

# *Full stack web development*

**Course Code: TCS 693**

***Instructor: Dr. Ashwini Kumar Singh***

## **Unit 1:**

### ***HTML***

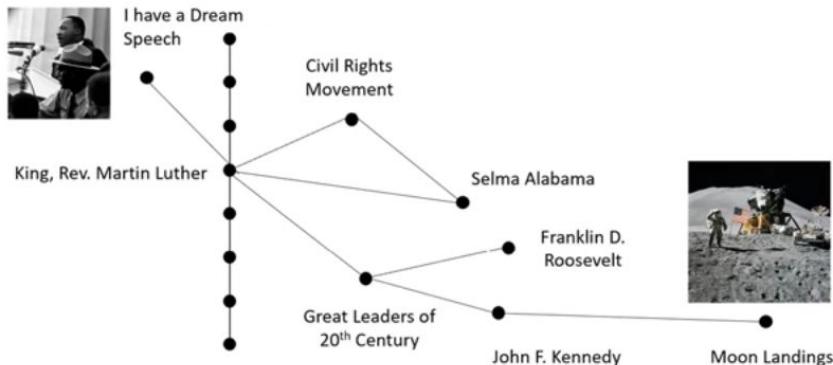
*Basics of HTML, formatting and fonts, commenting code, color, hyperlink, lists, tables, images, forms, XHTML, Meta tags, Character entities, frames and frame sets, Browser architecture and Web site structure. Overview and features of HTML5.*

### ***CSS***

*Need for CSS, introduction to CSS, basic syntax and structure, using CSS, type of CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, Introduction to Bootstrap.*

