

# WEB DEVELOPMENT

Part 2



# The Web Platform

- HTML5, according to Jason and James (2014) is a web platform as it is a series of complementary technologies; CSS3, SVG, JavaScript and more.

- <http://platform.html5.org/>

## Typical Website Evolution

Generation 1 -- replaces paper information

Generation 2 -- has flashy elements

Generation 3 -- is bleeding edge, causing content to suffer

Generation 4 -- content and technology are integrated

Ideally, try to skip the problems of Generations 1-3 by planning your web site carefully.

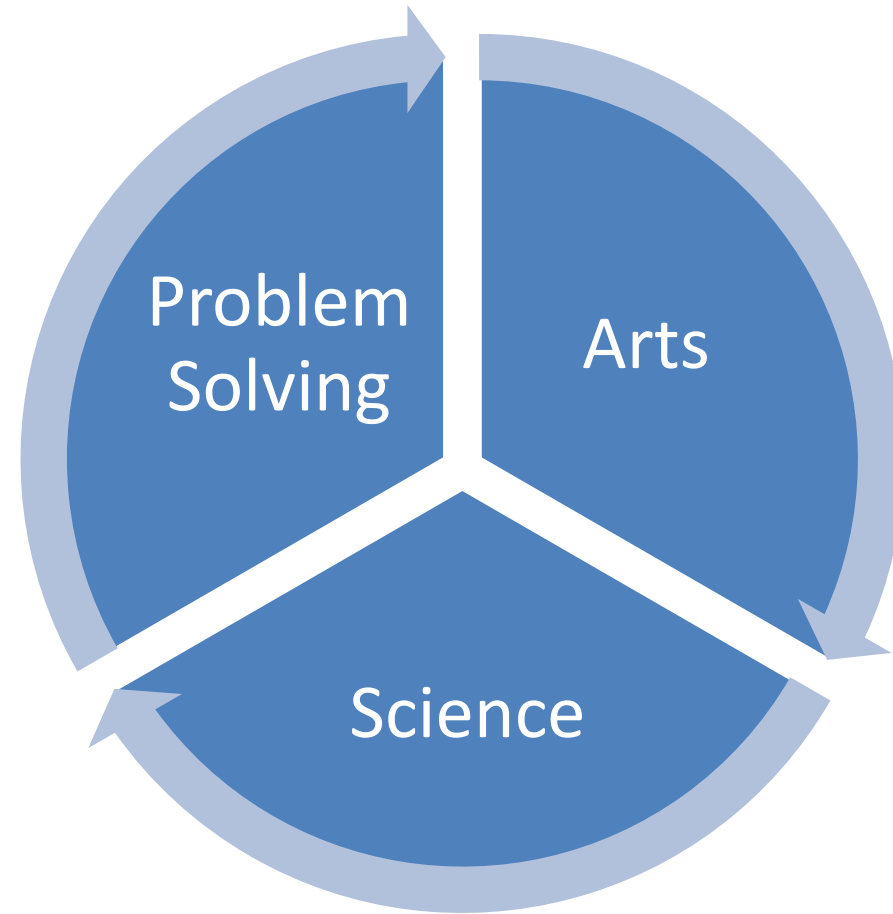
# General Methods for Design

- “Ad-hoc” Process
  - Hastily put together
  - Created on the fly
  - “We need a web site TODAY”
- A methodical, well-thought process includes:
  - Planning
  - Quality-assurance testing



# The Design Process

- Discovery
- Exploration
- Implementation



# Defining Good Design

1. Functionality perspective
2. Aesthetic perspective

- Users are pleased by the design but drawn to the content.
- Users can move about easily via intuitive navigation.
- Users recognise each page as belonging to the site.

# The Making of a Good Design

Content is important, but content alone will not make your site work.

The screenshot shows the Stanford.com website with a red and white color scheme. The header includes the Stanford logo and navigation links. The main content area features a large photo of a football game, a sidebar with event listings, and a bottom section with a calendar of events and a 'Cardinal Sports' section.

