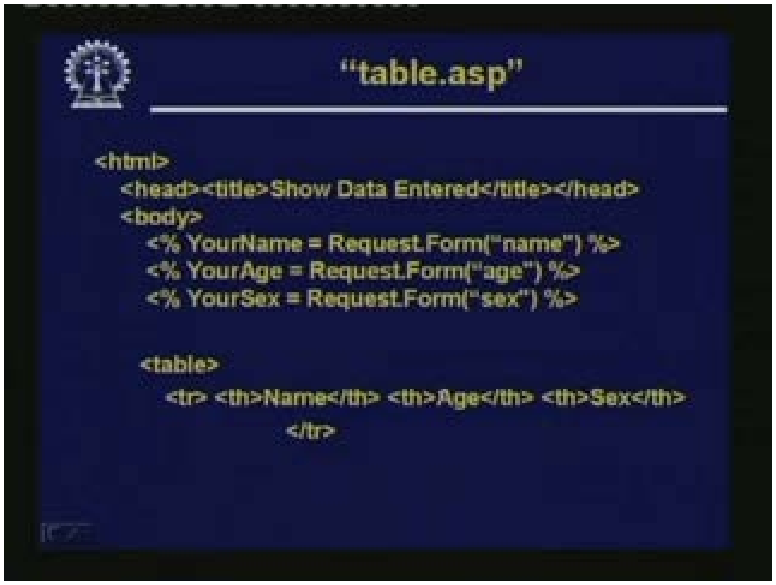
(Refer Slide Time: 28:19)



```
<html>
  <head><title>Return information</title></head>
  <body>
  <form method="post" action="table.asp">
    Name: <input type="text" name="name" size="30">
      <BR>
    Age: <input type="text" name="age"  size="2">
      <BR>
   Sex: <input type="text" name="sex"  size="1">
      <BR>
  <input type="Submit" value="Submit">
  </form>    </body>
</html>
```

Well, this is the original form. So this is the form description. It says form method equal to post and this is the name of the ASP file. Say as usual, there is a first text box, as a name of n a m e. The second text box has a name of age. The third text box has a name of sex. And finally there is a submit button which is also labeled with the string submit. This is how we want this particular form to look like.

(Refer Slide Time: 29:08)

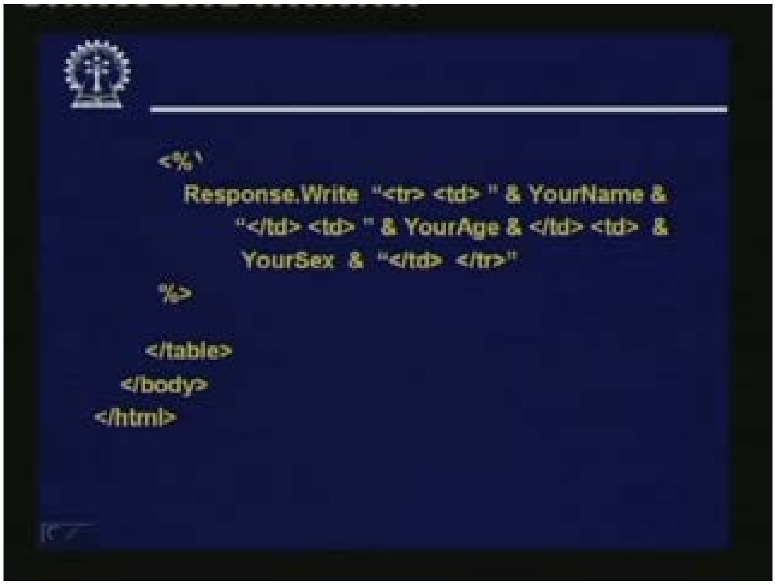


“table.asp”

```
<html>
  <head><title>Show Data Entered</title></head>
  <body>
    <% YourName = Request.Form("name") %>
    <% YourAge = Request.Form("age") %>
    <% YourSex = Request.Form("sex") %>

    <table>
      <tr> <th>Name</th> <th>Age</th> <th>Sex</th>
              </tr>
```

Now let us look at the table dot ASP script now. Now if you look at the first part of this code. So as anticipated, there is some ASP script here which reads the data from the form by specifying the names you have specified while defining the form using the request form function you take out the values of them and assign them to the variables your name, your age and your sex. Now you want to show these values in a proper tabular form. So now the tags for the table begin. So the table description begins here. First is the begin table tag. This line is the header this table header. So tr, th, is the table header first is name then is age then is sex this row ends. In the next row I want that these three values to be visible. See actually this table will contain only two rows. The first row will contain the heading and the second row will contain the values. So the heading is already displayed here, now the values you get displayed. How?

(Refer Slide Time: 30:40)

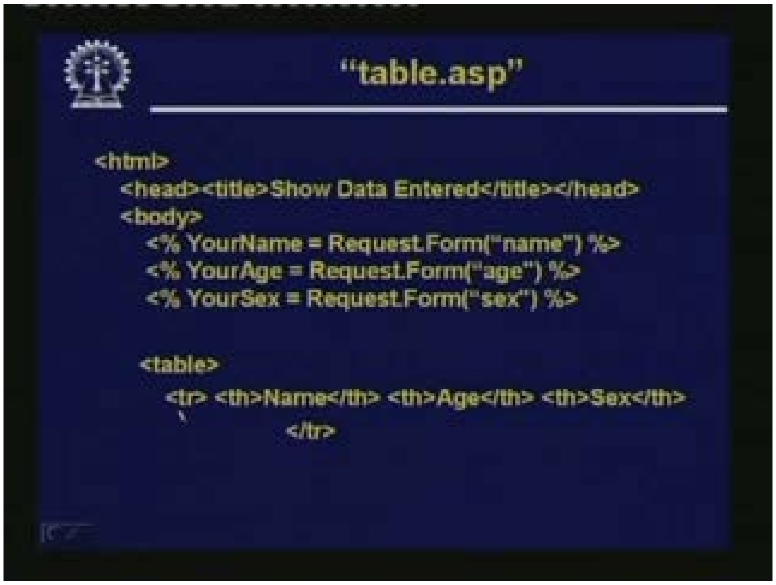


```
<%'
   Response.Write "<tr> <td> " & YourName &
         "</td> <td> " & YourAge & </td> <td>  &
         YourSex  &  "</td>  </tr>"
%>

  </table>
 </body>
</html>
```

See here we have used an ASP embedding. An ASP embedding, an ASP code, there is a statement called response dot write. Response dot write, whatever you give in double quotes will get printed and I want something to be printed. I mean exactly what ever is being printed that will get included in the html file. So here I want the exactly tags for the table row to be printed along with the values. So let us see what we have written here. First in the string with in double quotes we have outputted tr and a td. Tr is the beginning of the row td is the beginning of the table cell. This ampersand means string concatenation. So whenever you see ampersand in ASP ampersand means you are concatenating two strings, then your name is a variable.

So this tr td will get concatenated with the value of your name. So name will come here. Then again you are concatenating. Now as a string end td and the beginning td of the next cell. Again there is a concatenation the value of your age. Again end and beginning of the next cell again concatenation the value of your sex and finally end td and end row. So you see what the response write will be outputting is exactly the description of the second row of the table in html. That is what I want. I ultimately want html file. So whatever this is outputting, that is the second row of the table definition in html. So after this is done, the remaining part. I can again code in plain html end table end body end html. So if you look at the whole program, now this was the first part of it.

