CHAPTER 5

Working With ASP.NET

Contents

1. Introduction to three-tier Client Server systems

- Basically three tier architecture means our project **divided into three main layers** or we can also say our project developed and maintained in to three separate layers.

1. Presentation Layer (UI – User Interface Layer)
2. Business Logic Layer (use for write logic code)
3. Data Access Layer (DAL use for connectivity with Database)

Cont..

1. Presentation Layers or User Interface Layer

- Presentation layer is a user interface layer where we can design our web page or windows page.
- .aspx page where we can make design with controls.

Cont..

2. **Business logic layer (BLL)**

- Business layer **is intermediate or middle** layer that communicate **presentation layer and Data access layer**.
- Business layer used to **validate user input** before calling method from the data layer.

Cont..

3. **3. Data Access Layer (DAL)**

- Data Access Layer used to make connection with database server.
- In data access layer we can write **database query, stored procedure for insert, update, delete, select operation on database.**
- This layer only communicate with **Business logic layer**.

2. Introducing Web Applications

- Key Points about Web Application.

1. **Web applications** are **executed on the server.**
2. Web applications are **stateless**:

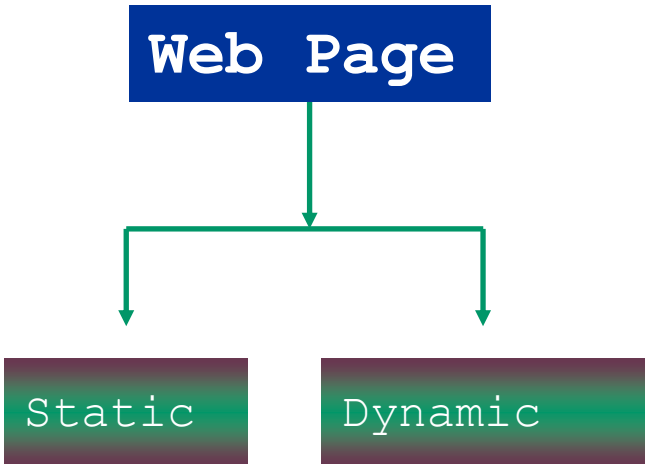
HTTP is a Stateless protocol

- A **stateless server** is a server that treats **each request as an independent transaction** that is unrelated to any previous request.

Advantage ?

Disadvantage ?