# Introduction to HTML

## “Origins of the Web”

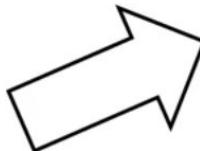


**Internet**



**World Wide Web**

**Hypertext**



Stanford

# Presentation of Information



The Book

Stanford

# Presentation of Information



## Replacement for Books

Vannevar Bush  
“As We May Think” 1945

Ted Nelson  
Hypertext and Hypermedia 1963

Microsoft Encarta 1993-2009

World Wide Web 1989  
Tim Berners-Lee, KBE

Stanford

# **Presentation of Information**



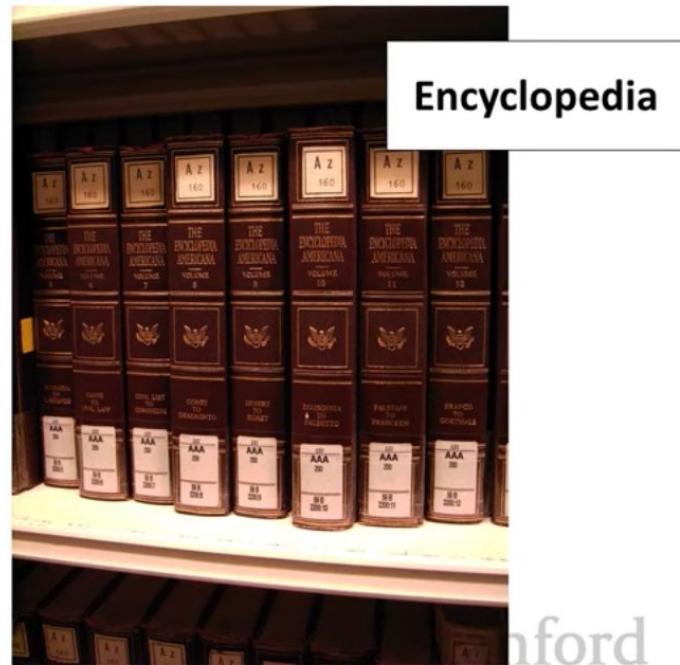
**The Book**

Information is Sequential

Stanford

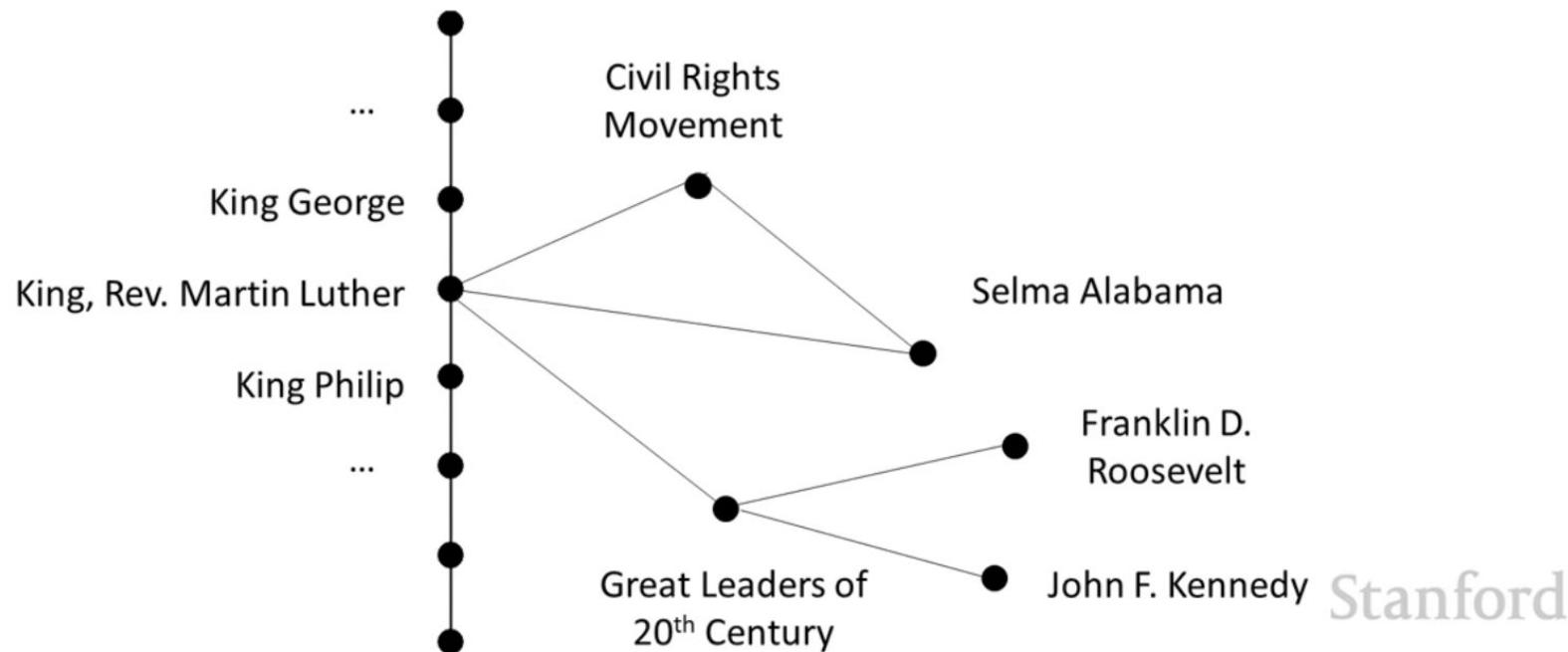
# Presentation of Information

- ...
- King George
- King, Rev. Martin Luther
- King Philip
- ...
- 

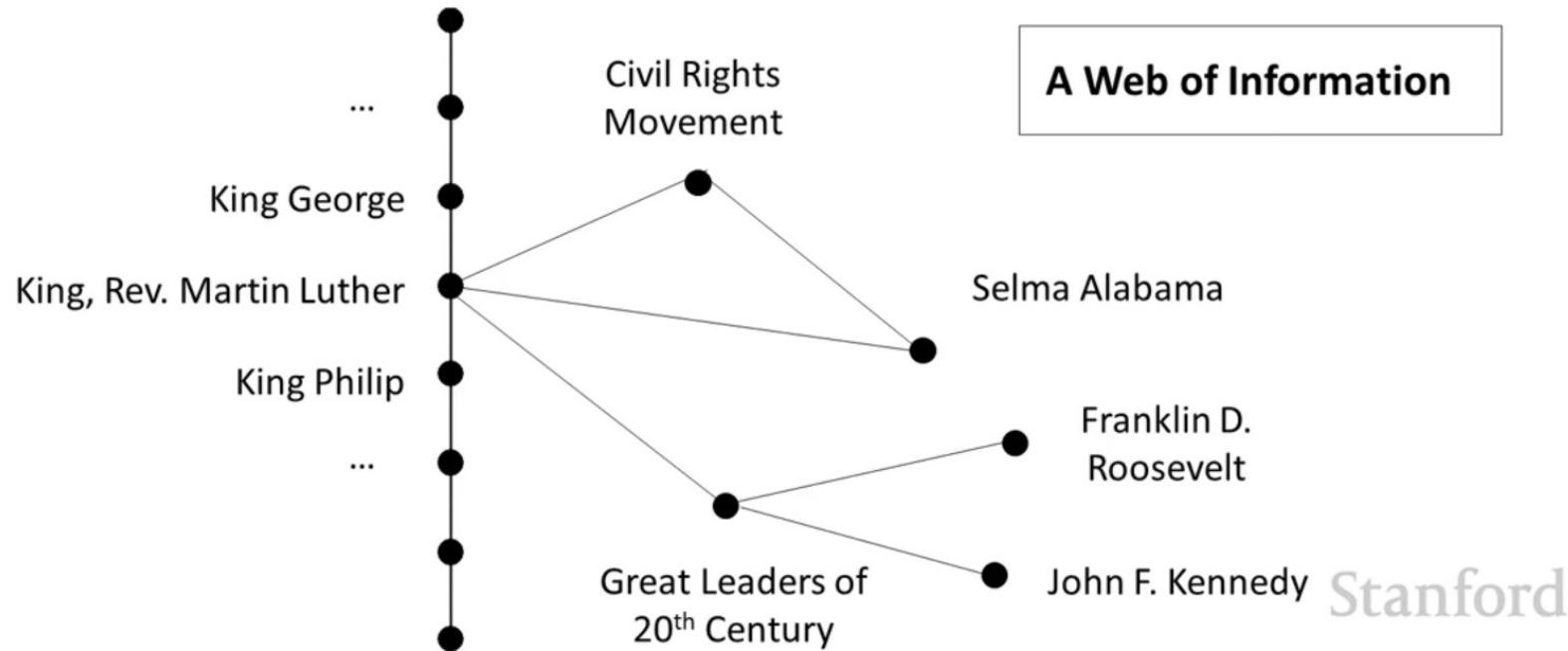


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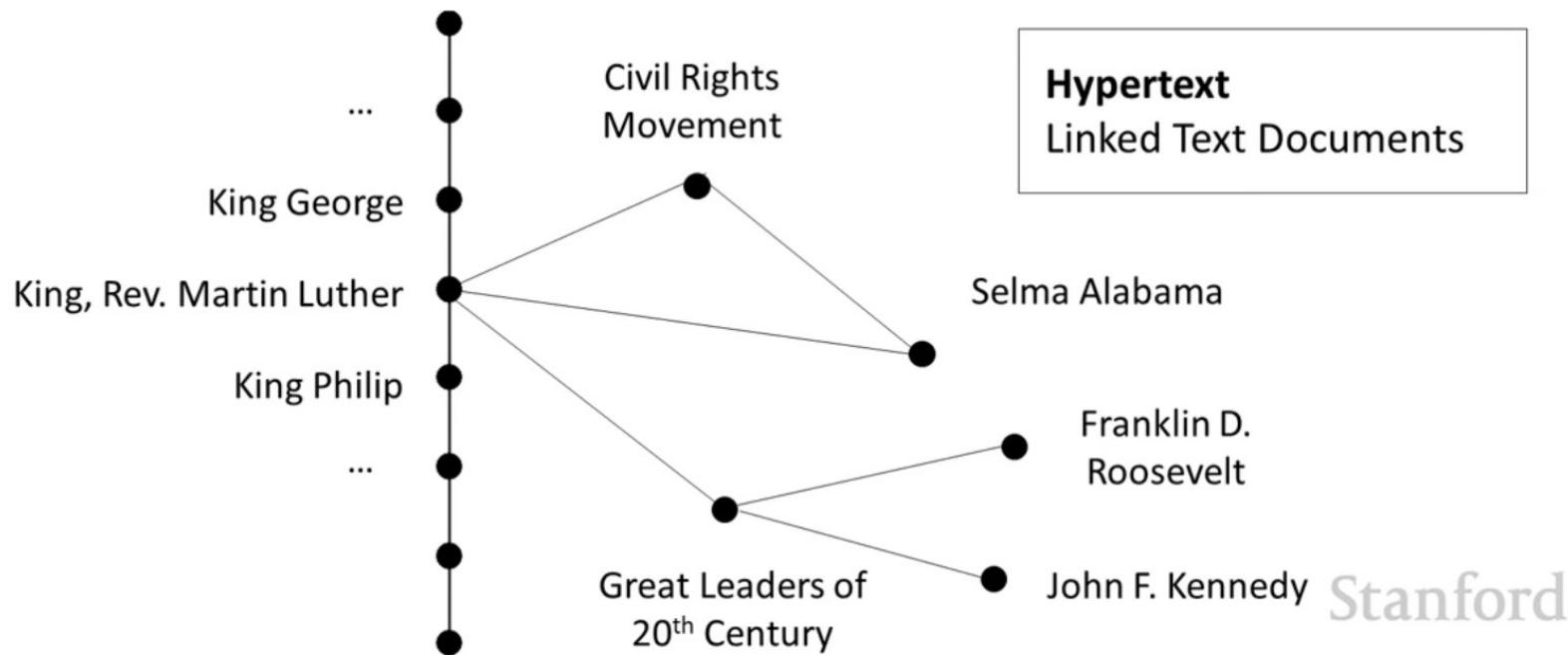
# Presentation of Information



# Presentation of Information



# **Presentation of Information**



# Presentation of Information



I have a Dream  
Speech

King, Rev. Martin Luther

Civil Rights  
Movement

Great Leaders of  
20<sup>th</sup> Century

Selma Alabama

Franklin D.  
Roosevelt

John F. Kennedy

Stanford



Moon Landings

**Hypermedia**  
Linked Text and Media Documents

# CERN



## Physics Research Consortium

- 23 Member Countries
- Headquarters in Geneva



# CERN



## Tim Berners-Lee

- 1989 invents system for CERN Physicists to share information
- Origin of the World-Wide Web
- Knighted in 2004



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# CERN



## Tim Berners-Lee

- 1989 invents system for CERN Physicists to share information
- Origin of the World-Wide Web
- Knighted in 2004