(Refer Slide Time: 32:52)

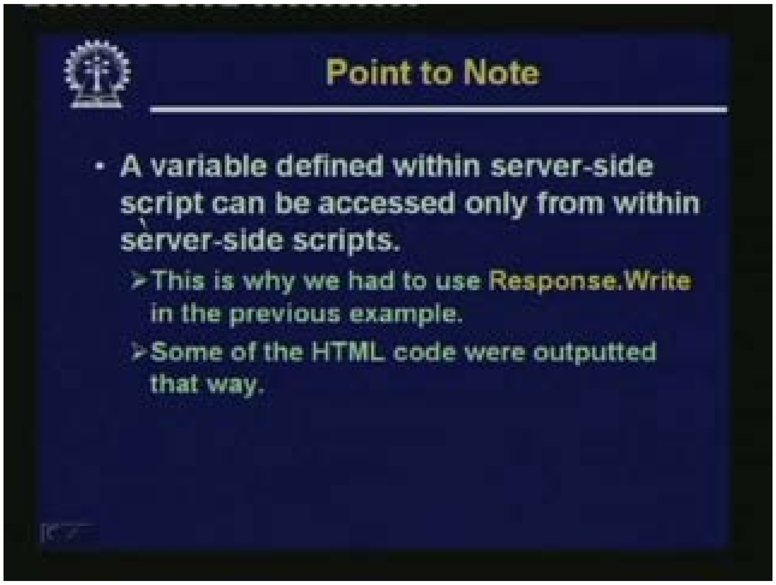


"table.asp"

```
<html>
  <head><title>Show Data Entered</title></head>
  <body>
    <% YourName = Request.Form("name") %>
    <% YourAge = Request.Form("age") %>
    <% YourSex = Request.Form("sex") %>

    <table>
      <tr> <th>Name</th> <th>Age</th> <th>Sex</th>
               </tr>
```

So here the table definition started here. The first row which was the heading row was displayed here. And here the second row which was generated using ASP script using the form data. So in this way you can generate any dynamic content using ASP script very conveniently.

(Refer Slide Time: 33:22)

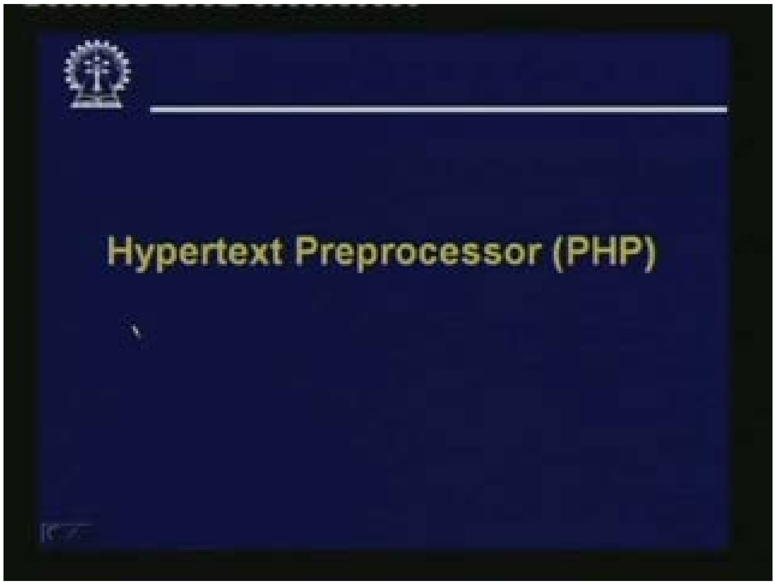


Point to Note

- A variable defined within server-side script can be accessed only from within server-side scripts.
  - ➢This is why we had to use Response.Write in the previous example.
  - ➢Some of the HTML code were outputted that way.

Now as you have seen from this example, clips that a variable which you have defined with in the server side script can be accessed only within server side scripts. You cannot access it directly from html. This is something you have to remember. This is the reason why we have to write response, write within the server side script in the previous example whose soul purpose was to output some part of the html code which we were planning to generate dynamically? Some part of the html code was static, some part of the html code were generated in a dynamic way. So show some examples we have given a flavor of how ASP can be used to provide server side scripting in wave applications in developing interactive pages. There are a huge lot of resources available on ASP. There are good books available. If you look on the net you will find a lot of very good tutorials, full of examples and case studies. So you can stand on this platform and if you can try to get into a little more of ASP. It will very, it will be rather easy for you to pick up from here.

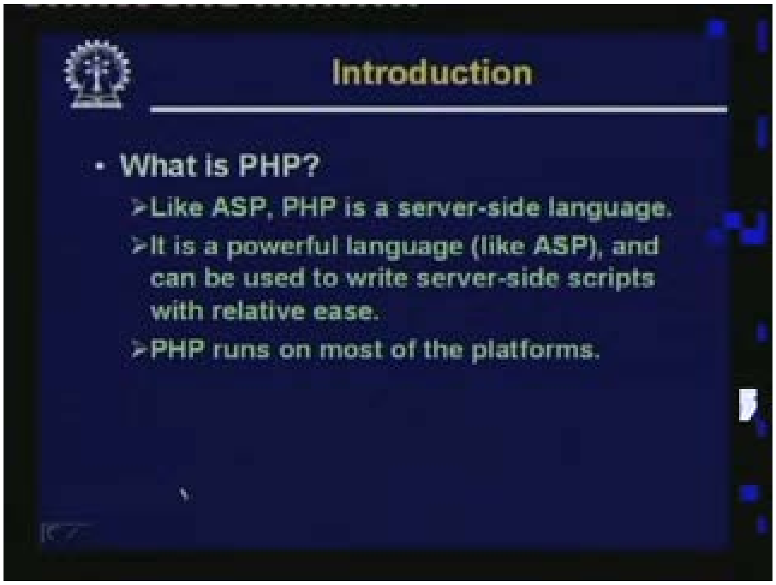
(Refer Slide Time: 34:48)



Hypertext Preprocessor (PHP)

Now we look at the other popular alternative that many people also uses. This is a technology called php. PHP comes from the name Hypertext Preprocessor the middle h is hypertext. This p is preprocessor. PHP is also a very popular tool many people use PHP. See the one problem with ASP is that if you use ASP you are bound or tied with Microsoft technology. Your web server must be running under a windows operating system most under all platform big advantage you get. So PHP is also a server side language like ASP, PHP is also very powerful. Now here one thing I would like to say that this language is ASP and PHP they have some basic construct. Now in addition they have some very powerful function which are made available as part of the language definition which can be used or invoked to develop very complex application like one such example. We will see very shortly that uses PHP to automatically send an email to some recipients. This will see is very trivial if you code using this kind of server side language.