2. Introducing Web Applications

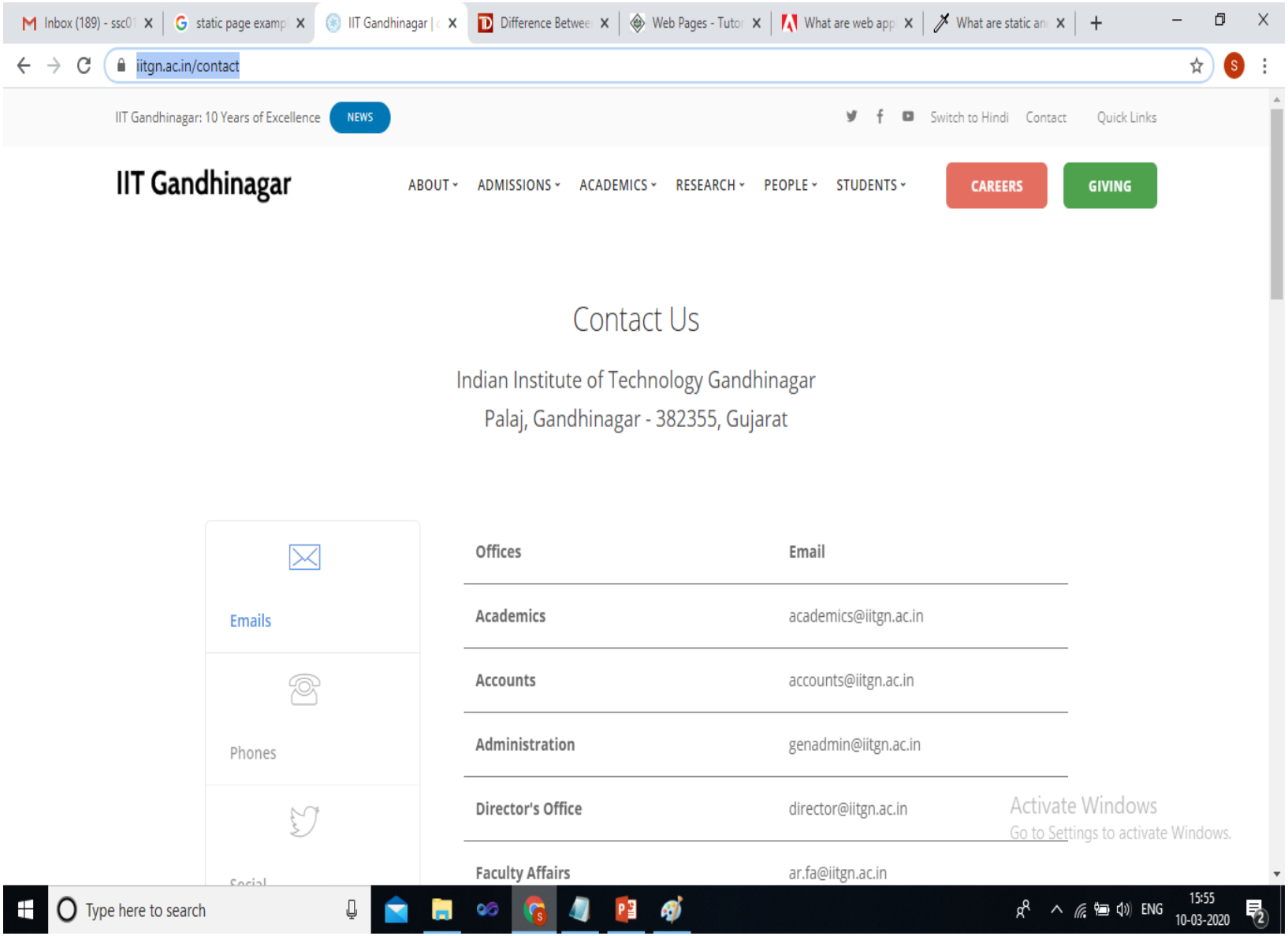


Static web page

- A static website is the most basic type of website and contains web pages with fixed content.

- Each page is coded in HTML and displays the same information to every user.

- **Examples of static web page** include about us page with a corporate website, mission, vision etc.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Accounts
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Administration
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Director's Office
director@iitgn.ac.in
Faculty Affairs
ar.fa@iitgn.ac.in
Activate Windows
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Type here to search
ENG
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Static Web Page