## Internet



**World  
Wide Web**

## Hypertext



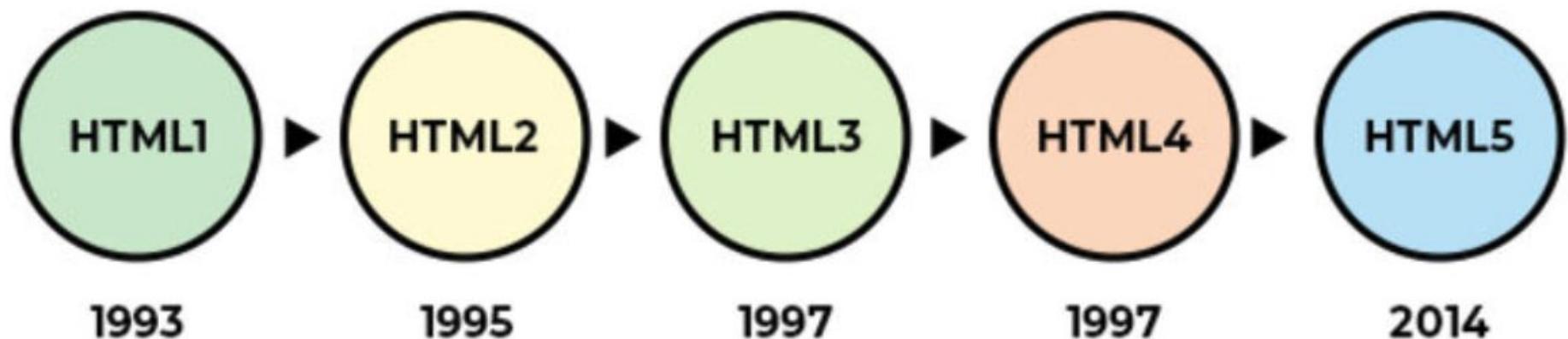
Stanford

**Hypertext Markup Language (HTML)** is the standard markup language for documents designed to be displayed in a web browser. It defines the content and structure of web content.

## The Timeline of HTML

- **1991-** Tim Berners-Lee invents HTML 1.0
- **1993-** HTML 1.0 is released. Not many developers are creating websites at this time.
- **1995-** HTML 2.0 is published. This contains the features of HTML 1.0 plus new features. This remained the standard markup language for designing and creating websites until 1997.
- **1997-** HTML 3.0 was invented. Here, Dave Raggett introduced a fresh draft on HTML, which improved new features of HTML and gave more powerful characteristics for webmasters in designing websites. Unfortunately, the powerful features slowed down the browser in applying further improvements.
- **1999-** The widely-used HTML 4.0 comes out. It is very successful.
- **2014-** HTML 5.0 is released and used worldwide. It is said to be the extended version of HTML 4.01 which was published in 2012.

### HTML Released Year



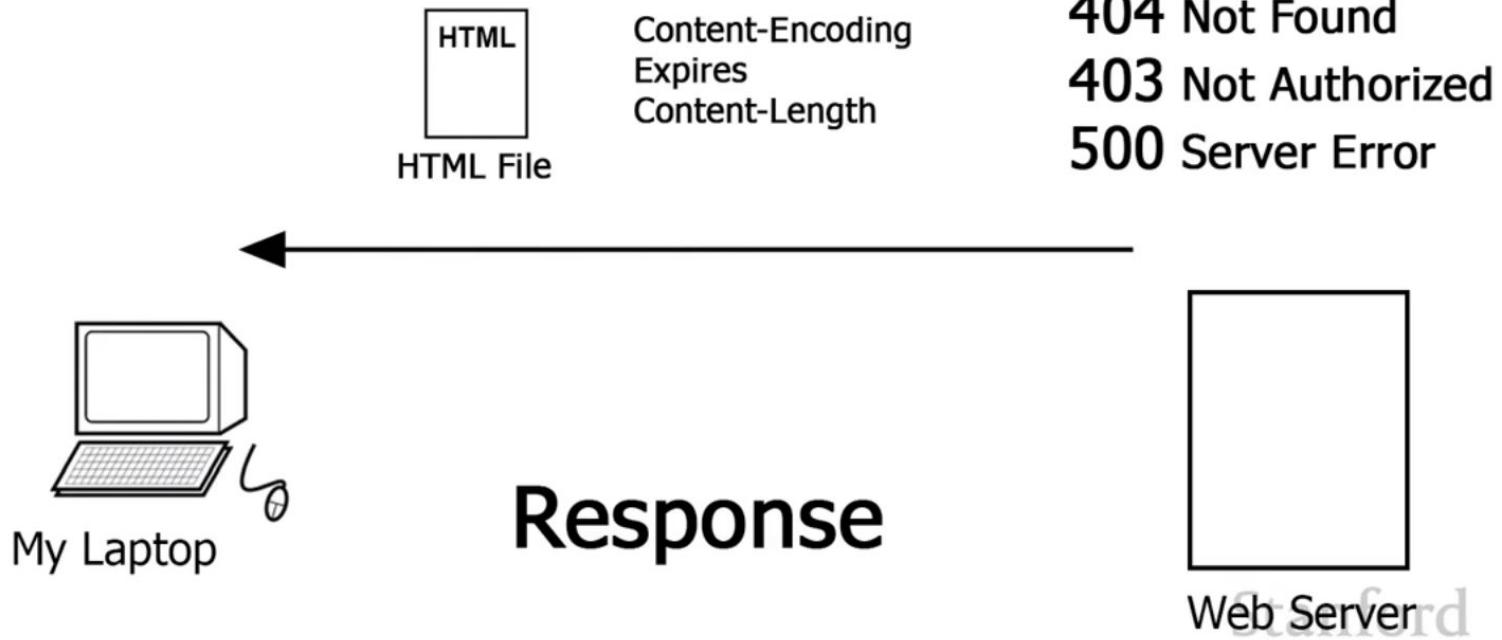
# **Introduction to HTML**

“Hypertext Markup  
Language”

