Two types of web applications:
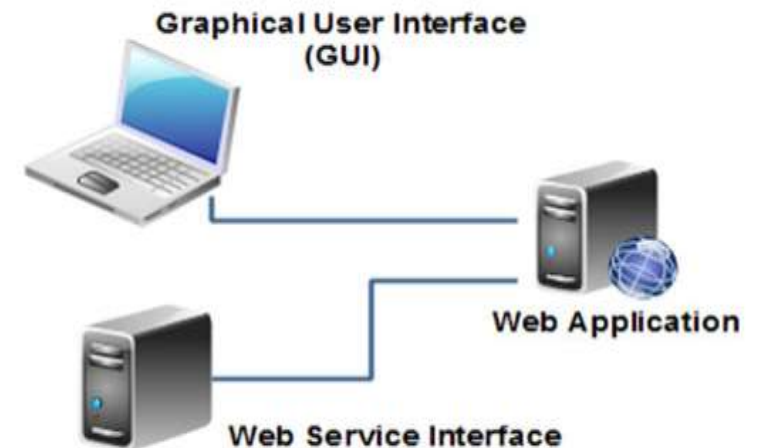
1. **Presentation-oriented (HTML pages)**

- Any application which resides on a server, and mainly **used b**y human **using web browser**.

- All user interactivity is done through **web pages**.

- Client enters information while the **server stores** and retrieves information.

- It uses a **web browser as a client**

- Web applications commonly use a **combination** of server-side script (ASP, PHP, etc) and client-side script

- They usually present data in **HTML which looks nice** to the user

- Web application is for Users and it outputs that can be **easily understood by the browser**

Web services

- Server-based application which may be accessed over the web via HTTP, but is meant primarily for **interaction with other programs**.

- Generally it is **Web API** for other applications.

- They are for **machine/program to machine/program** communication

- They present data in **XML** which easy to parse by other applications

- A Web service is a **collection of methods** which are made available by the web service creator for use by other applications

- It returns **XML or JSON** or something like that, something that is easily decoded by a program

- The results got from a web service is **typically not** just shown to a person in **its raw form** since it isn't HTML, the results have to be reformatted.

Web applications & services

- A web application could use **multiple web services** to get end result
- Web services are meant to be *used* by **other applications**
- Web applications are accessed **by users** mainly by a web browser
- Services are mostly just APIs that can be accessed over a network
- The application is the car. Web services are like the car engine
- An example of a web **service** would be one which **validates credit card numbers**. Hence, another web a**pplication** might make **use of that web service through calling its methods**

Graphical User Interface
(GUI)

Web Application

Web Service Interface

Website development

- Languages used
- PHP,ASP,JSP,C#,PERL,PYTHON,RUBY are used at backend
- Java Script and Flash at front end

3 tier architecture

- A **Presentation** layer using **Browser technology**

- An **Application** layer using a web application **server platform + application** programs

- A **Persistence** layer using a **relational database** or other data store technology

Scripting languages

- Scripting languages allows control of **one or more software applications**

- A high-level programming language that is **interpreted** by another program **at runtime rather than compiled** by the computer's processor as other programming languages

- Scripting languages, which can be **embedded within HTML**, commonly are used to **add functionality** to a Web page

- Server side

- **client-side** , **affects the data** the end user see in a **browser window**

Why PHP is popular for website development

- **Easy to start with:** The user just have to add a few PHP-tags in it's existing HTML-file with mix of HTML, JavaScript and PHP,
- **Associative arrays** makes it also easier to start using PHP.
- **Easy to use:** Compared to most solutions like e.g. Java, PHP **doesn't need to be compiled**.
- **Integrated database support**: **no additional drivers** needs to be installed, just to use the mysql-functions. The easy to use web based admin tool **PHPMyAdmin** (released 1998) is also important to the PHP's success in combination with MySQL.
- **Cheap hosting** and works good on both **Linux and Windows,**

- PHP is derived from C,Java which is free
- Less time to learn and create websites

- Word press is one of the best tool

- Word Press is open source **blogging tool(comments,multiple users** and a CMS(Do from a central interface) based on PHP and MySQL.
- Word press has various plugins, themes
- If your site is very **different than a blog,** the amount of code that you would reuse from WordPress would be much less when compared to the whole project size.

(Hypertext Preprocessor) history

- Created in 1994 by Rasmus Lerdorf, the very first incarnation of PHP was a simple set of **Common Gateway Interface (CG**I) binaries written in the C programming language.

- Originally used for tracking visits to his online resume, he named the suite of scripts "**Personal Home Page Tools,**" more frequently referenced as "PHP Tools.

- A new model was capable of database interaction and more, providing a framework upon which users could **develop simple**

dynamic web applications such **as guestbook.**

- In June of **1995**, Rasmus **released the source code for PHP Tools** to the public, which allowed developers to use it as they saw fit.