॥ विद्यया समाजोत्कर्षः ॥ | Engineering

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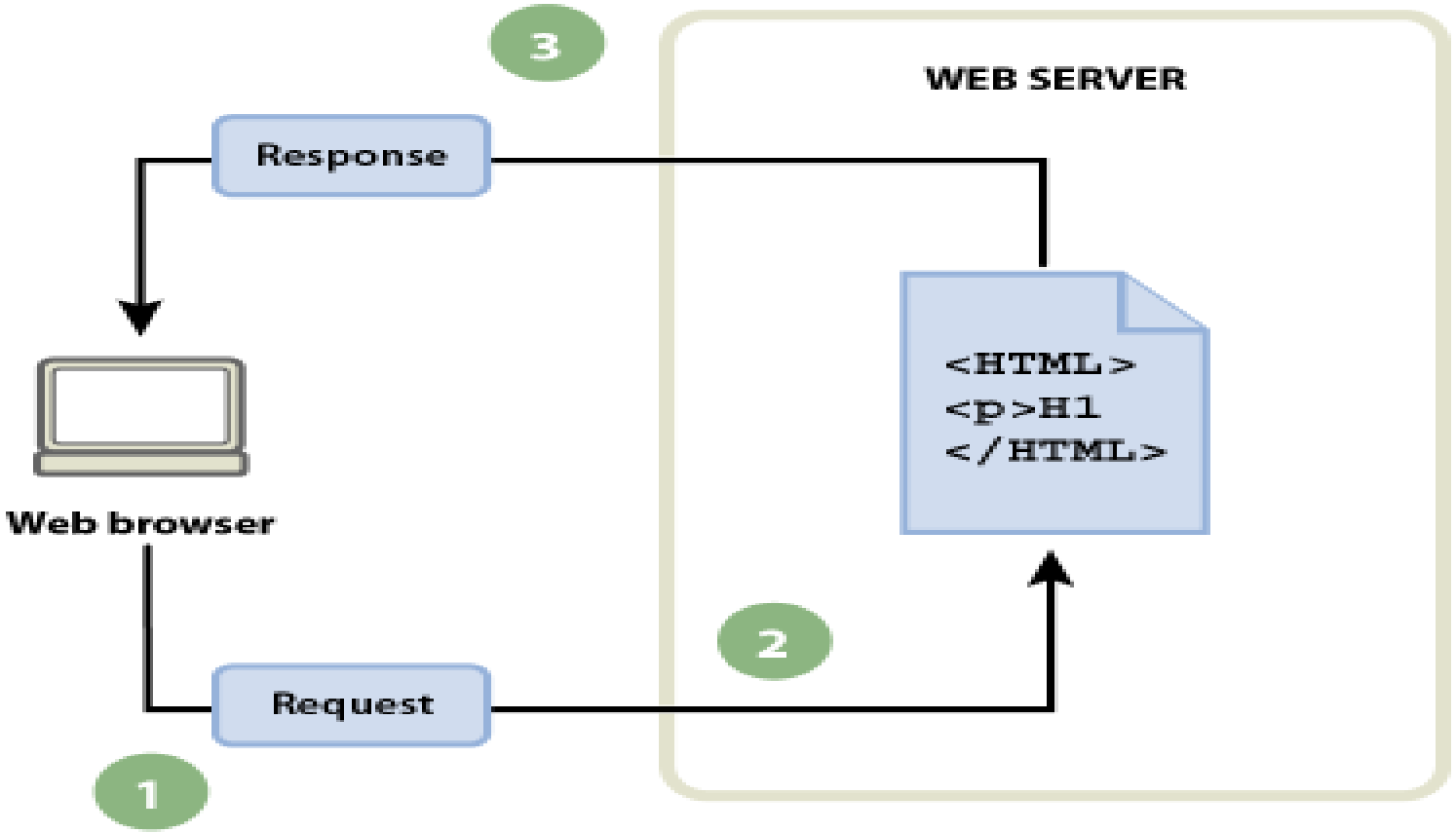
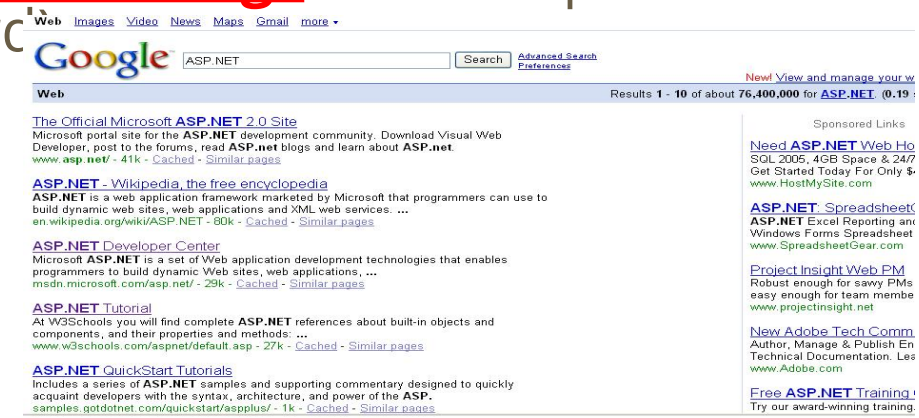
Example-A. Web browser requests static page. B. Web server finds page. C. Web server sends page to requesting browser