**GO STANFORD.COM**  
The Official Website of the Stanford Cardinal

**DIG for the Cure**  
Supporting Breast Cancer Awareness  
Oct 19 | 12:30 PM Stanford vs Cal  
WEAR PINK!  
SUSAN G. KOMEN  
FOR THE CURE

SPORTS | INSIDE ATHLETICS | FAN ZONE | WELCOME RECRUITS | MULTIMEDIA | GIVING TO ATHLETICS | TICKETS | CUSTOMER CARE | HOME

**HOME OF CHAMPIONS**

TOP STORIES | VIDEOS ON YouTube | LIVE EVENTS ON ALL ACCESS | SPECIAL PROMOTIONS & EVENTS

**STANFORD SOCCER**  
INDIVIDUAL GAME TICKETS  
ON SALE NOW! CLICK HERE TO PURCHASE ONLINE...  
PURCHASE NOW!

**HEADLINES**

10/14/08 | W Golf  
Women's Golf Set To Host Stanford Intercollegiate

10/13/08 | M Water Polo  
Stanford's Will Hindle-Katel Named MPSF Mikasa Co-Player

10/13/08 | Fencing  
Stanford Fencing: Season Outlook

10/12/08 | W Volleyball  
Big Block Lifts Stanford Over Arizona State

10/13/08 | Football  
Toby Gerhart Named Pac-10 Offensive Player of the Week

10/12/08 | M Soccer  
Stanford Gives Back

**STANFORD HEADS TO THE ROSE BOWL FOR PAC-10 SHOWDOWN AGAINST UCLA**  
Football | 10/13/2008

Stanford (4-3, 3-1 Pac-10) and UCLA (2-4, 1-2) will meet for the 79th time on Saturday afternoon in the Rose Bowl, as the Cardinal look to snap a four-game losing streak against the Bruins. Stanford defeated Arizona on Saturday, 24-23, and is tied with Oregon for second place in the Pac-10 Conference, while UCLA is coming off a 31-24 loss to Oregon.  
>> Read More

**STANFORD RESULTS**

**TUESDAY, OCT 14**

SPORT	EVENT / LOCATION / TIME	COVERAGE
Field Hockey	Davidson / Stanford, Calif. 3:00 PM PT	Gametracker
	The Prestige at PGA West	

**CARDINAL.SPORTS**  
An Inside Look At Stanford Athletics Programs...

**FOOTBALL**  
W VOLEYBALL

**Gillette Fusion**  
GAMEFACE

**at&t**  
ACTION ON YOUR PHONE  
delivered by at&t

**StubHub!**  
Find Tickets

**WELLS FARGO**  
Proud Sponsor of the Buck/ Cardinal Club

**MUSCLE MILK**  
Student-Athlete of the Week  
Mari Chun  
Senior, Women's Golf

**See Your Name in Lights!**  
Click Here to WIN!

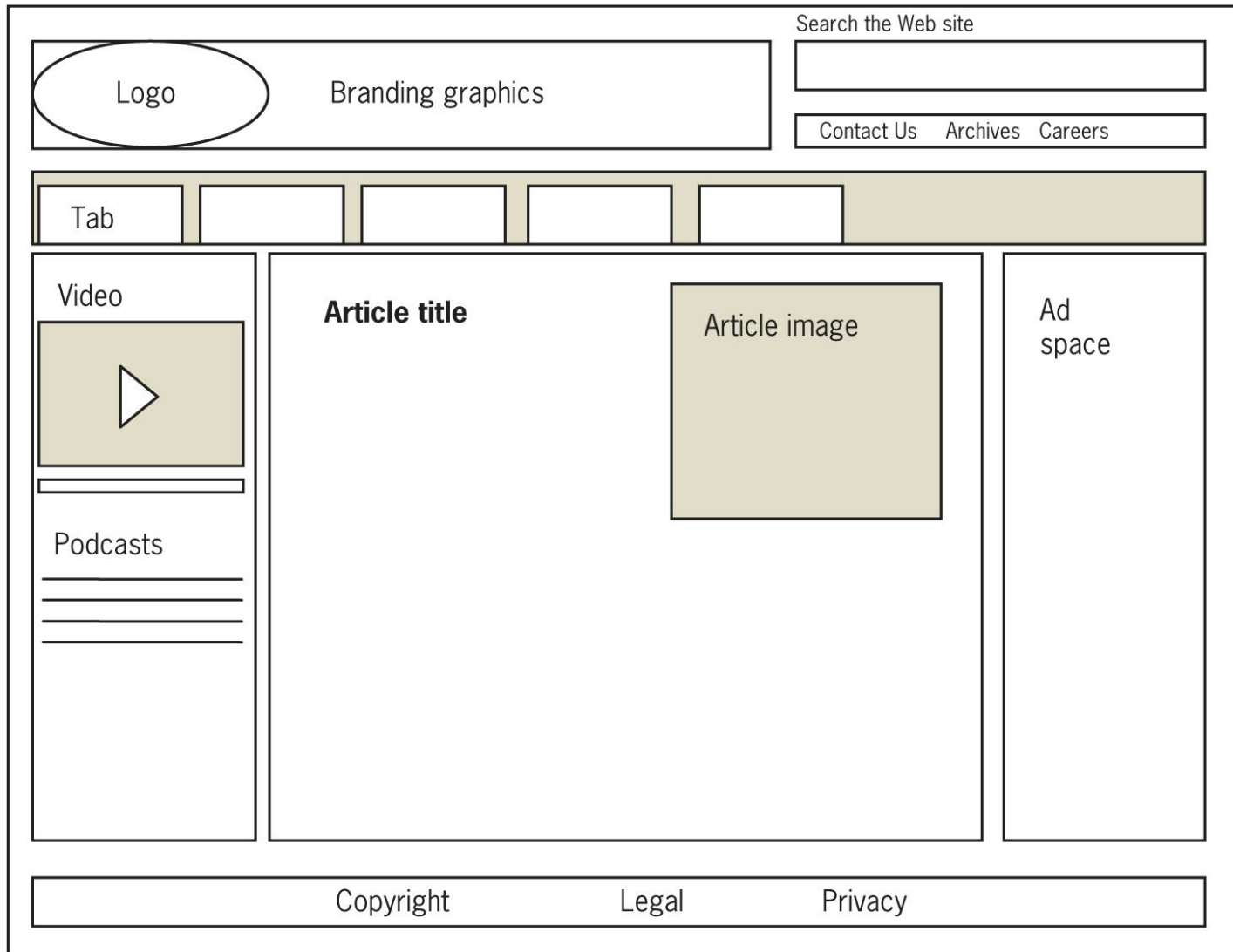
**Ford**  
Drive one.  
California Ford Dealers