- From a technical view-point, the **web** is a highly programmable environment that allows **mass Customization.**

- through the immediate deployment of a large and diverse range of applications, to millions of global users.

- The **Web** is a collection of documents that are interconnected by hyper-links.

- **Two** important components of a modern website are:

1. **Web browsers:** a s/w application for retrieving, presenting and traversing information resources on World Wide Web.

Ex-Netscape(discontinued in 2009), Mozilla Firefox,Internet explorer,Google chrome ,Safari etc

2. Web application is any application that uses a web browser as a client .

- It is a computer software application that is coded in a browser-supported programming language , combined with a browser-rendered markup language

- It uses a common web browser to render the application executable on client machine.

Markup languages

1.HTML:is based on standard called as **SGML**(Standard Generalized Markup Language).

❑The Language of Web Pages on the World Wide Web

❑tells the Web browser how to display a Web page's text, images, sound and video files for the user

❑HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>), within the web page content.

❑It is for presentation of data and predefined tags are used in it

Some tags

- **<HEAD>...</HEAD>--** contains information about the document

- **<TITLE>...</TITLE>--** puts text on the browser's title bar.

- H1> </H1> <P> ,
,<B>,<UL>, <li> ,<OL>, <IMG SRC> , <A href>

```html
<HTML>
<HEAD>
<TITLE>Your Title Here</TITLE>
</HEAD>
<BODY >
<CENTER><IMG SRC="untitled.jpg"> </CENTER>
<a href="http://google.com">Link Name</a>
<H1>This is a Header</H1> <br>
<table> <tr>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<td>row 2, cell 1</td>
<td>row 2, cell 2</td>
</tr>
</table>
<P> <B><I>This is a new paragraph!</B></I>
<HR>
</BODY>
</HTML>
```
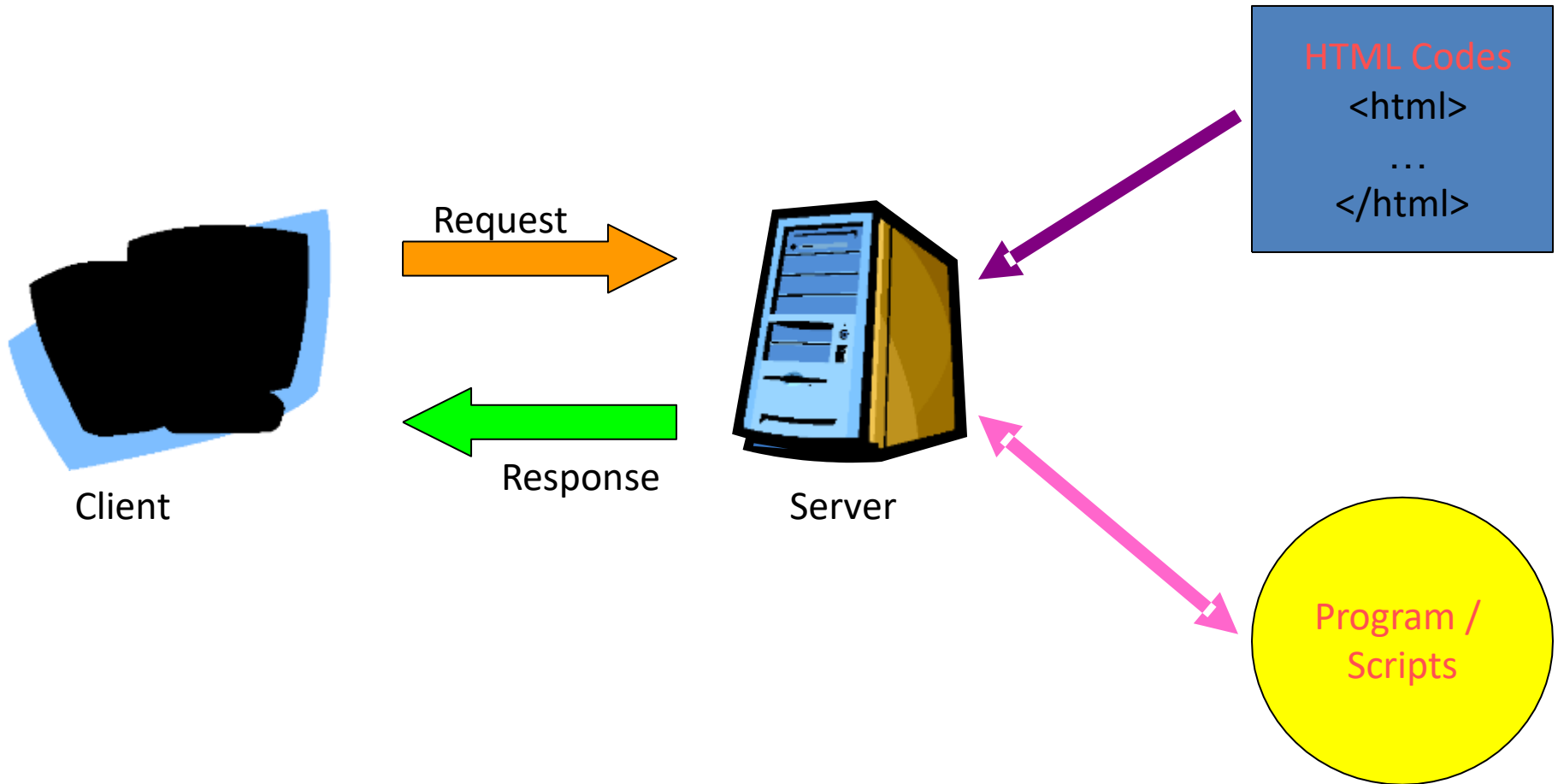
HTTP