Dynamic web page

- A dynamic website contains information that **changes, depending on the viewer, geographical location, time of the day and other factors**.
- They utilize **databases** and other mechanisms that enable to
  - identify **their visitors**
  - present them with customized **Greeting(Welcome) messages**
  - **restructure the content according** to user input etc..(user/admin dashboard)
- Examples:
  - Online shopping stores,
  - search engines
  - Email,
  - social media
  - etc.

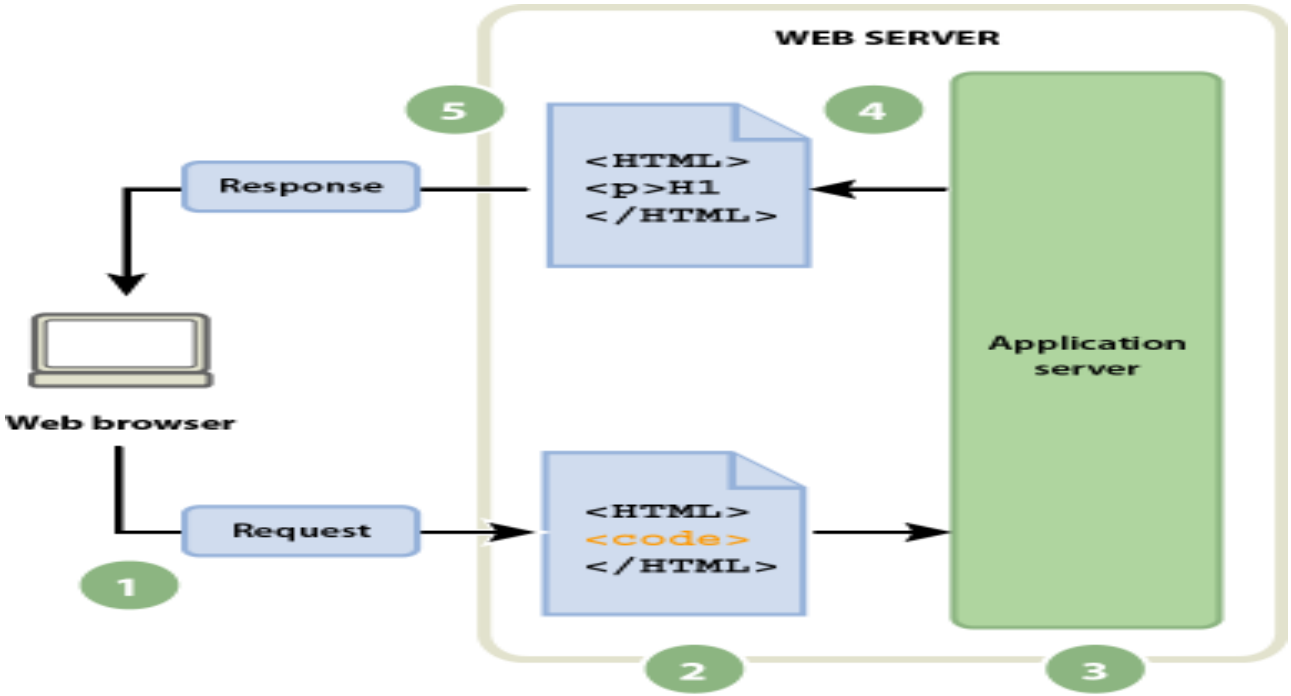


Dynamic web page

- Dynamic Web sites make use of **"server-side technology".**
- The web server will first
  - interpret the server-side code present in web pages,
  - generate the appropriate HTML and then
  - send the response to the web browser.

Example ?????

