

Session: 1

Introduction to the Web

For Aptech Centre Use Only

Objectives

- Explain the evolution of HTML
- Explain the page structure used by HTML
- List the drawbacks in HTML 4 XHTML
- List the new features of HTML5
- Explain CSS
- Explain JavaScript
- Explain jQuery
- Explain browser support for HTML5

Introduction

Hypertext Markup Language was introduced in 1990.

HTML5 was recommended as a standard by W3C in 1997.

HTML5 is the next version and will be the new standard.

Majority of the browsers support HTML5 element and Application Programming Interface (API).

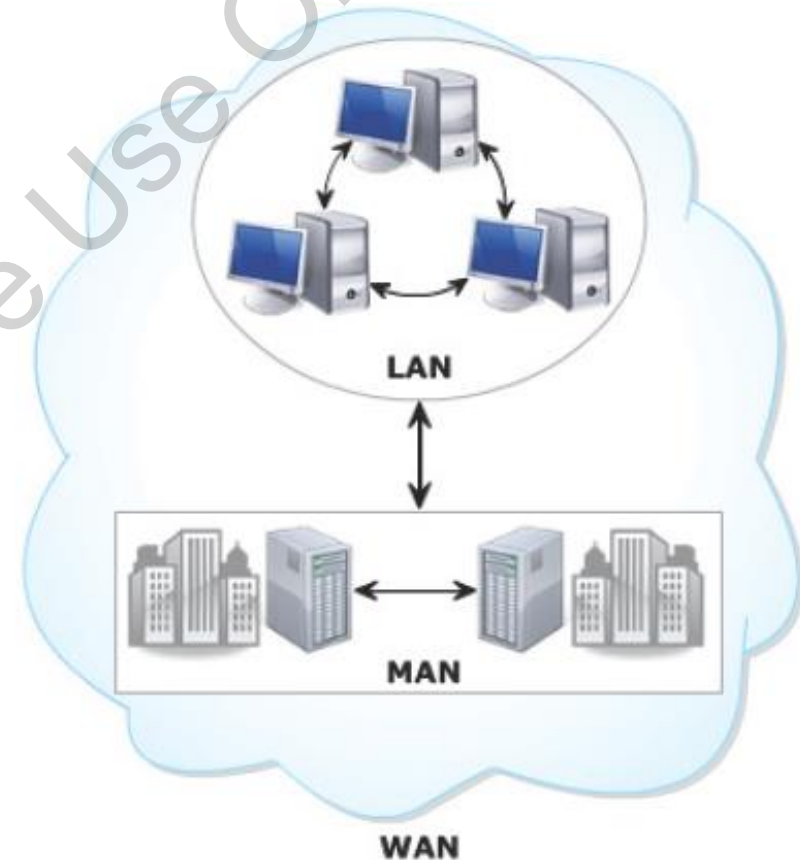
Evolution of Computing 1-2

Computing started by using stand-alone computers to perform different computing operations.

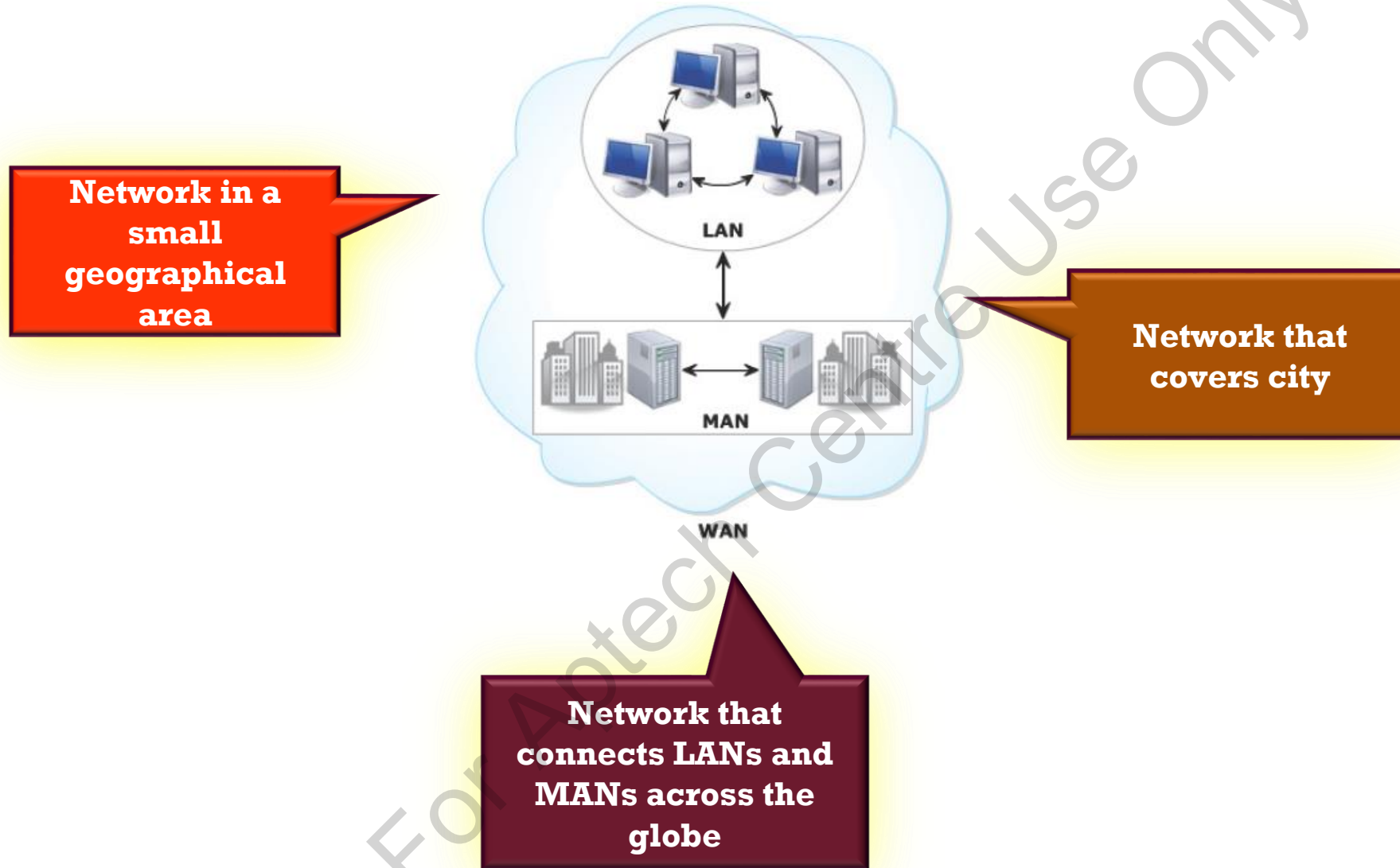
Later organizations began to connect their computers to share data.