Hypertext Transfer Protocol

❑ is an application protocol for **distributed, collaborative, hypermedia** information systems.

❑ HTTP defines how messages are **formatted and transmitted**, and what actions Web servers and browsers should take in response to various commands.

❑ HTTP is the **foundation** of data communication for the World Wide Web.

❑ HTTP is a **stateless protocol**. A stateless protocol does not require the HTTP server to retain information or status about each user for the duration of multiple requests

The HTTP Request/Response Model

Client

Request

Response

Server

HTML Codes
<html>
…
</html>

Program /
Scripts

Web Scripting Languages

➢ Web scripting languages **add computation and content manipulation** capabilities to the browser environment.

➢ It converts the dull content into **lively and interactive experiences.**

➢ The **demand** for **producing dynamic web content** is now expanding rapidly and new scripting languages are developed to allow users with **little programming expertise** to develop interactive web pages with minimum effort

➢ ECMA Script:is widely used for **client-side** scripting on the web. The language is widely in the form of several well-known dialects such as **JavaScript, Jscript,Visual Basic** etc.

Server side scripting	Client side scripting
The Web Server executes the server side scripting that **produce html code** for your browser to read	The Web Browser executes the client side scripting that resides at the user's computer and execute specific **local tasks**
It is used **when** the users browser makes a **request to the server**	It is used when the users browser a**lready** has all the code and the page is **altered on the basis of the users input**
Server executes server-side scripts to send out a page but it **does not execute client-side** script	The browser receives the page sent by the **server and executes the client-side scripts**
Server side scripting **create dynamic pages** on the fly ,can access the file system, settings of server, manipulate the database, residing at the web server	it **can not**, on its own, store information to a file or update databases.
It can do so by **using with not using** additional PHP code, and obtain files of information from other domains.	To do so requires **the cooperation** of other software running on the server where the file/database is located.
They **run** only **during page load**. Once the page is loaded, no more script can run.	It starts only when the **page is received.**
It is used mostly **website developing**.	It is used to **add interactivity** to HTML pages(local functions and validation etc)

Server side scripting	Client side scripting
The code remains **hidden from users**, and browser independent	It can be seen by using **see page source**
Response from a server-side script is **slower.**	Its response is fast
It **can't** be blocked by the user	It can be **blocked** by the user
Interact with permanent storage (SQL, files)	Interact with temporary and local storage
After you've typed a search phrase into the search bar, when you click the "**Search Google" button** or enter, you've now triggered a server-side interaction.	When you **rollover a link** in the navigation bar at the top and its display changes, you've just triggered the most **basic client-side interaction**

Server side, you decide which **platforms, operating systems, languages,** frameworks, and libraries will be used to produce the **same output** regardless of the client's browser, or other system details	They require that the user's **web browser understands the scripting languag**e in which they are written
Examples :PHP, JSP, ASP, ASP.Net, Ruby, Perl etc.	Ex- Javascript, VB script, etc

A Combination Of Both

- It is possible to conduct a **server-side interaction without reloading** the browser window.

- This requires a combination of both server-side and client-side interactions.

- we can send requests to a server, and then load those results into the client browser without a page reload

- An example of this on the Google homepage is the **suggested search phrases** that change as you start typing.

- **Flash-based checkout process**: Information the user enters (such as delivery and billing addresses, credit card details, etc.) can be stored and validated client-side.

- Once the required information has been completed a connection is established to the server and the order sent for processing

Web technology revolves around

- **CSS = Style:** Font size, font color, font type, styling around images, page layout etc
- **HTML = Content:** put images, text, videos, forms and other pieces of content together into a cohesive webpage
- **PHP = Functionality:** makes your website **do stuff.** Language for web applications
- **XML=standard format** what will the back side or front side will have