(Refer Slide Time: 36:27)

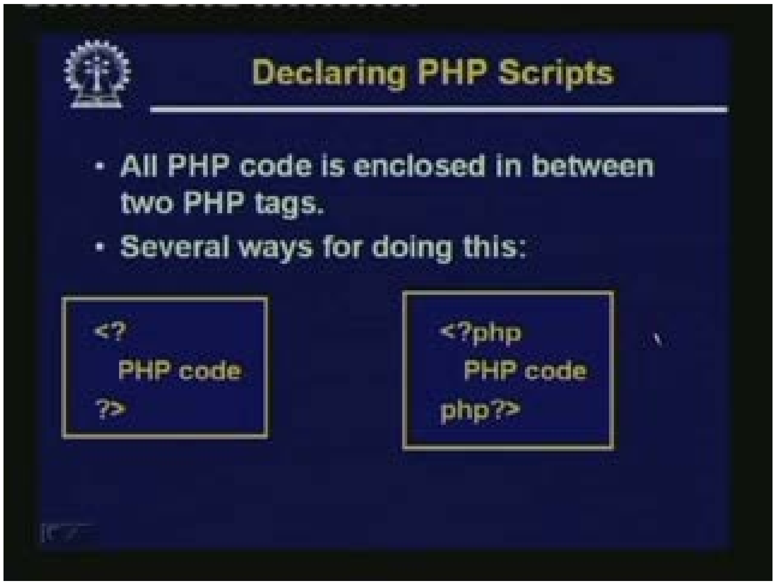


Introduction

- What is PHP?
  - Like ASP, PHP is a server-side language.
  - It is a powerful language (like ASP), and can be used to write server-side scripts with relative ease.
  - PHP runs on most of the platforms.

So like ASP you can also use PHP to write server side scripts and as I said it runs on most of the platforms. Now in addition to windows you can run PHP on UNIX, the various flavors of UNIX or Linux etcetera.

(Refer Slide Time: 36:50)



Declaring PHP Scripts

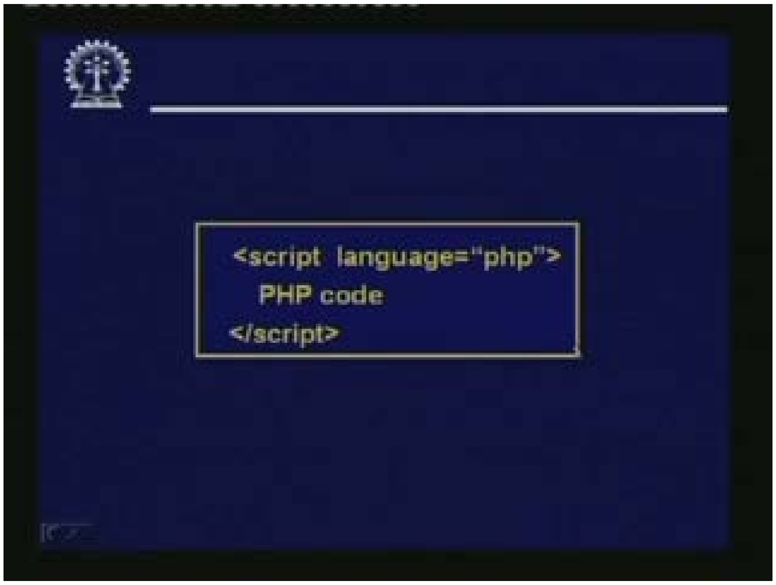
- All PHP code is enclosed in between two PHP tags.
- Several ways for doing this:

```
<?
  PHP code
?>
```

```
<?php
  PHP code
php?>
```

Now first thing you need to know like in case of ASP the ASP code was identified by tags like this. Now in PHP how do you identify? There are very similar ways of doing it. Now a PHP code with in an embedded html document can be identified in one of the three ways. This is the first way which uses a tag less than question mark and question mark greater than. The second alternative is that you can explicitly write PHP before and after the question marks here, these are equivalent. And the third way is like this.

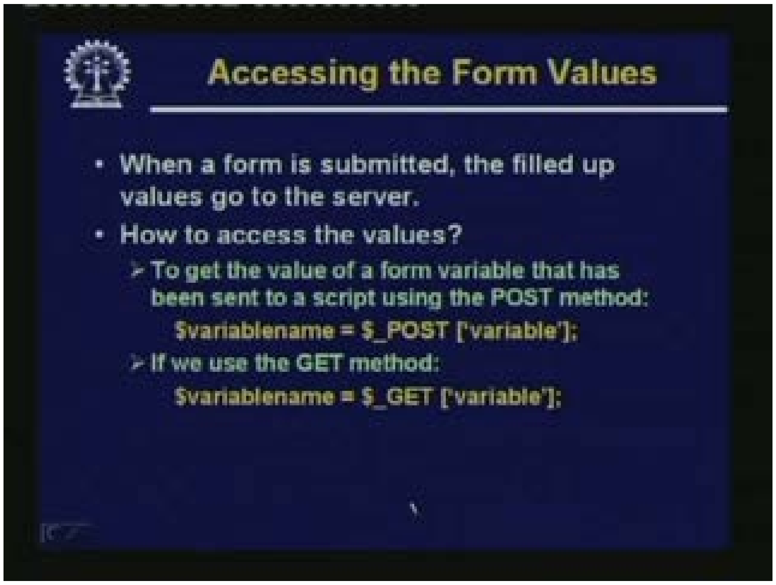
(Refer Slide Time: 37:40)



```
<script  language="php">
  PHP code
</script>
```

You start with a script tag where you specify what kind of script is this. This is a very general kind of specification where instead of PHP you can give any other language and it will be taken. So here you are specifying that what ever is included out here, this has to be processed by a script and this script is written in a language called PHP. So this is how you can define the PHP code which are embedded inside an html document. Now let us see in PHP how do we access the values in the form?

(Refer Slide Time: 38:26)



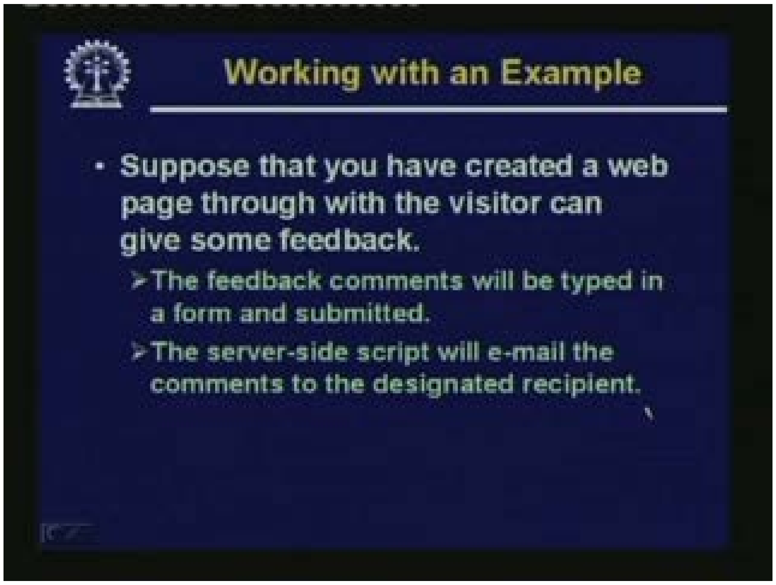
Accessing the Form Values

- When a form is submitted, the filled up values go to the server.
- How to access the values?
  - To get the value of a form variable that has been sent to a script using the POST method:
    $variablename = $_POST ['variable'];
  - If we use the GET method:
    $variablename = $_GET ['variable'];

Because, in this context in the present context we are discussing these in the context of designing interactive web pages. And inter active web pages the most important thing is to access the values of the form. So as you know already that when a form is submitted the filled up values goes to the server and the way it goes and the way it can be accessed it depends on whether you have used the method equal to GET or method equal to POST when you have defined the form variable. Now if you know which method you have used, you can write appropriate code or program to extract the values. Now we will see that in PHP there are some functions which are available to you directly. Question is how to access the values. The first example shows that if the form was submitted using the POST method then you can simply write a statement like this.