<h1>  
<html>  
<a href="cs">Stanford

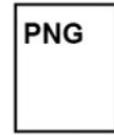
# HTTP Protocol

Hypertext Transport Protocol



# HTTP Protocol

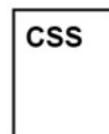
Hypertext Transport Protocol



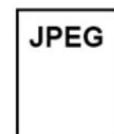
PNG File



HTML File



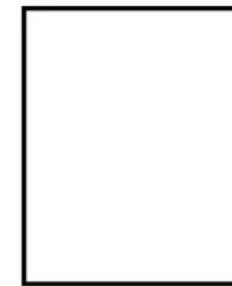
CSS File



JPEG File



My Laptop



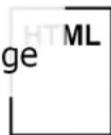
Web Server

# HTTP Protocol

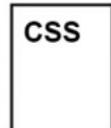
Hypertext Transport Protocol

## HTML

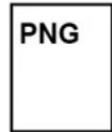
Hypertext Markup Language



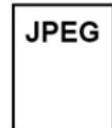
HTML File



CSS File



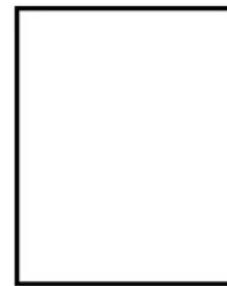
PNG File



JPEG File



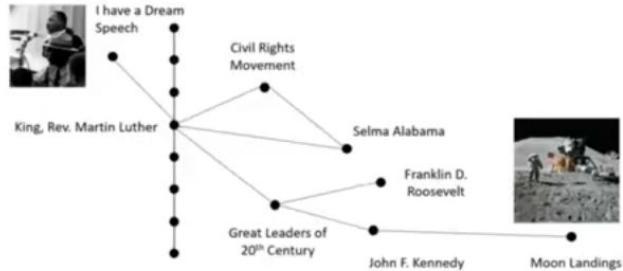
My Laptop



Web Server

# HTML

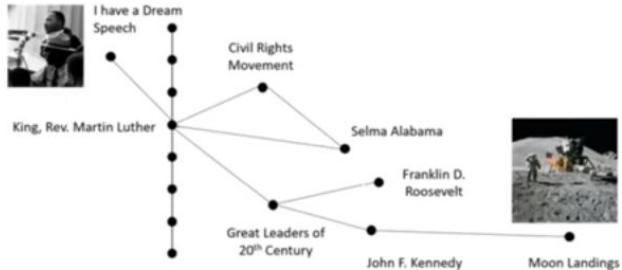
## Hypertext Markup Language



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# HTML

Hypertext Markup Language



Grammar/  
Vocabulary

French  
Japanese  
Swahili  
Tagalog

Stanford

# Markup in Publishing

Screenshot of The Stanford Daily website in Mozilla Firefox.

The page title is "Stanford Daily | Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory - Mozilla Firefox".

The main navigation menu includes: NEWS, SPORTS, OPINIONS, INTERMISSION, MEDIA, and MONDAY OCTOBER 8, 2012.

The main headline is "Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory".

By George Chen | September 13, 2012

**Text:**

Captain halfback Shyuan Taylor breaks out for a 53-yard touchdown run, giving Stanford its first points of the game. The Cardinal's defense held the Trojans scoreless, which was the most points allowed for two of Stanford's three scores and resulted in 153 yards on 29 carries. (SAM WARD/The Stanford Daily)

**Image:** A photograph of a football game showing players running on the field.

**Text (circled):** Captain halfback Shyuan Taylor breaks out for a 53-yard touchdown run, giving Stanford its first points of the game. The Cardinal's defense held the Trojans scoreless, which was the most points allowed for two of Stanford's three scores and resulted in 153 yards on 29 carries. (SAM WARD/The Stanford Daily)

**Text:**

It was an upset for the ages.

So much for Matt Barkley's Heisman hopes. So much for USC's title aspirations. And so much for Stanford's supposed decline after the Andrew Luck era.

In front of a sellout crowd of 50,360 tonight, No. 21 Stanford (3-0, 1-0 Pac-12) took down powerhouse No. 2 USC (2-1, 0-1 Pac-12), putting off a stunning 21-14 upset. When the game clock hit zero, Cardinal fans stormed the field in an uncontrollable frenzy that topped all other celebrations on the Farm in recent memory.