Example-A. Web browser requests dynamic page. B. Web server finds page and passes it to application server. C. Application server scans page for instructions and finishes page. D. Application server passes finished page back to web server E. Web server sends finished page to requesting browser



3. Introduction to ASP and ASP.NET

- ASP stands for Active Server Page. ASP was developed by Microsoft to allow programmers to create a dynamic website.
- It is the first server-side script engine and has now been superseded by ASP.NET. ASP is an HTML page that includes one or more scripts. Scripts are processed by an ASP interpreter on a web server by using input requested for a page to access data from a database before delivering it to the receiver.
- File Extension: .asp (for ASP)

Introduction to ASP and ASP.NET

- ASP.NET is part of the Microsoft .NET framework
- ASP.NET is an effective and flexible technology for creating **interactive and dynamic web Application.**
- It is a convergence of two major Microsoft technologies:
  - **Active Server Pages (ASP)**
    - Active Server Pages is Microsoft's server side scripting technology for building dynamic web pages.
  - **.NET Framework**
    - The .NET Framework is a suite of technologies designed by Microsoft where program development takes place.

Introduction to ASP and ASP.NET

- It is built on .NET **Common Language Runtime**
- ASP.NET :
  - Provides better **user authentication**
  - Has better language support. (C#,Visual Basic.Net,Jscript,J#)
  - Has **a large set of new controls**
- The ASP.NET pages(web Form) are saved with the **`.aspx` extension.**

ASP and ASP.NET

- **ASP** stands for **Active Server Pages**. It is a development framework used for building web pages. ASP was introduced in 1998 by Microsoft as its first server-side scripting language. The file extension of ASP pages are .asp and are normally written in VBScript.
- Example:

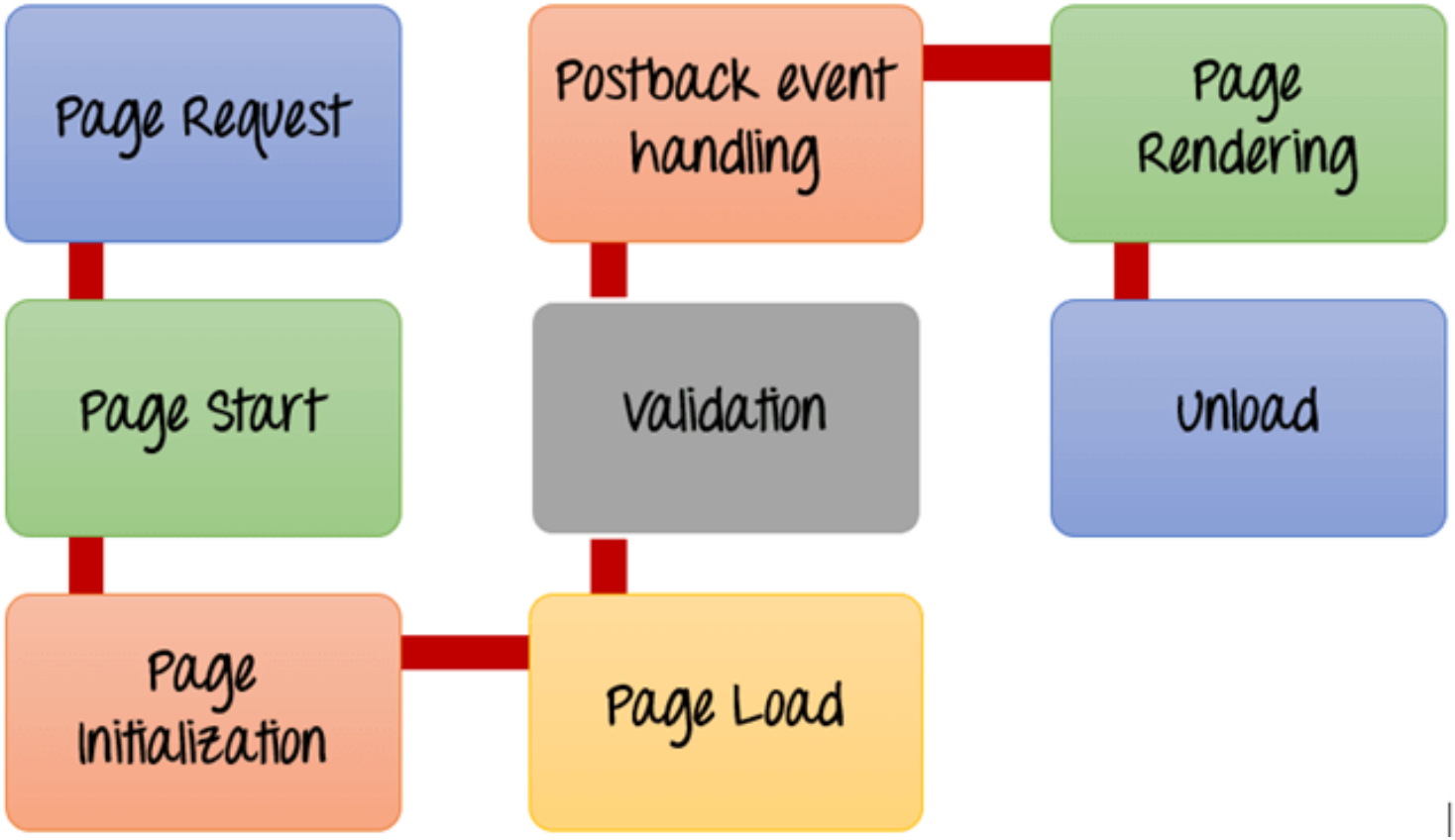
```
<!DOCTYPE html>
<html>


<body>
    <%response.write("Welcome to GeeksforGeeks!")%>
</body>


</html>
```