Dollar variable name is a variable you are defining in PHP. It can be anything dollar xyz equal to dollar underscore post. This is the name of function and here as a parameter to this function out here. Within square brackets say parameters needs to be specified in square brackets within single quotes you have specified the name of a variable say name or age or something. So whatever is the value of this particular variable that will be stored in the specified variable name here. Similarly if the method is get then instead of dollar post you just write dollar get the remaining is the same. So you see you need not have to do any string manipulation at all directly you can use this function and the value will get returned to you. This is a big advantage which these languages give you both ASP and PHP.

(Refer Slide Time: 40:41)



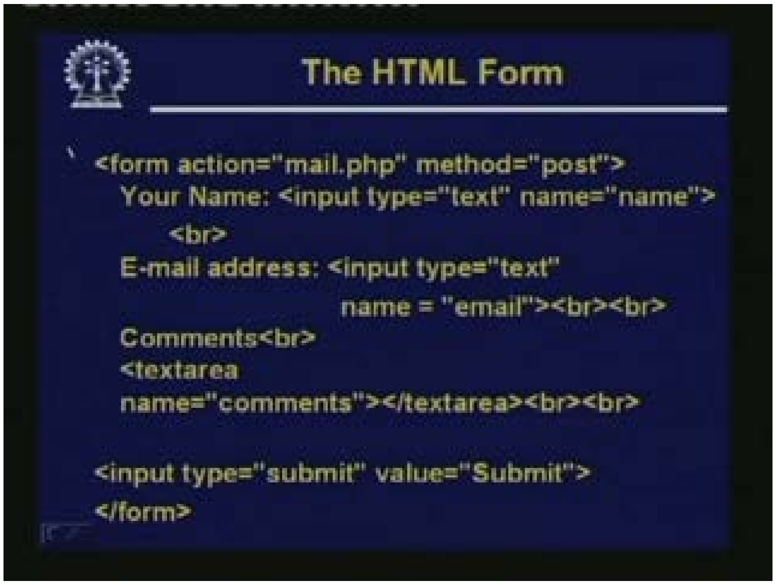
Working with an Example

- Suppose that you have created a web page through with the visitor can give some feedback.
  - The feedback comments will be typed in a form and submitted.
  - The server-side script will e-mail the comments to the designated recipient.

Now we take a relatively complex example to see that how with PHP you can develop or create something which apparently is pretty complex. Example is like this. Suppose I have designed or created a web page. The web page looks like this. Now as part of the web page I want to keep a facility where by the visitor who has come to my web site to see this page can give some feedback. Normally you know many web pages have a facility for submitting feedback. There will be a form which can be filled up with the user commands and if the form is submitted then sometimes say means, after the form gets submitted an email will be sent to me directly which contains the feedback the visitor has given. So if this happens it will be very much convenient to me.

If the email comes to me, it becomes much easier for me to see. Otherwise I will have to go to the site look at the log and find out that what feed back or message the different visitors gave here. So in this particular application, we give a facility for the visitor to give some feed back in the form of some message. This feedback comments will be typed in some box as part of the form and it will be submitted. And the server side script that we are trying to write. Here will email the comments of the designated the comments to the designated recipient. This is what I am trying to show you suppose I am the author of the page. So means I would like that email would come to me so somehow I should also specify my email address where the mail should go. So let us see how this will look like.

(Refer Slide Time: 42:54)

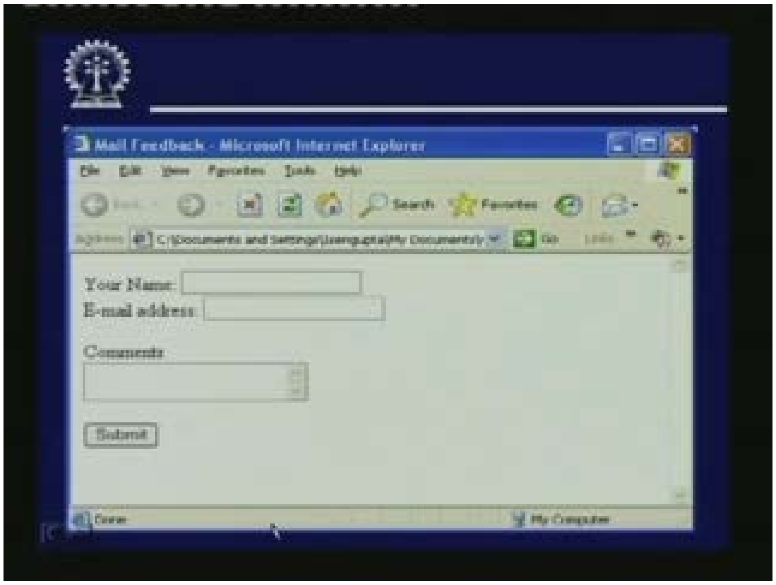


The HTML Form

```
<form action="mail.php" method="post">
  Your Name: <input type="text" name="name">
      <br>
  E-mail address: <input type="text"
                   name = "email"><br><br>
  Comments<br>
  <textarea
  name="comments"></textarea><br><br>

<input type="submit" value="Submit">
</form>
```

First comes the definition of the feedback form. Well, here I have not shown you the full html program. But only that html program segment which contains the feedback feature. This is a form definition where you see in the form definition line method is specified as POST. Action you have specified mail dot PHP. So, dot PHP is a special extension which specifies that the server side script contains ASP server side programs. So you need ASP processing here. Now after that the actual form definition starts your name followed by the name whose name is this, email address name is this then some comments. Now for comments we have used a text area. Because, comments will be longer. So there will be some text area whose name we have given comments. So the three names are n a m e name, email and comments and of course lastly there is submit button through which the user can submit this form.

(Refer Slide Time: 44:23)


Mail Feedback - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address C:\Documents and Settings\Isengupta\My Documents\
Go Links
Done
My Computer

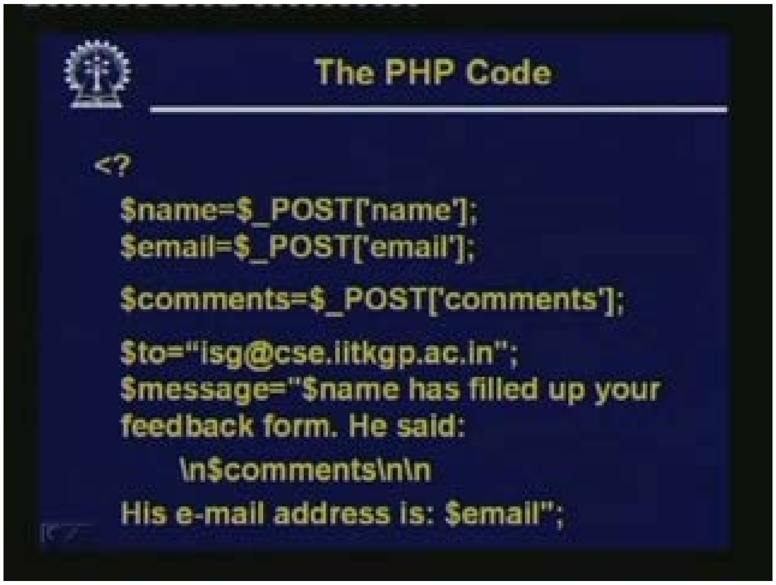
Your Name:
E-mail address:

Comments

Submit

So this screen shows a typical snap shot. If you display only this part of the form on the screen it will look like this. Firstly, there will be a box where you can type in your name. There will be a box where you can type in your email address. There will be a text box text area where you can type the comments. This scroll bars are hidden now. But as you type in as the text fills up this box, this scroll bar will appear and you can scroll it up and down to delete it. And finally if you press on submit the form will get submitted. Now in this application I want after the form is getting submitted there should be an email which should be generated automatically and the mail should reach me which may as the author of the page I want to see the comments that the visitor has given about my page. Let us see how in PHP we can do this.