"We have a talented bunch," said senior inside linebacker Shayne Skov. "When you have a group of guys like that—22 guys—and they play lights out, they trust one another and they play together like that, it's something special. We came out to play today, and we showed that we could do this, and that the showdown was going to be on the field."

**Graphic:** A graphic for "LIBRARY OPEN HOUSE" on Tuesday, October 9, 2012, from 3 pm - 4 pm, at Green Library. The URL library.stanford.edu/openhouse is provided.

**Text:**

What to expect when you're expecting: Full Moon on the Quad 2012  
Living: Stanford defeats Arizona in OT  
Football: Nunes to stay as starting QB  
Bevila: Picazo patently waits on the sidelines  
Review: "The Perks of Being a Wallflower"

**Text:**

Most Viewed   Most Commented   Editor's Picks

Stanford

# Markup in Publishing

The screenshot shows a web browser displaying the Stanford Daily website. At the top, there are two banners: one for Amici's East Coast Pizzeria and another for the State of New Jersey. Below the banner, the Stanford Daily logo is visible, followed by the text "BREAKING NEWS FROM THE FARM SINCE 1892". The navigation bar includes links for NEWS, SPORTS, OPINION, INTERMISSION, and MEDIA. The date "MONDAY OCTOBER 8, 2012" is also present. A main headline reads "Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory". Below the headline is a photo of a football game and a caption about Stephen Taylor's 59-yard touchdown run. To the right of the main content, there is a sidebar for "WRITING! PHOTO! GRAPHICS! LAYOUT! BUSINESS!" and an application form for joining the Stanford Daily staff. At the bottom of the page, there is a section titled "Most Viewed" with various news items and a "LIBRARY OPEN HOUSE" announcement for the Green Library on October 9, 2012, from 3 pm to 4 pm.

**Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory**

By George Chen September 15, 2012

**Tweet**

Captain halfback Stephen Taylor breaks out for a 59-yard touchdown run, giving Stanford its first points of the game and the first of the season. The Cardinal's second score was accounted for two of Stanford's three scores and resulted in 153 yards on 29 carries. (SAMSON WANG/The Stanford Daily)

**It was an upset for the ages.**

On Saturday, it was all about hopes. So much for USC's title aspirations. And so much for Stanford's supposed decline after the Andrew Luck era.

In front of a sellout crowd of 50,369 tonight, No. 21 Stanford (3-0, 1-0 Pac-12) took down powerhouse No. 2 USC (3-1, 0-1 Pac-12), putting off a stunning 21-14 upset. When the game clock hit zero, Cardinal fans stormed the field in an uncontrollable frenzy that topped all other celebrations on the Farm in recent memory.

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**WRITING! PHOTO! GRAPHICS! LAYOUT! BUSINESS!**

**Apply to join the Stanford Daily!**

We're the largest student-run publication on campus, with content produced every day. If you're interested in joining the entirely independent staff of The Daily, fill out the short application now!

**LIBRARY OPEN HOUSE**

Tuesday, October 9, 2012  
3 pm - 4 pm

[library.stanford.edu/openhouse](http://library.stanford.edu/openhouse)

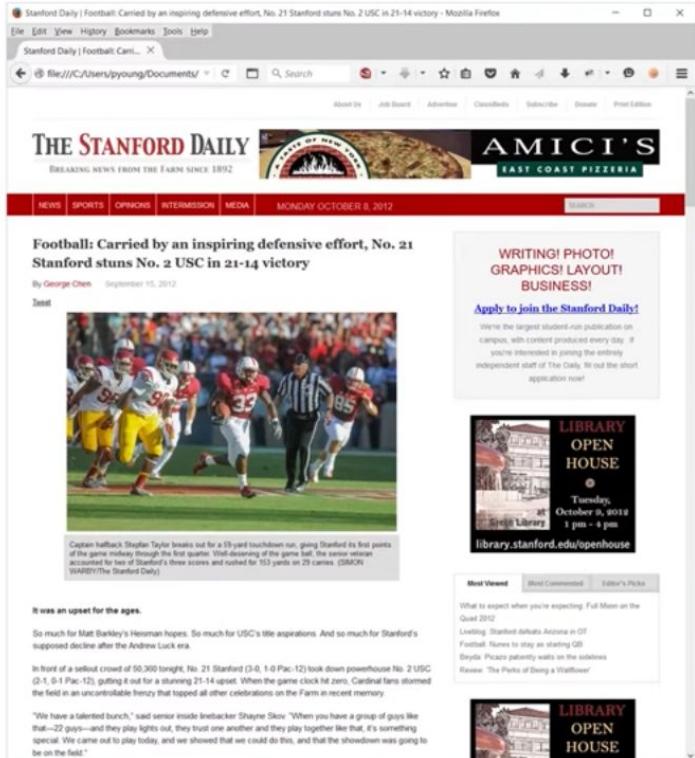
**Most Viewed**   **Most Commented**   **Editor's Picks**

What to expect when you're expecting: Full Moon on the Goat 2012

Living: Stanford debuts Azanya in OT Football: Nunes to stay as starting QB Beyoncé: Picazo paternity waits on the sidelines Review: "The Perks of Being a Wallflower"