Different types of networks are as follows:

- Local Area Network (LAN)
- Metropolitan Area Network (MAN)
- Wide Area Network (WAN)



Evolution of Computing 2-2



Web and Internet 1-2

WAN raised the need to share data across the globe rather than within an organization.

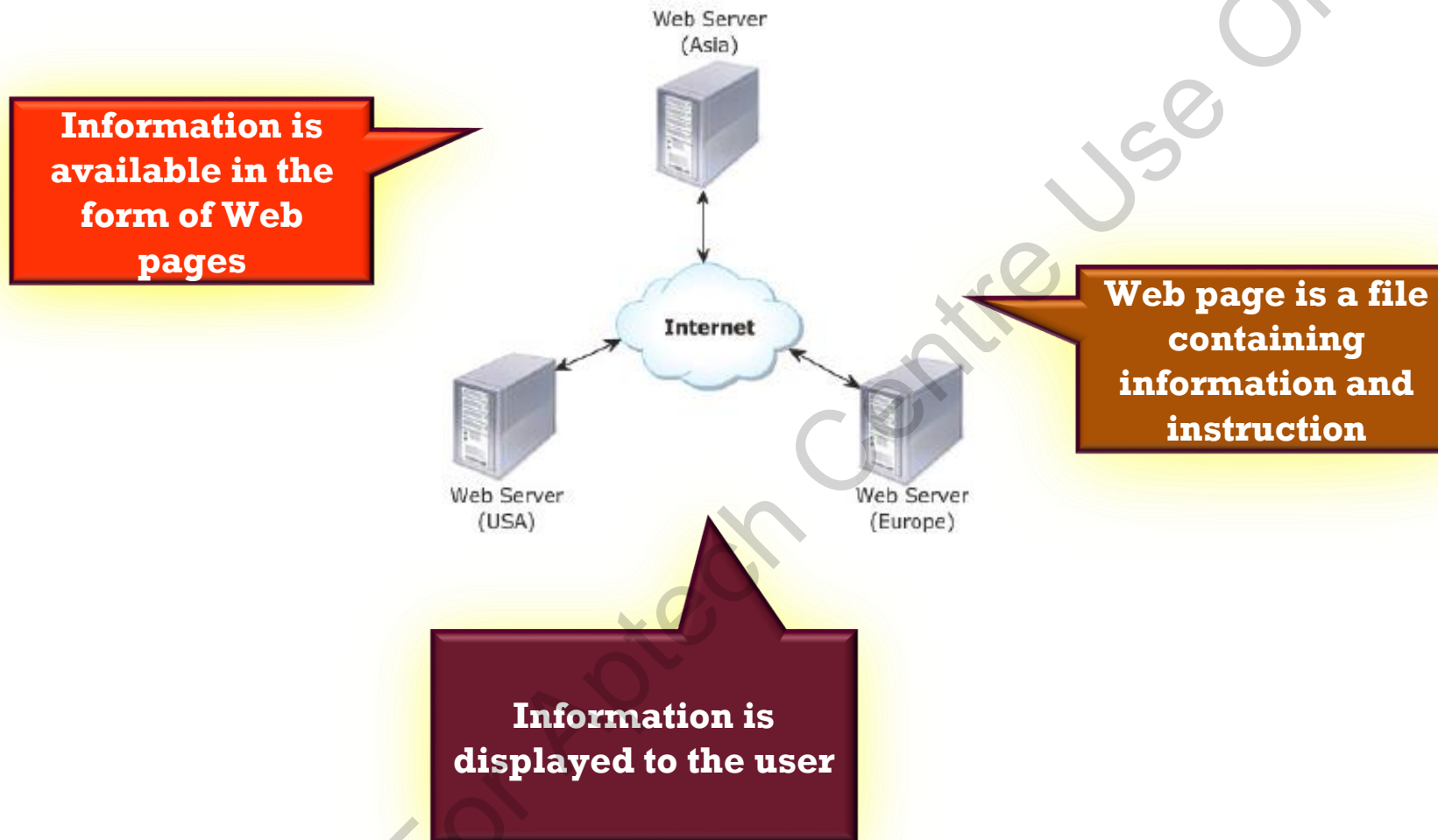
This resulted in the evolution of Web also known as World Wide Web (WWW).

Internet is known as the largest WAN.

Web is a way to access information using Internet.

Multiple computers are connected to each other irrespective of geographical locations.

Web and Internet 2-2



Web Communication 1-2

Web pages are stored on a Web server to make them available on the Internet for the users.

Web server is a computer with high processing speed and connected to the Internet.

Web server is used to host and display the Web pages on a Web browser.

Web browser displays the Web pages using the HTTP protocol.

HTTP is a protocol that specifies how a Web page will be retrieved from the Web server.