(Refer Slide Time: 45:33)



The PHP Code

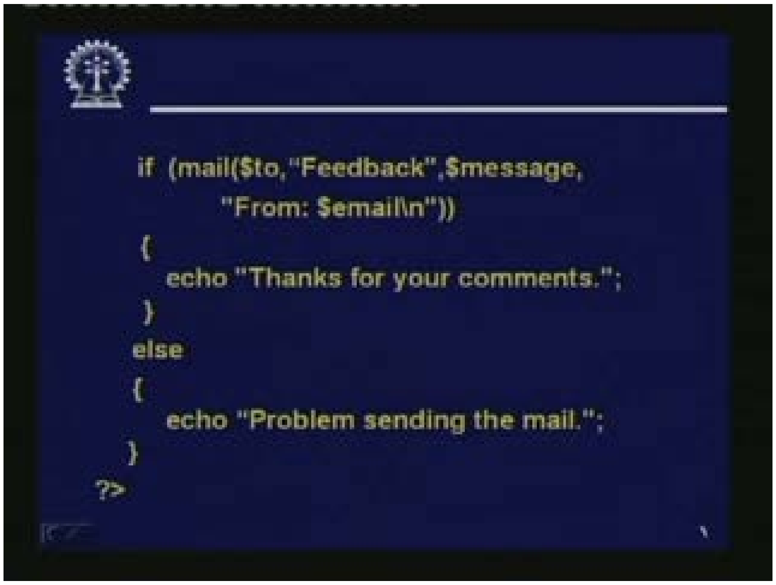
```
<?
  $name=$_POST['name'];
  $email=$_POST['email'];

  $comments=$_POST['comments'];

  $to="isg@cse.iitkgp.ac.in";
  $message="$name has filled up your
  feedback form. He said:
       \n$comments\n\n
  His e-mail address is: $email";
```

Well, PHP code starts with the special not with. Firstly we are reading the three things in three variables. Using the function dollar POST, as I mentioned earlier. The value of the name, we are storing it in a variable called dollar name. Value of the email we are storing in dollar email and the value of the comments we are storing in a variable dollar comments. Of course you can give any name but to make it more make it more readable we have used these same names. Now suppose we want to send the mail to this address. Say this is my email address. We have put it in four double quotes and I am assigning this string to a variable dollar to. Well here one I think we have understood.

By now in PHP all variables start with a dollar symbol. So whenever you want a dollar to store something or manipulate something we should start with a dollar. And suppose this script sends back a message to me, message looks like this dollar message equal to well this I will explain you see dollar name has filled up your feedback form. He said new line dollar comments new line. His email address is dollar email. Now you look at one thing in this dollar message when you were assigning a string. The string begin is here and the string end double quote is here. Now within this there are some variables which you have used dollar name, dollar comments, dollar email, as part of the string.

Now if a variable appears as part of the string which is enclosed within double quotes. Then as far as PHP semantics the value of the variable gets replaced. So here whatever is the value of name will come here. Whatever is the comments, that was given will replace this dollar comments and whatever the email was typed will come here. So actually the string will come here. So actually the string that will be assigned to dollar message will contain the fully expanded form of the variables. Now up to here we have created one variable containing the email address to which I want to mail another variable dollar message containing the whole body of the message.

(Refer Slide Time: 48:46)

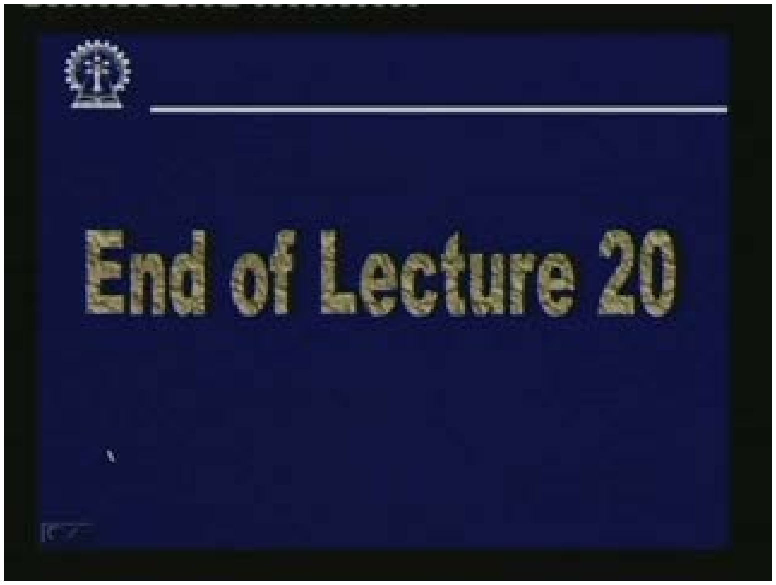


```
if  (mail($to,"Feedback",$message,
        "From: $email\n"))
 {
   echo "Thanks for your comments.";
 }
else
{
   echo "Problem sending the mail.";
}
?>
```

Now mail is a function which is available to you. Here we are using it directly. Mail contains a number of arguments. The first argument is the address to which you are trying to send the mail. This is stored in dollar two. Second argument is the subject line of the mail. Suppose I give a subject line feedback. Third argument is a string which represents the body of the message, dollar message and fourth argument is the, from recipient. That means from whom the mail has come. So from colon dollar email this is the fourth argument. Now if this mail command is successful, it will be returning a non-zero value and this if true block will be executed. Echo thanks for your comments else otherwise echo problem sending the mail this ends the PHP code.

So you can see in this example that we have been able to send an email to the person who has created the page and this email sending is being initiated by the visitor of the page. Now this is just one example I have taken. If you again look at some resources on PHP, you will find that using PHP you can almost do anything. ASP, PHP both of them a very strong capability of interacting with back end databases of creating client server applications communicating among themselves and so on. So in this lecture I have only tried to give you a hint or a basic idea about what these languages are like and what kind of things you can possibly do using these languages.

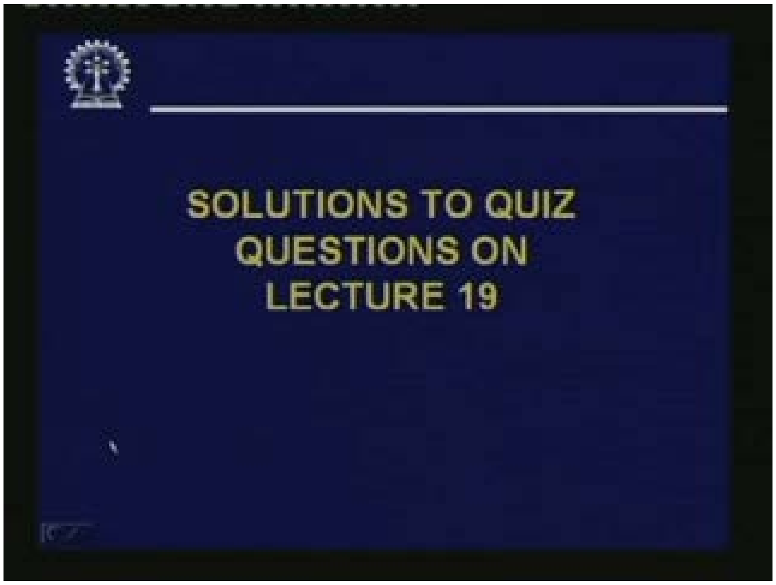
(Refer Slide Time: 51:02)



End of Lecture 20

Now with this I come to the end of today’s lecture.