Stanford

# Markup in Publishing



Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory

By George Chen September 15, 2012

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# Markup in Publishing

The screenshot shows a desktop browser displaying the Stanford Daily website. The header includes the Stanford Daily logo, a photo of a pizza from Amici's East Coast Pizzeria, and navigation links for NEWS, SPORTS, OPINION, INTERMISSION, and MEDIA. The main headline reads "Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory". Below the headline is a photo of a football game and a caption about Captain halfback Shadrack Taylor. To the right is a sidebar for "WRITING! PHOTO! GRAPHICS! LAYOUT! BUSINESS!" with a link to "Apply to join the Stanford Daily!". At the bottom of the page is a section titled "It was an upset for the ages." with a paragraph of text.

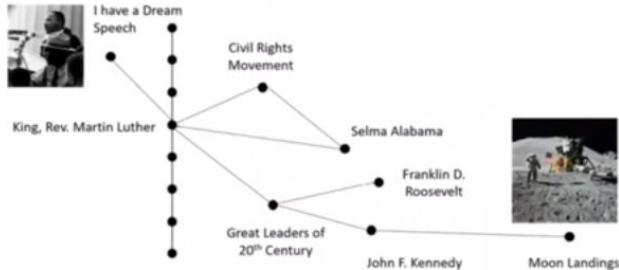
b<sup>old</sup> 24 pt  
Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory  
By George Chen September 15, 2012  
It was an upset for the ages. sans-serif font

So much for Matt Barkley's Heisman hopes. So much for USC's title aspirations. And so much for Stanford's supposed decline after the Andrew Luck era.  
**Insert Photo**

In front of a sellout crowd of 50,360 tonight, No. 21 Stanford (3-0, 1-0 Pac-12) took down powerhouse No. 2 USC (2-1, 0-1 Pac-12), gutting it out for a stunning 21-14 upset. When the game clock hit zero, Cardinal fans stormed the field in an uncontrollable frenzy that topped all other celebrations on the Farm in recent memory.

# HTML

Hypertext Markup Language



## Grammar/ Vocabulary

French  
Japanese  
Swahili  
Tagalog



*bold 24 pt*

Football: Carried by an inspiring defensive effort, No. 21 Stanford stuns No. 2 USC in 21-14 victory

By George Chen September 15, 2012

It was an upset for the ages.

*sans-serif font*

*Insert Photo*  
So much for Matt Barkley's Heisman hopes. So much for USC's title aspirations. And so much for Stanford's supposed decline after the Andrew Luck era.

# *What is HTML?*

- *HTML stands for Hyper Text Markup Language*
- *HTML is the standard markup language for creating Web pages*
- *HTML describes the structure of a Web page*
- *HTML consists of a series of elements*
- *HTML elements tell the browser how to display the content*
- *HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.*

## *Popular HTML Editors in 2025*

*There are several HTML editors available to the user (paid and unpaid, both). The following is the list of some popular editors:*

- *Notepad*
- *TextEdit*
- *Notepad++*
- *Sublime*
- *Visual Studio Code*
- *Atom*
- *Brackets*
- *Adobe Dreamweaver CC*
- *CoffeeCup*

## Example-1

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

# Example Explained

- *The `<!DOCTYPE html>` declaration defines that this document is an HTML5 document*
- *The `<html>` element is the root element of an HTML page*
- *The `<head>` element contains meta information about the HTML page*
- *The `<title>` element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)*
- *The `<body>` element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.*
- *The `<h1>` element defines a large heading*
- *The `<p>` element defines a paragraph*

# *What is an HTML Element?*

*An HTML element is defined by a start tag, some content, and an end tag:*

*<tagname> Content goes here... </tagname>*

*The HTML element is everything from the start tag to the end tag:*

*<h1>My First Heading</h1>*

*<p>My first paragraph.</p>*

# *HTML Documents*

*All HTML documents must start with a document type declaration: <!DOCTYPE html>.*

*The HTML document itself begins with <html> and ends with </html>.*

*The visible part of the HTML document is between <body> and </body>.*

# *HTML Attributes*

- *All HTML elements can have attributes*
- *Attributes provide additional information about elements*
- *Attributes are always specified in the start tag*
- *Attributes usually come in name/value pairs like: name="value"*

`<a href="https://www.geu.ac.in">Visit GEU</a>`

# *The `src` Attribute*

*The `<img>` tag is used to embed an image in an HTML page. The `src` attribute specifies the path to the image to be displayed:*

```

```

*There are two ways to specify the URL in the `src` attribute:*

- 1. Absolute URL - Links to an external image that is hosted on another website. Example:  
`src="https://www.geu.ac.in/gallery/grafest-day-2/".`*
- 2. Relative URL - Links to an image that is hosted within the website. Here, the URL does not include the domain name. If the URL begins without a slash, it will be relative to the current page. Example:  
`src="img_girl.jpg".` If the URL begins with a slash, it will be relative to the domain. Example:  
`src="/images/img_rose.jpg".`*