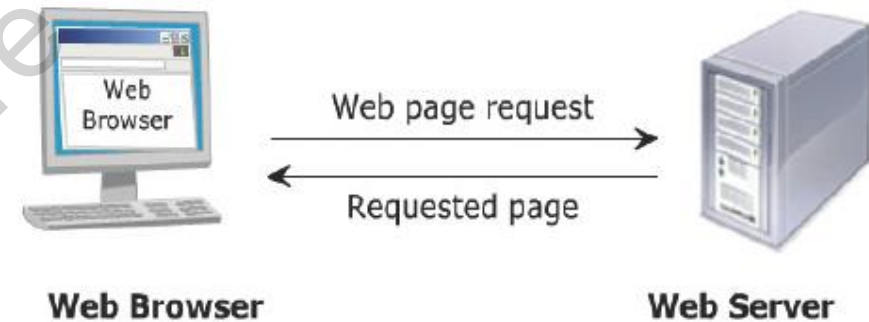
Web Communication 2-2

- Steps to view a Web page in a browser:

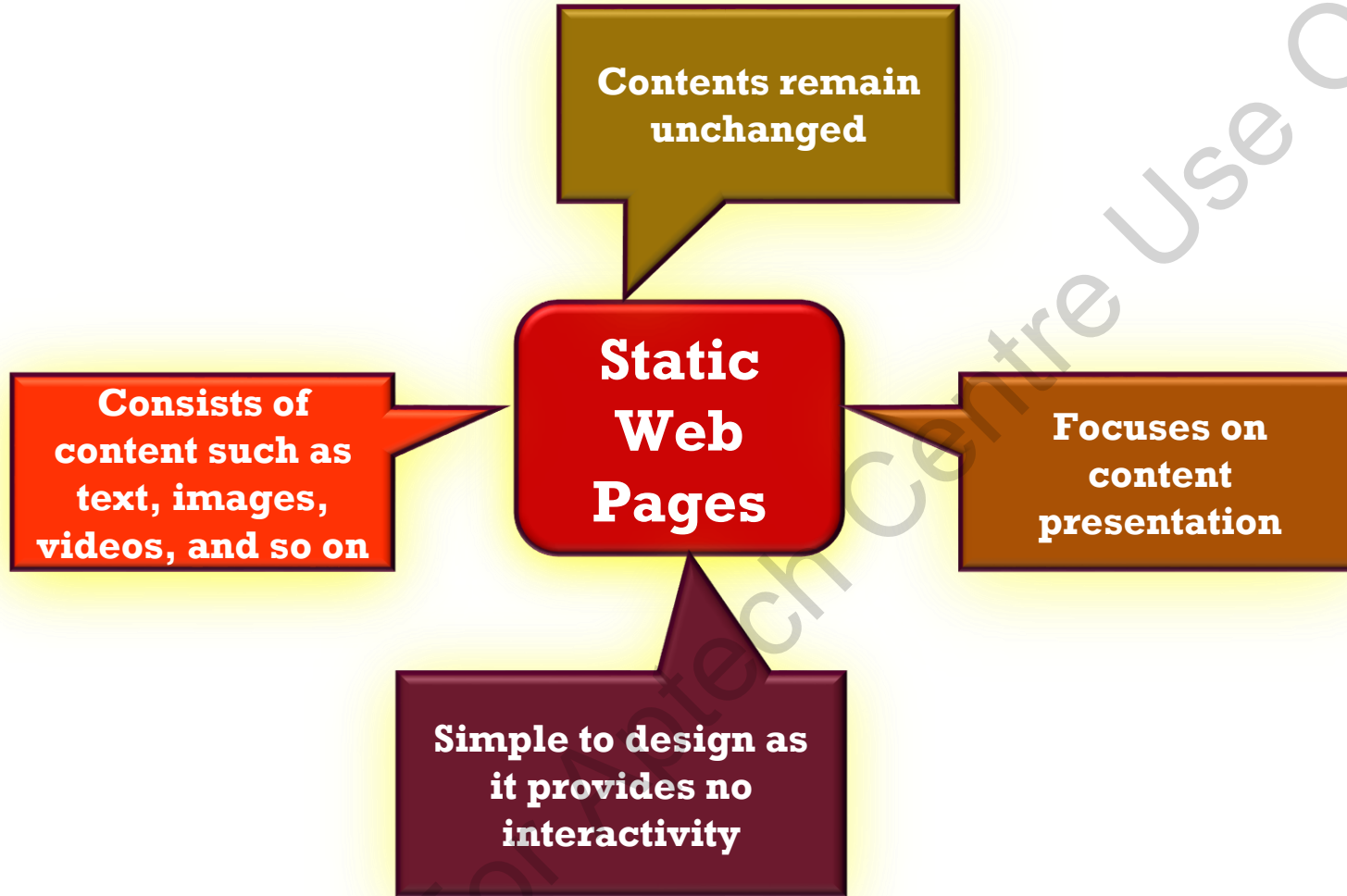
1. User specifies Uniform Resource Locator (URL) of Web page in a browser.