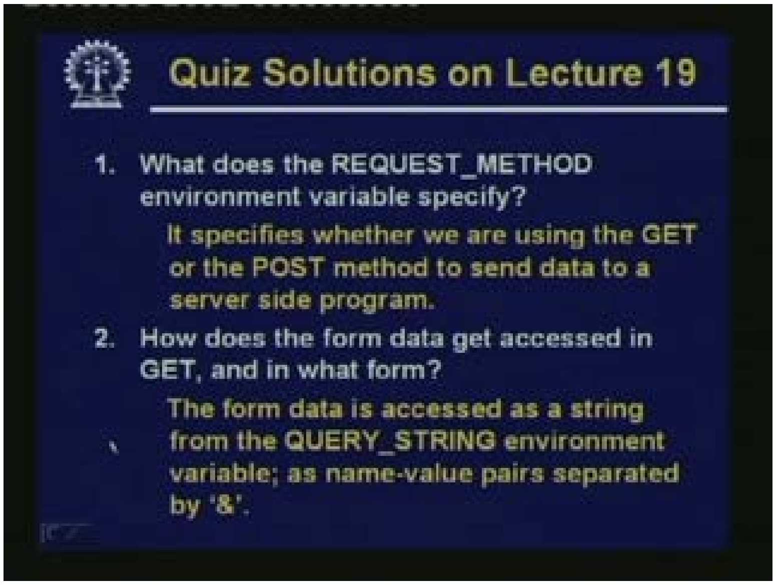
(Refer Slide Time: 51:07)



SOLUTIONS TO QUIZ QUESTIONS ON LECTURE 19

Let us look at the questions we had asked for our last lecture.

(Refer Slide Time: 51:13)



Quiz Solutions on Lecture 19

1. What does the REQUEST_METHOD environment variable specify?

   It specifies whether we are using the GET or the POST method to send data to a server side program.

2. How does the form data get accessed in GET, and in what form?

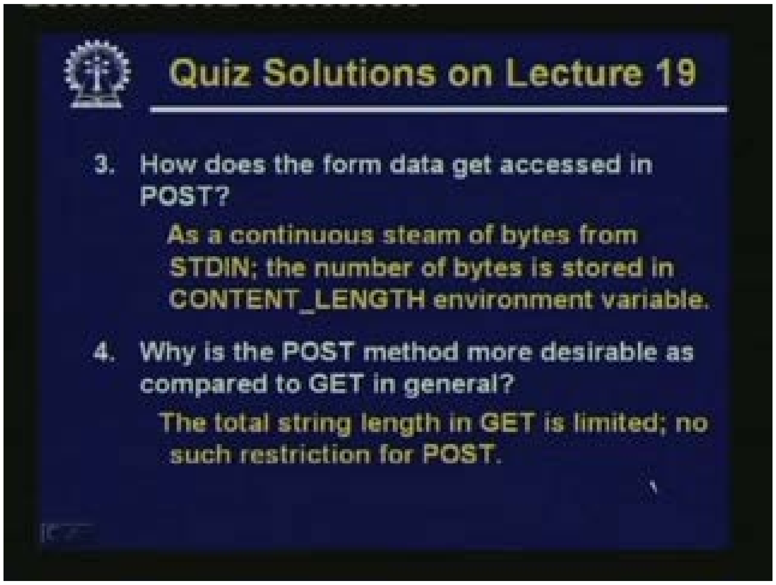
   The form data is accessed as a string from the QUERY_STRING environment variable; as name-value pairs separated by '&'.

This is the question.

What does the request method environment variable specify?
The answer would be it specifies whether we are using the GET or the method just to distinguish this we need this variable.

Second, how does the form data get accessed in get and in what form?
The form data is accessed as a string from the query string environment variable. And from here the values can be extracted as name and value pairs separated by ampersand like name equal to some value, then ampersand, some other name equal to value ampersand and so on. In this way, it will go on.

(Refer Slide Time: 52:01)



Quiz Solutions on Lecture 19

3. How does the form data get accessed in POST?

   As a continuous steam of bytes from STDIN; the number of bytes is stored in CONTENT_LENGTH environment variable.

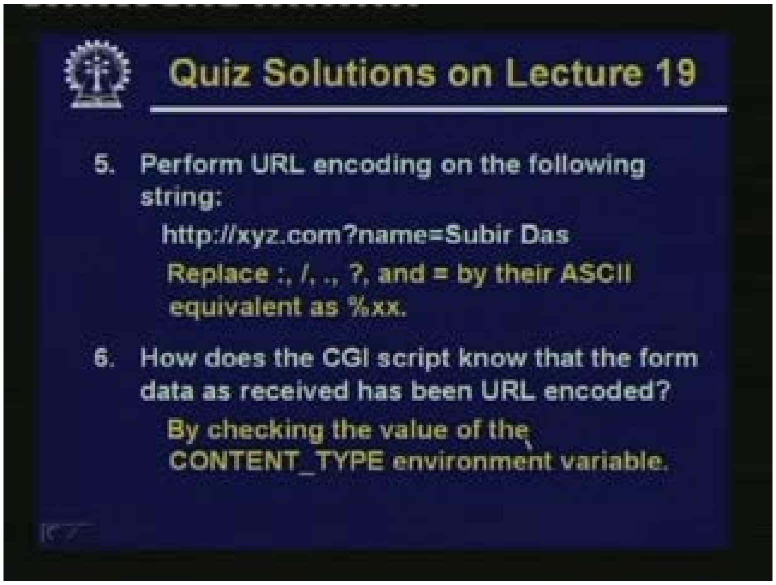
4. Why is the POST method more desirable as compared to GET in general?

   The total string length in GET is limited; no such restriction for POST.

How does the form data get accessed in POST?
As a continuous steam of bytes from standard input, the number of bytes is stored in content length environment variable.

Why is the POST method more desirable as compared to GET?
Because, in get the total name value pair is stored in a string and the total string length is typically limited. But in POST there is no such limitation.

(Refer Slide Time: 52:32)



Quiz Solutions on Lecture 19

5. Perform URL encoding on the following string:

   http://xyz.com?name=Subir Das

   Replace :, /, ., ?, and = by their ASCII equivalent as %xx.