**AM 860 KTRB**  
50,000 WATTS  
RADIO HOME OF CARDINAL SPORTS

**Inside Stanford Sports**  
WITH JIM HARBAUGH  
Mondays at 8:00pm  
On the air

# Graphic Design and Page Template Creation

- ❑ Think about the actual HTML, PDF, graphic, sound, and other files you will need in the site;
  - Where will they be placed?
  - How will visitors access them?
- ❑ Designers prepare sketches and page mockups to represent page layouts
- ❑ All page layouts start with a mockup; Mockups can be easily edited based on feedback
- ❑ Wireframes document a more stable page design
- ❑ Wireframes offer a more complete view of what the final design will look like



**Figure 3-3** Sample wireframe for page layout



# Influences of Technology on Design

- Browsers

Till 2010, Internet Explorer was the dominant browser and now \_\_\_\_\_

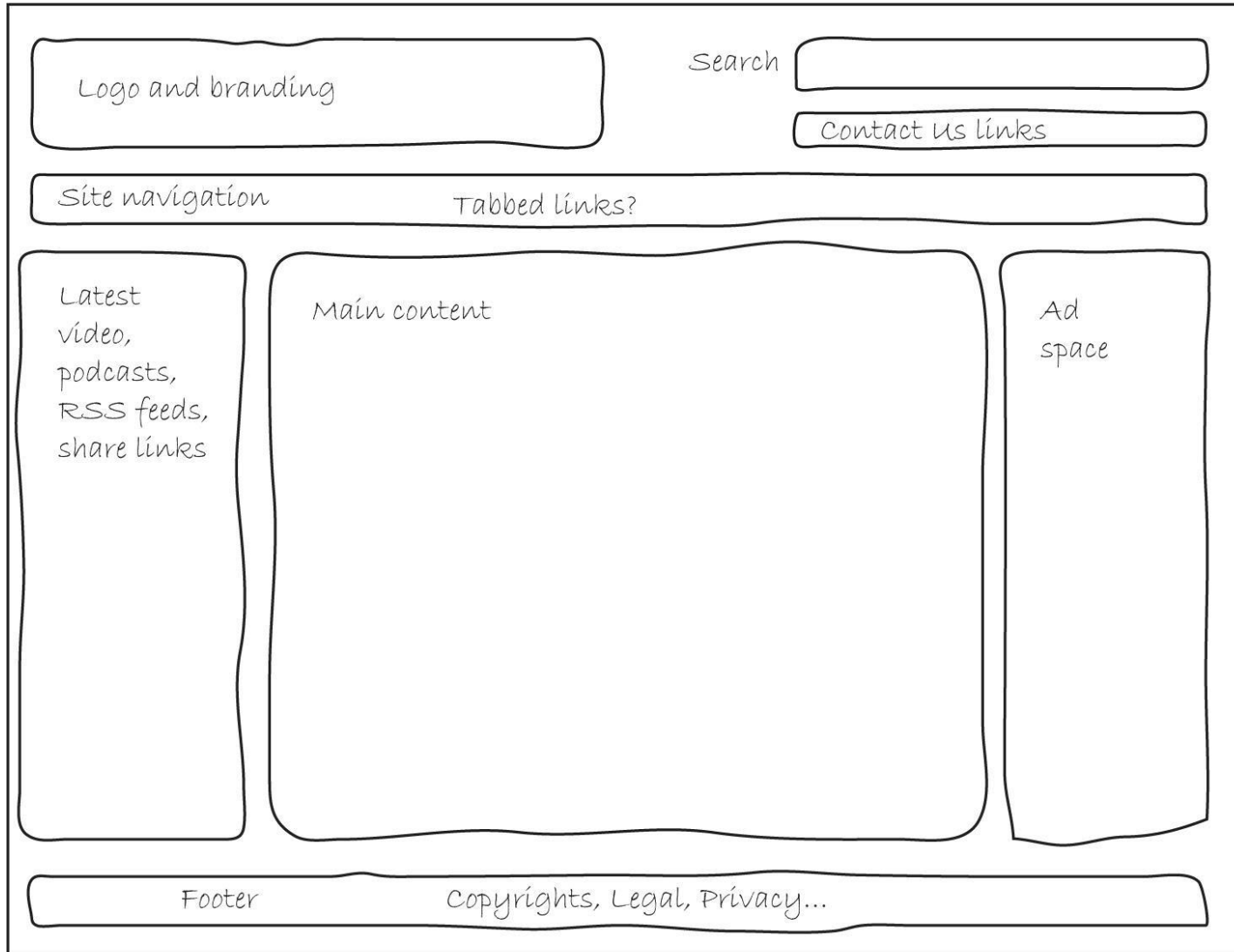
<[http://www.w3schools.com/browsers/browsers\\_stats.asp](http://www.w3schools.com/browsers/browsers_stats.asp)>

- User screen sizes

95% of users are using a display with 1024x768 pixels or more and a color depth Newer computers use 24 or 32 bits display hardware, and are able to display 16,777,216 different colours.

<[http://www.w3schools.com/browsers/browsers\\_stats.asp](http://www.w3schools.com/browsers/browsers_stats.asp)>

# Anatomy of a website



- Container
- Logo
- Navigation
- Content
- Footer
- Whitespace

**Figure 3-2** Web page mockup

# Layout and Composition

- Design information to be easy to read and legible
- Break text into reasonable segments
- Provide contrasting colors that are easy on the eye
- Use plenty of white space
- Readers have different online reading habits
- Include plenty of headings
- Control the width of your text



Balance