2. The client browser sends URL request to appropriate Web server.

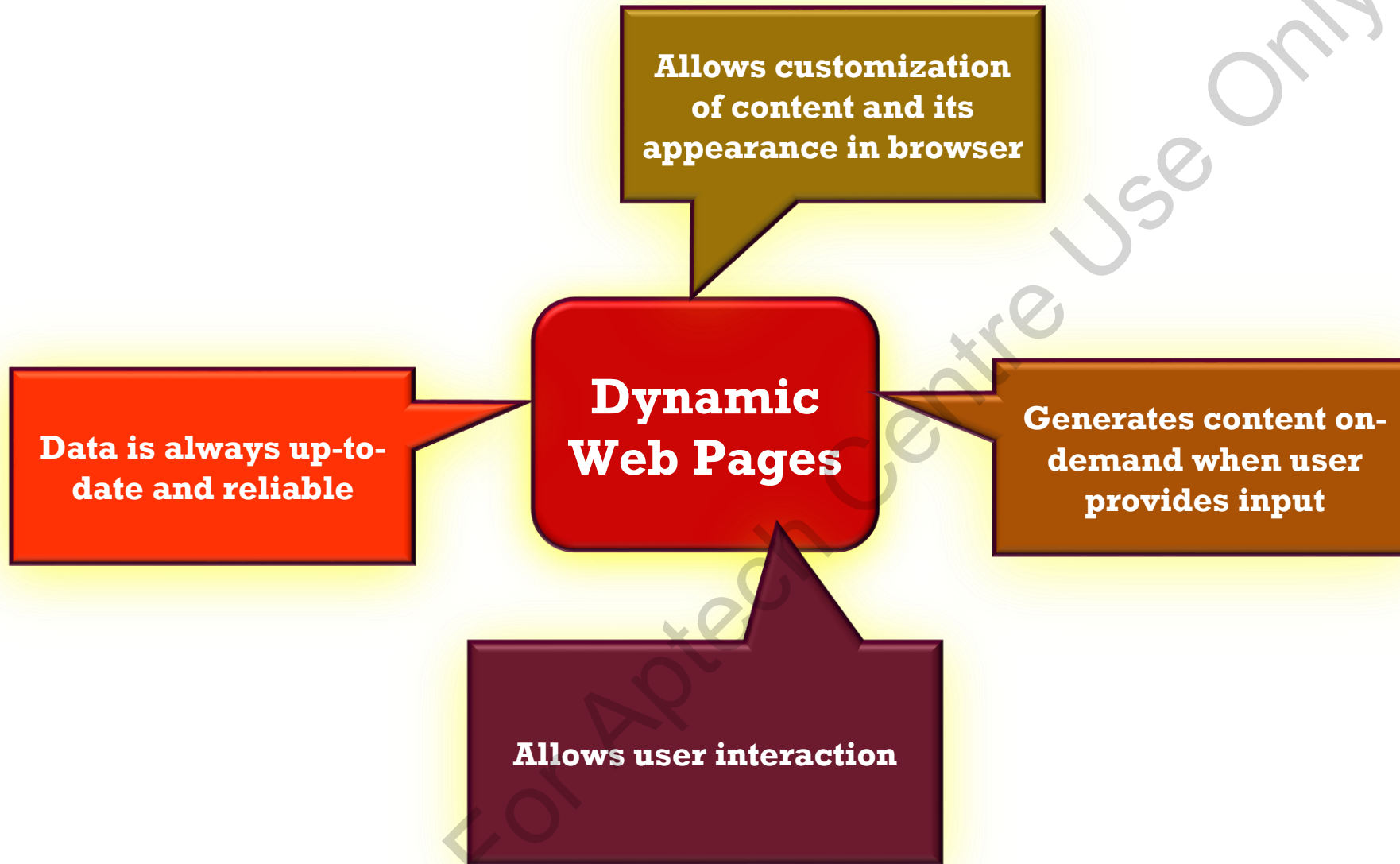
3. Web server processes request and sends Web page as a response to the browser.



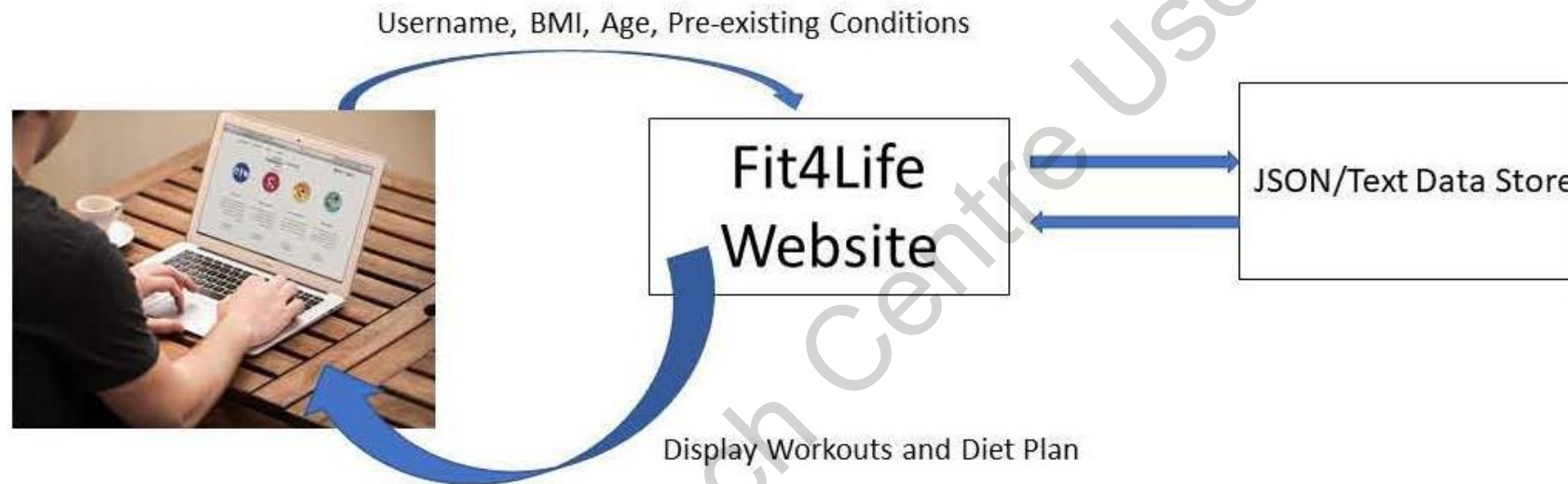
Static Web Pages



Dynamic Web Pages 1-2



Dynamic Web Pages 2-2



Example: Fitness Website dynamically displays workouts and diet plan after user enters required details

Technologies

- **Technologies used for creating dynamic Websites:**

JavaScript, a scripting language, is used for creating dynamic Web pages.