6. How does the CGI script know that the form data as received has been URL encoded?

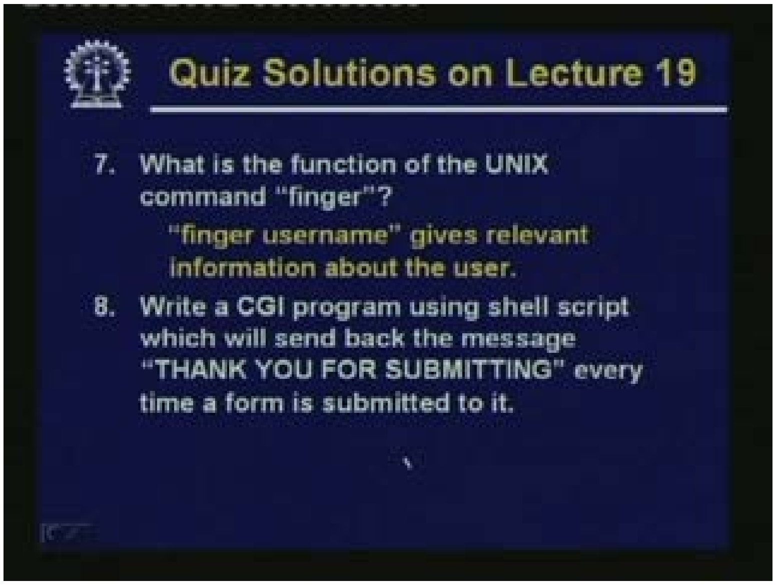
   By checking the value of the CONTENT_TYPE environment variable.

The fifth question was to perform URL encoding on the following string.

This was the string. Now all this special characters which are here colon slash dot question mark equal to they will all be replaced by their ASCII equivalence as percentage xx. So it will be http percentage the hex code of colon. Again percentage hex code of slash. Again percentage hex code of slash then xyz then percentage hex code of dot and so on. So you can just look up the ASCII table chart and you can replace the codes of all these symbols and whatever you get that is your, that will be your URL encoded string.

How does the CGI script know that the form data as received has been URL encoded ?
Just by checking the content type environment variable.

(Refer Slide Time: 53:29)



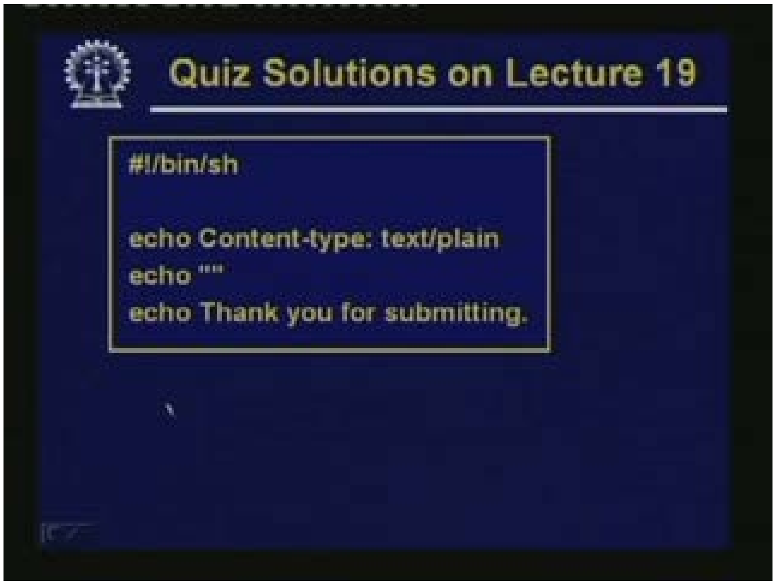
Quiz Solutions on Lecture 19

7. What is the function of the UNIX command "finger"?
   "finger username" gives relevant information about the user.
8. Write a CGI program using shell script which will send back the message "THANK YOU FOR SUBMITTING" every time a form is submitted to it.

What is the function of the UNIX command finger?
Finger is used with a parameter which is the user id or user name. If you run this on a UNIX machine it gives some relevant information about the user like what is the user's home directory? When the user was last logged on to the system? What is his or her full name the contact address any other message he or she has left and so on.

The last question was write a CGI program using shell script which will send back the message thank you for submitting every time a form is submitted.

(Refer Slide Time: 54:09)

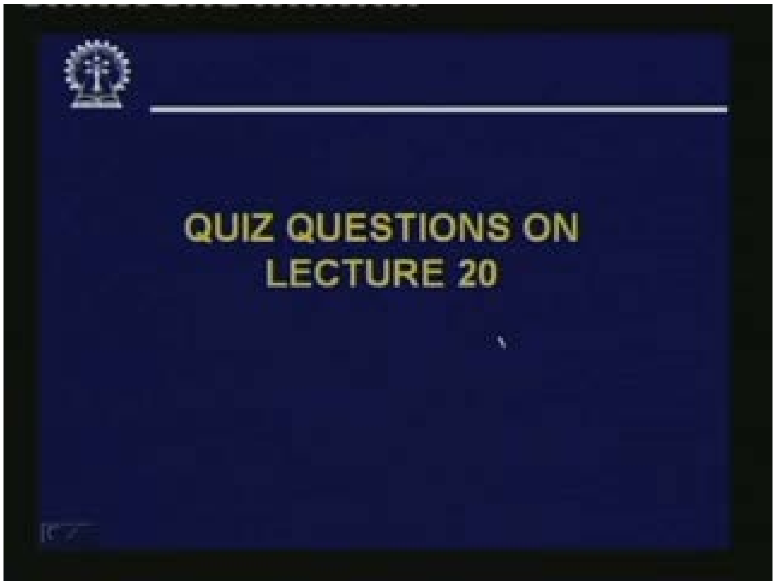


Quiz Solutions on Lecture 19

```
#!/bin/sh

echo Content-type: text/plain
echo ""
echo Thank you for submitting.
```

This is one is very simple. You write a shell script this one is the starting line. The first two lines tells you this, the mime encoded header that it is the plain text content type text plain. Just echo thank you for submitting. So whenever there is a form which is submitted and if the form points to this particular script. This script will wake up and execute and this particular string will be sent back. So this script does not try to read the form data at all. Whatever is input, will be straight away sent back.

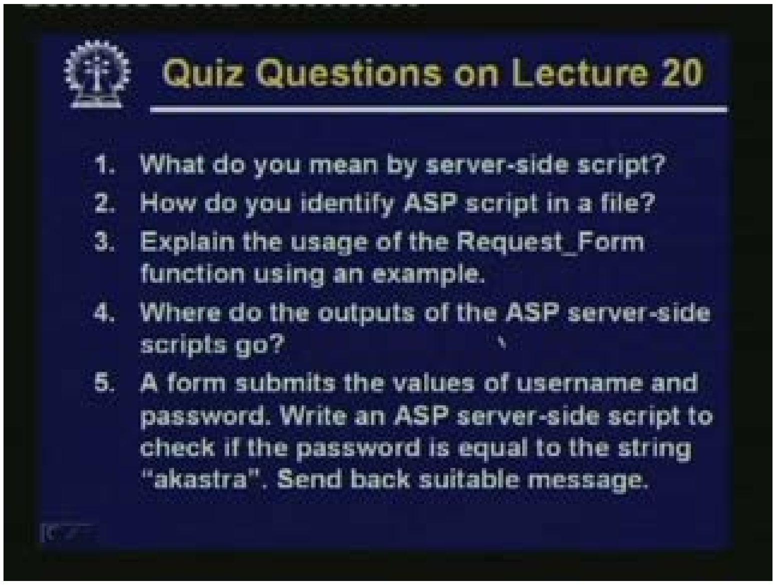
(Refer Slide Time: 54:44)



QUIZ QUESTIONS ON
LECTURE 20

So now the questions from today's lecture.