ASP and ASP.NET

- ASP.NET was released in 2002 by Microsoft as a successor to ASP. It is also a server-side web framework, open-source, which is designed for the generation of dynamic web pages. The file extension of ASP.NET pages is .aspx and is normally written in C# (C sharp).
- Example:

```
@{
    var rank = 50;
}
<html>
<body>
@if (rank < 60)
{
    <p>Welcome to GeeksforGeeks!</p>
}
</body>
</html>
```

4. ASP.NET Page Life Cycle



4. ASP.NET Page Life Cycle

1) Page Request

- This is when the page is first time requested **(browser-server)**.
- When the page is requested, **the server checks if it is requested for the first time. If so, then it compiles the page and generate output.**
- If it is not the first time the **page is requested, the cache is checked to see if the page output exists.** If so, then cached compiled output is taken.

2) Page Start

- During this time, 2 objects, known as the Request and Response object are created.
- **When a browser asks for a page from a server, it is called a request. The Request object is used to get information from a user.**
- **The ASP Response object is used to send output to the user from the server.**

4. ASP.NET Page Life Cycle

3) Page Initialization

- During this time**, all the controls on a web page is initialized.**
- So if you have any **label, textbox or any other controls on the web form**, they are all initialized.

4) Page Load

- This is **when the page is actually loaded** with all **the default values.**
- So **if a textbox is supposed to have a default value, that value is loaded during the page load time.**

5) Validation

Sometimes there can be some validation set on the form.

- For example, mobile no,email id, password

4. ASP.NET Page Life Cycle

6) Postback event handling

- This event is triggered **if the same page is being loaded again.**
- Sometimes there can be a situation that a user clicks on a **submit button on the page.** In this case, the **same page is displayed again**. In such a case, the **Postback event handle is called.**

7) Page Rendering

- This happens **just before all the response information is sent to the user from server.**
- Rendering is the phase **where the response from server(in form of HTML)sent to the browser**.

4. ASP.NET Page Life Cycle

8) Unload

- **Once the page output is sent to the user**, there is no need to keep the **ASP.net web form objects** in memory.
- So the **unloading process involves removing all unwanted objects from memory.**