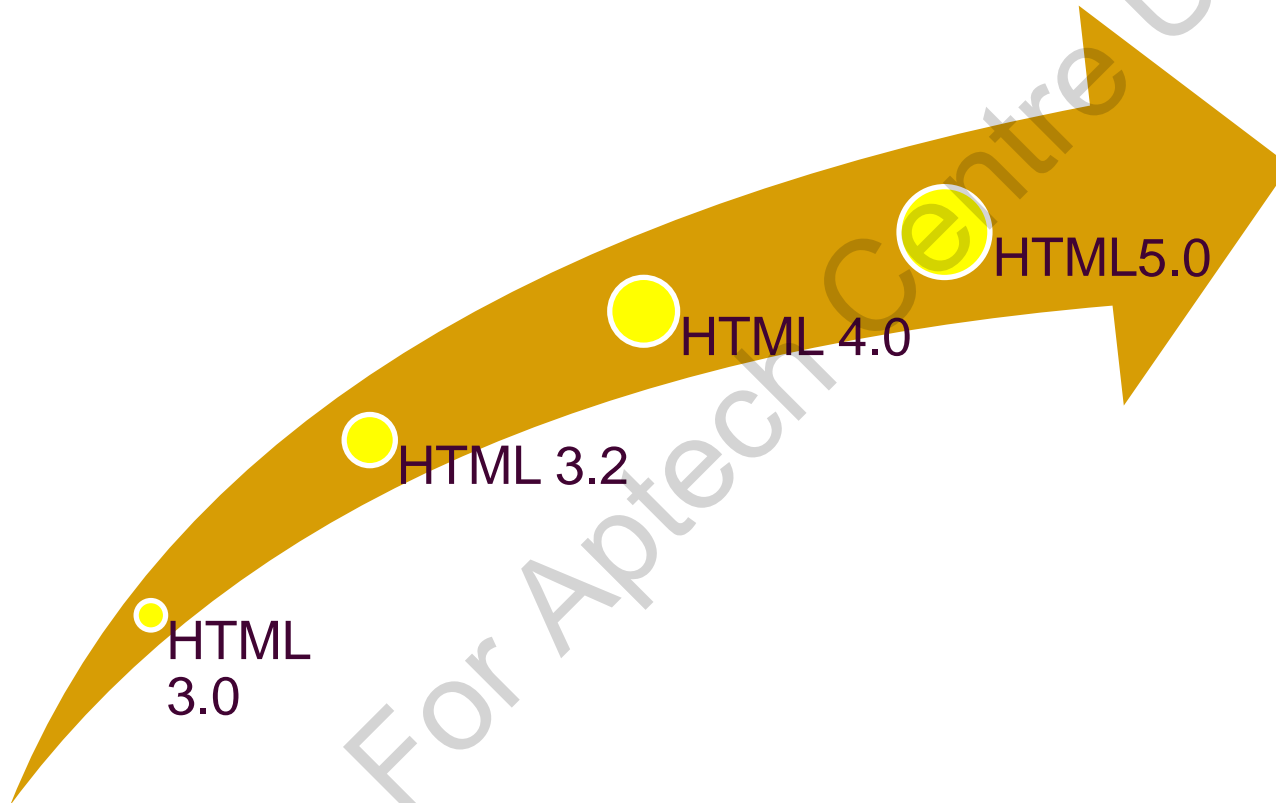
CSS specifies the formatting of a Web page for both static and dynamic Web pages.

Extensible HTML when used with JavaScript, displays the required user-defined data each time the Web page is loaded in the browser.

Dynamic HTML uses JavaScript and CSS to make dynamic Web pages and transform the look and feel of the Web pages.

History 1-2

- HTML has evolved over the years with the introduction of improved set of standards and specifications.



History 2-2

- Basic rules for HTML5 are as follows:

Introduction to new features should be based on HTML, CSS, DOM, and JavaScript.

More markup to be used to replace scripting.

Must be device independent.

Need for external plug-in to be reduced.

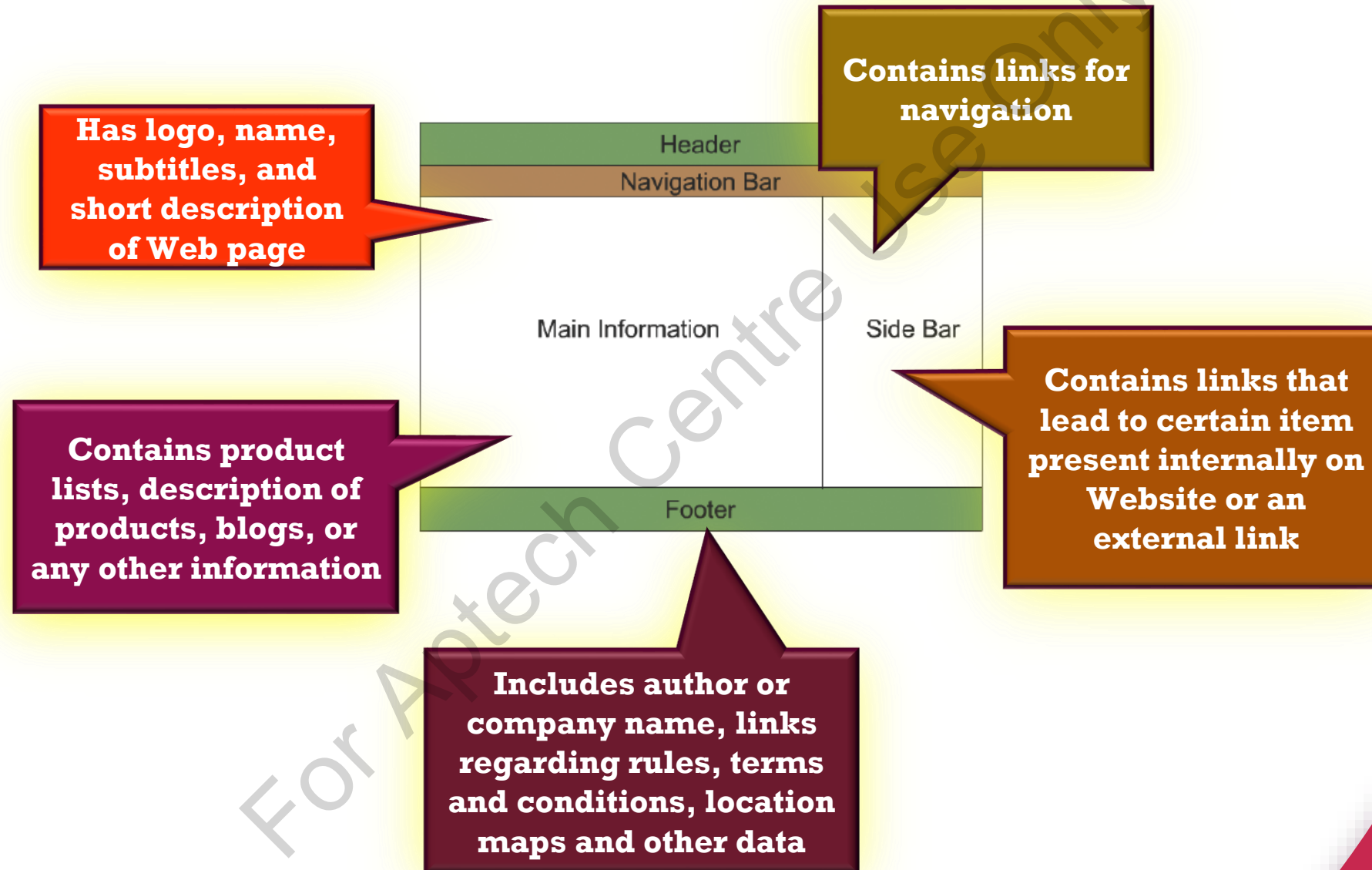
Better error handling capabilities.