(Refer Slide Time: 54:46)

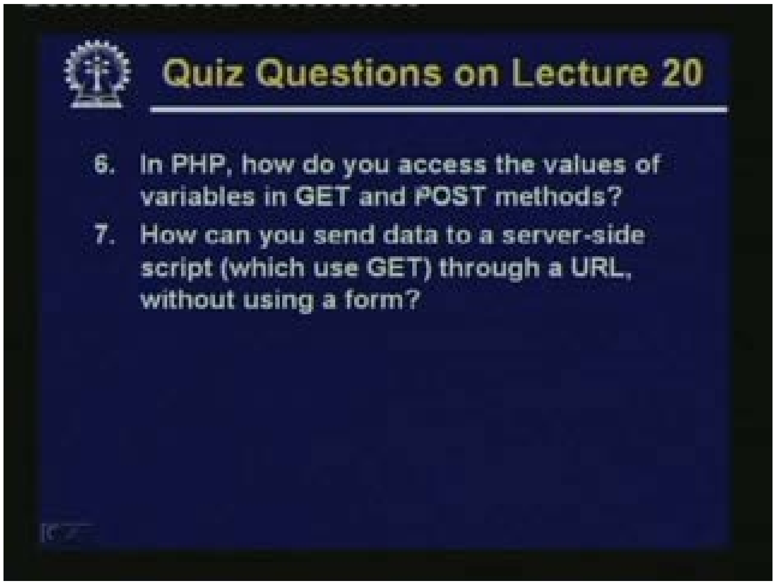


Quiz Questions on Lecture 20

1. What do you mean by server-side script?
2. How do you identify ASP script in a file?
3. Explain the usage of the Request_Form function using an example.
4. Where do the outputs of the ASP server-side scripts go?
5. A form submits the values of username and password. Write an ASP server-side script to check if the password is equal to the string "akastra". Send back suitable message.

What do you mean by server side script?
How do you identify ASP script in a file?
Explain the usage of the request form function using an example.
Where do the outputs of the ASP server side scripts go?
A form submits the values of username and password. Write an ASP server side script to check if the password is equal to the string akastra send back some suitable message. So this is a small segment of code look.

(Refer Slide Time: 55:24)



Quiz Questions on Lecture 20

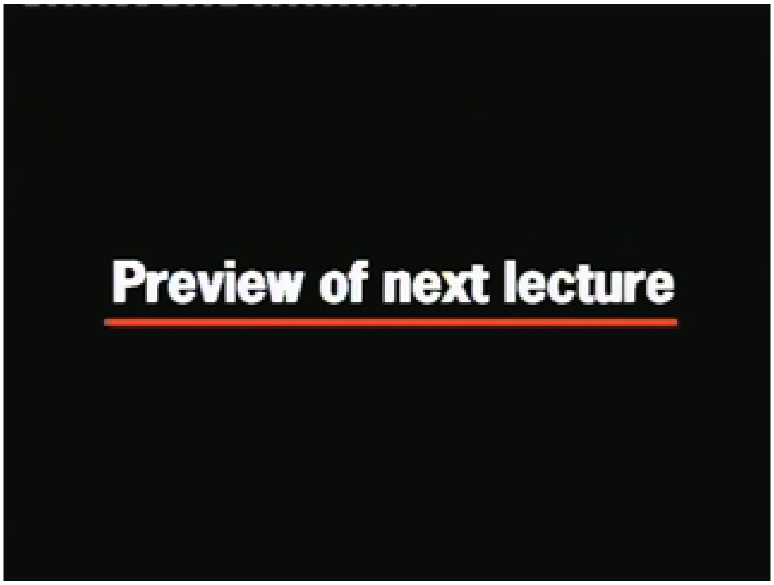
6. In PHP, how do you access the values of variables in GET and POST methods?
7. How can you send data to a server-side script (which use GET) through a URL, without using a form?

In PHP, how do you access the values of variables in GET and POST methods?

Seventh, how can you send data to a server side script which use get through a URL without using a form. Well this you can do if you know how the finally the URL is being sent to a web server. This we had talked in the class earlier.

So with this we come to the end of this particular module. In this module we had particularly covered the different tools and techniques for developing interactive web pages. Now in the next few lectures we shall be looking at one particular language which is extremely powerful and is used pretty widely in server side programming by serious programmers namely Perl. So we shall be starting the discussion on Perl from the next lecture. Thank you.

(Refer Slide Time: 56:31)



Preview of next lecture

(Refer Slide Time: 56:32)

Lecture # 21

PERL - Part I

Earlier we had seen or we have told or talked about that the language PERL is very important in the context of developing interactive web pages on the internet. So in the next few lectures would be looking at the various features and syntax and semantics of PERL language with particular emphasis on how you can use this language to develop interactive web pages to develop CGI scripts and the like.

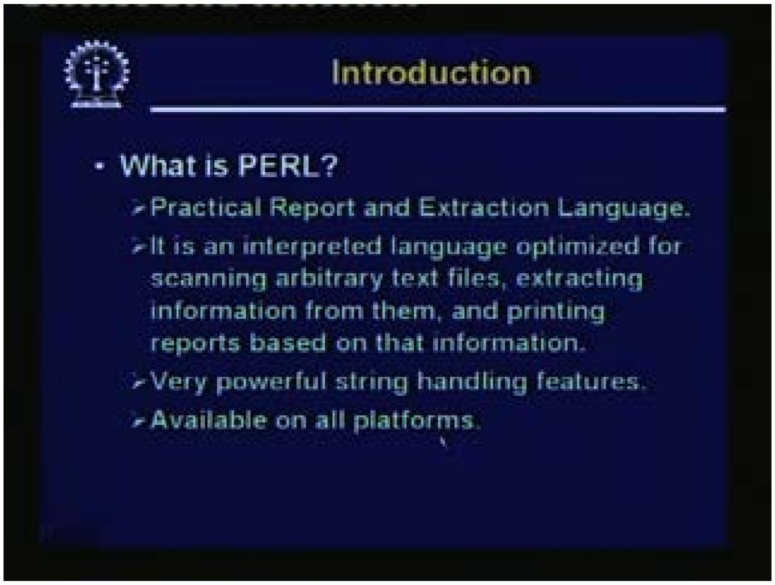
(Refer Slide Time: 57:11)

Indian Institute of Technology Kharagpur

PERL – Part I

Prof. Indranil Sen Gupta
Dept. of Computer Science & Engg.
I.I.T. Kharagpur, INDIA

(Refer Slide Time: 57:12)



Introduction

- What is PERL?
  - Practical Report and Extraction Language.
  - It is an interpreted language optimized for scanning arbitrary text files, extracting information from them, and printing reports based on that information.
  - Very powerful string handling features.
  - Available on all platforms.

So we start with some basic background about the language PERL. The PERL the full form of this acronym is Practical Report and Extraction Language. Now, PERL is an interpreted language. Interpreted language means that you do not have to compile a PERL program in to a machine code and then execute it. There are two ways you can run a program. The conventional way you write a program in C compile it in to an object code or machine code then execute the machine code. The second way is that the way languages like Java or PERL works or operates. You write the program in some language. Well of course in java we have to compile. In PERL we do not have to compile it at all. The program remains in the PERL’s source code form.

There is an interpreter program, PERL interpreter which takes the source program directly and executes the PERL code. This is how an interpreter works it takes the source code directly and statement by statement it tries to interpret and execute. And PERL is a language which has been optimized for scanning text files, extracting information from them and printing reports which are the main requirements and needs for web based applications. In particular you will see PERL has very powerful string handling features. String handling means string comparisons, string replacements and a number of other related features.