# *The width and height Attributes*

*The <img> tag should also contain the **width** and **height** attributes, which specify the width and height of the image (in pixels):*

```

```

# *The alt Attribute*

*The required **alt** attribute for the <img> tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to a slow connection, or an error in the **src** attribute, or if the user uses a screen reader.*

```

```

# *HTML Headings*

*HTML headings are defined with the <h1> to <h6> tags.*

*<h1> defines the most important heading. <h6> defines the least important heading.*

<h1>Heading 1</h1>

<h2>Heading 2</h2>

<h3>Heading 3</h3>

<h4>Heading 4</h4>

<h5>Heading 5</h5>

<h6>Heading 6</h6>

# *Headings Are Important*

- ❖ *Search engines use the headings to index the structure and content of your web pages.*
- ❖ *Users often skim a page by its headings. It is important to use headings to show the document structure.*
- ❖ *<h1> headings should be used for main headings, followed by <h2> headings, then the less important <h3>, and so on.*

*For example:*

- *<h1> - Page title*
- *<h2> - Section titles*
- *<h3> - Sub-sections*

# *HTML Paragraphs*

- ❖ *The HTML `<p>` element defines a paragraph.*
- ❖ *A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.*

`<p>This is a paragraph.</p>`

`<p>This is another paragraph.</p>`

# HTML Styles

The HTML **style** attribute is used to add styles to an element, such as color, font, size, and more.

*I am Red*

*I am Blue*

*I am Big*

## The HTML Style Attribute

Setting the style of an HTML element, can be done with the **style** attribute.

The HTML **style** attribute has the following syntax:

```
<tagname style="property:value;">
```

# **Background Color**

The CSS **background-color** property defines the background color for an HTML element.

**Example 1:**

```
<body style="background-color:powderblue;">
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
```

**Example 2:**

```
<body>
<h1 style="background-color:powderblue;">This is a heading</h1>
<p style="background-color:tomato;">This is a paragraph.</p>
</body>
```

# *HTML Text Formatting*

*HTML contains several elements for defining text with a special meaning.*

**This text is bold**

*This text is italic*

*This is <sub>subscript</sub> and <sup>superscript</sup>*

# HTML Formatting Elements

---

Tag	Description
<u>&lt;b&gt;</u>	Defines bold text
<u>&lt;em&gt;</u>	Defines emphasized text
<u>&lt;i&gt;</u>	Defines a part of text in an alternate voice or mood
<u>&lt;small&gt;</u>	Defines smaller text
<u>&lt;strong&gt;</u>	Defines important text
<u>&lt;sub&gt;</u>	Defines subscripted text
<u>&lt;sup&gt;</u>	Defines superscripted text
<u>&lt;ins&gt;</u>	Defines inserted text
<u>&lt;del&gt;</u>	Defines deleted text
<u>&lt;mark&gt;</u>	Defines marked/highlighted text

# ***HTML Comments***

- ❖ *HTML comments are not displayed in the browser, but they can help document your HTML source code.*

## ***HTML Comment Tag***

- ❖ *You can add comments to your HTML source by using the following syntax:*

`<!-- Write your comments here -->`

## *Add Comments*

*With comments you can place notifications and reminders in your HTML code:*

*<!-- This is a comment -->*

*<p>This is a paragraph.</p>*

*<!-- Remember to add more information here -->*

# **Hide Content**

*Comments can be used to hide content.*

*This can be helpful if you hide content temporarily:*

```
<p>This is a paragraph.</p>
```

```
<!-- <p>This is another paragraph </p> -->
```

```
<p>This is a paragraph too.</p>
```

*You can also hide more than one line. Everything between the <!-- and the --> will be hidden from the display.*

## ***Example***

*Hide a section of HTML code:*

```
<p>This is a paragraph.</p>
```

```
<!--
```

```
<p>Look at this cool image:</p>
```

```

```

```
-->
```

```
<p>This is a paragraph too.</p>
```

# *Hide Inline Content*

*Comments can be used to hide parts in the middle of the HTML code.*

*Example:*

*Hide a part of a paragraph:*

```
<p>This <!-- great text --> is a paragraph.</p>
```

# *HTML Links*

- ❖ *Links are found in nearly all web pages. Links allow users to click their way from page to page.*

## *HTML Links - Hyperlinks*

- ❖ *HTML links are hyperlinks.*
- ❖ *You can click on a link and jump to another document.*
- ❖ *When you move the mouse over a link, the mouse arrow will turn into a little hand.*

# ***HTML Links - Syntax***

The HTML `<a>` tag defines a hyperlink. It has the following syntax:

```
<a href="url">link text</a>
```

```
<a href="https://www.google.com/">Visit Google!</a>
```

```
<a href="https://www.google.com/" target="_blank">Visit Google!</a>
```

## *Absolute URLs*

```
<p><a href="https://www.geu.ac.in/">GEU</a></p>
```

```
<p><a href="https://www.google.com/">Google</a></p>
```

## *Relative URLs*

```
<p><a href="html_images.asp">HTML Images</a></p>
```

*Thanks*