Better visibility to public the development process.

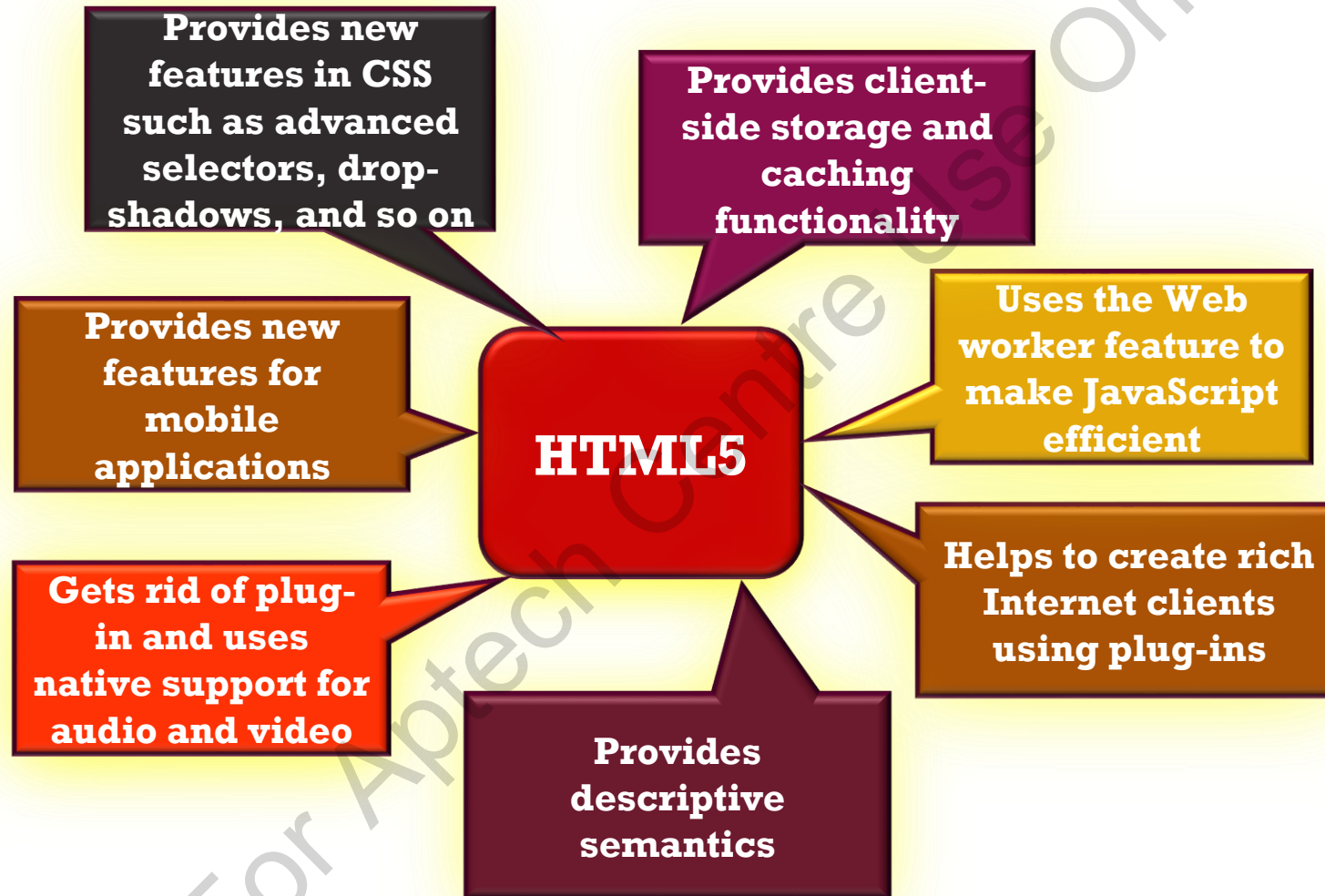
Layout of a Page in HTML5 1-2

- HTML5 contains a head section containing the unseen elements and the body section containing the visible elements of the document.
- Earlier HTML provided different tags to build and organize the content in the body of the document.
- The <table> tag was an element often used to present the data in an organized manner.
- The <div> tag was another element used to display contents such as images, links, text, menus, forms, and so on.
- HTML5 includes new elements that identify and organize each part of the document body.

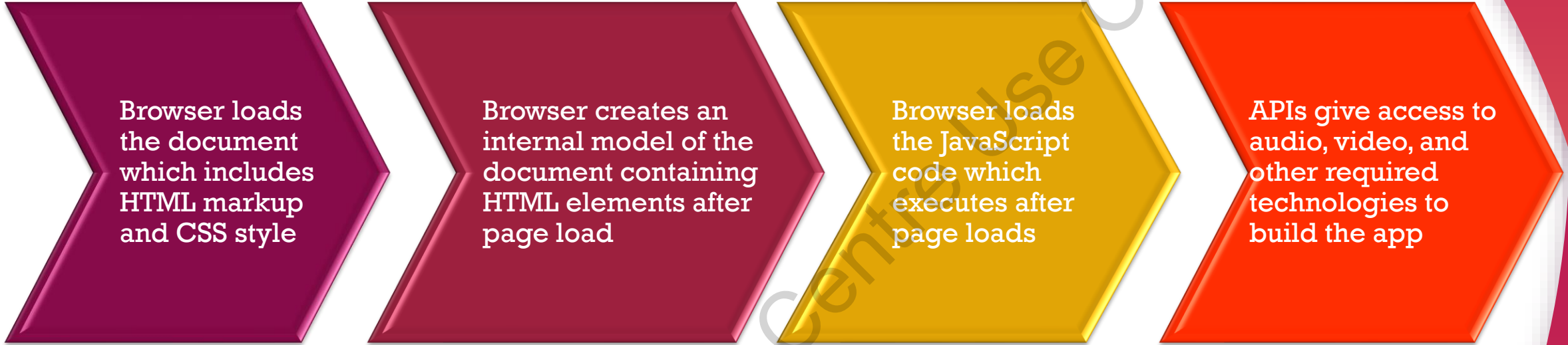
Layout of a Page in HTML5 2-2



New and Flexible Approach of HTML5



Working of HTML5



Browser loads the document which includes HTML markup and CSS style

Browser creates an internal model of the document containing HTML elements after page load

Browser loads the JavaScript code which executes after page loads

APIs give access to audio, video, and other required technologies to build the app

New Features of HTML5

Features of HTML5

Web workers API is added to support background process without affecting the main process

Web sockets API provides continuous connection between a server and a client

New form controls

`<audio>` and `<video>` element available for media playback

Content specific elements helps to structure the document

Provides local storage support

`<canvas>` element used for drawing

Cascading Style Sheets (CSS)



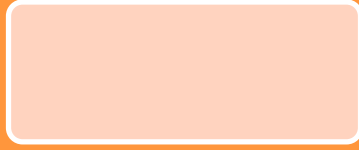
Works along with HTML to provide visual styles to document elements.



Is a rule based language that specifies the formatting instructions for content in an HTML document.



Purpose is to separate content from its formatting.



Can define the layout and formatting of content in a separate file with a .css extension.



Allows rules from different .css files to be merged or edited.

- This task of combining and matching rules from different files is referred to as **cascading**.

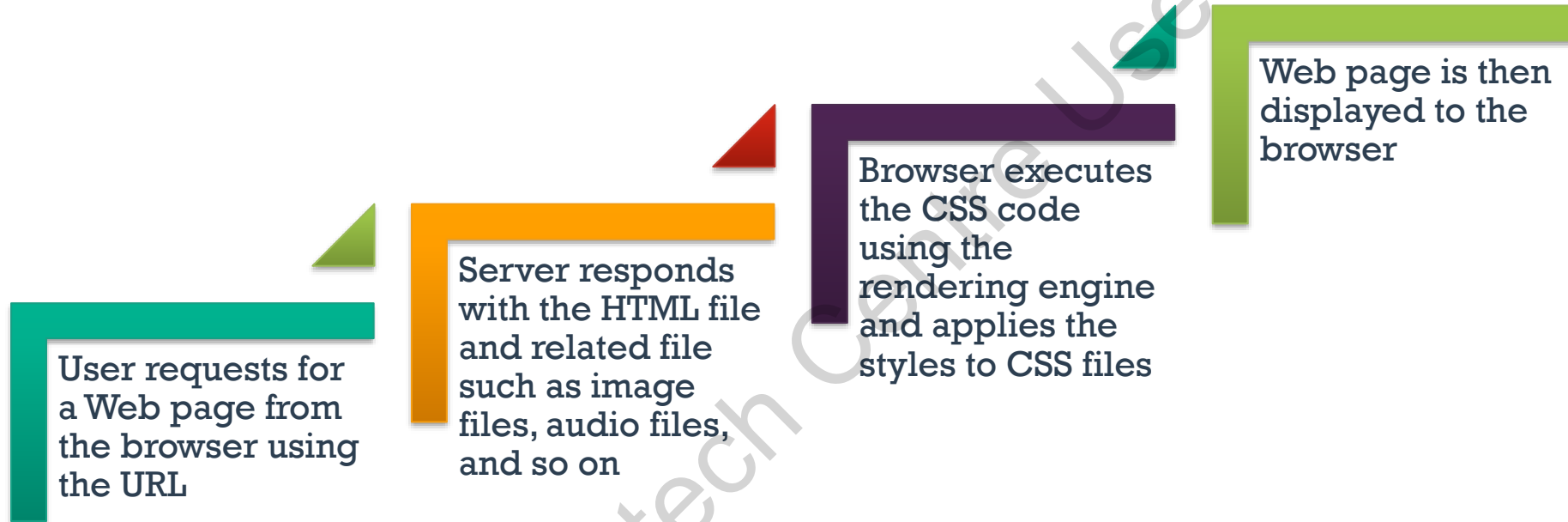
Benefits of CSS

Code Re-usability

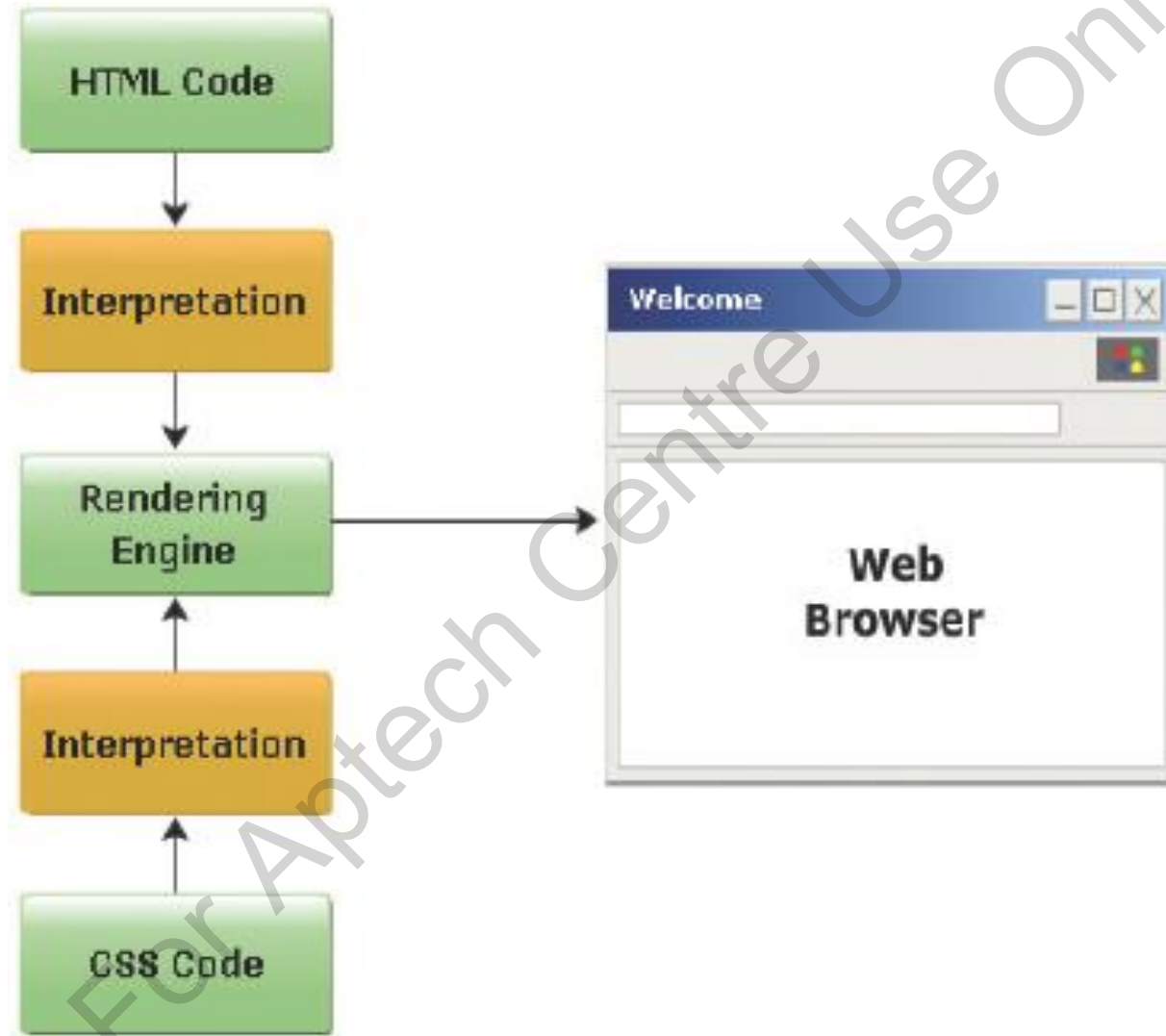
**Device
Independence**

Less HTML code

Working of CSS 1-2



Working of CSS 2-2



JavaScript 1-2

Functionality of JavaScript

Allows a user to create 2D drawable surface in your page without using plug-ins.

Use Web Workers to turbo charge the JavaScript code to perform advanced computation.

Accesses any Web service and brings back the data to the application in real time.

Does not require any special plug-ins to play video.

Allows to create own playback controls using JavaScript and HTML.

Uses browser local storage and does not require browser cookies.

Can perform full video processing in the browser.

JavaScript 2-2

Functionality of JavaScript

Helps Web designer to insert code snippets into the HTML page without the need for in-depth programming knowledge.

Can be used to execute events on certain user actions.

Can manipulate HTML elements using JavaScript.

Can collect browser information of a Website visitor.

jQuery

Is a JavaScript library supported on multiple browsers.

Simplifies the designing of client-side scripting on HTML pages.

Library is based on modular approach that allows creation of powerful and dynamic Web applications.

Features of jQuery

- Easy to understand syntax that helps to navigate the document.

- Event handling.

- Advanced effects and animation.

- Develop AJAX-based Web applications.

Summary

- ❖ HTML5 is cooperative project between World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).
- ❖ New features of HTML5 would include tags such as `<canvas>`, `<article>`, `<nav>`, `<header>`, `<footer>`, `<section>`, `<audio>`, `<video>` and so on.
- ❖ Some of the technologies used for creating dynamic Websites JavaScript, CSS, XHTML, and DHTML.
- ❖ A Cascading Style Sheet (CSS) is a rule based language, which specifies the formatting instructions for the content specified in an HTML page.
- ❖ JavaScript is a scripting language that allows you to build dynamic Web pages by ensuring maximum user interactivity.
- ❖ jQuery is a JavaScript library that simplifies the design of client-side scripting on HTML pages.