**Figure 2-15** Clear presentation and easy access

# Creating a Unified Site Design

- Plan the unifying themes and structure for your site
- Communicate a visual theme with your design choices

Consider more than each page

- a) Plan smooth transitions
- b) Use a grid to provide visual structure
- c) Include active white space



Unity

# Plan Smooth Transitions

- Plan to create a unified look
- Reinforce identifying elements
- Consistency and repetition create smooth transitions
- Place navigation elements in the same position on each page
- Use the same navigation graphics throughout the site

# Use a Grid to Provide Visual Structure

- The structure of a Web page is imposed by the grid
- The grid is a conceptual layout device
- The grid aligns your content into columns and rows
- Impose a grid to provide visual consistency
- You can break out of the grid to provide variety and highlight information
- The grid provides page margins and gutters between elements

Grid Theory



Sign in | Register | Mobile version | **A** Text | larger | smaller | Go to: guardian.co.uk home | Go

Website of the year | 7 March 2010 | Last updated less than one minute ago | Webfeed | Search | guardian.co.uk | Search

Weather | Edinburgh | 8°C | 0°C

**guardian.co.uk**

News | Sport | Comment | Culture | Business | Money | Life & style | Travel | Environment | TV | Blogs | Video | Community | Jobs

News | UK | World | United States | Politics | Media | Education | Society | Science | Technology | Football | Guardian | Observer

**Breaking news:** GOP senator urges Obama to shift on terror trials - AP

**Iraqis brave bombs and rockets to go to the polls**  
Turnout expected to be high despite rocket attacks that killed 25 today  
 ● Iraqis cast their votes amid insurgent violence  
 ● Ranj Alaalidin: Iraq leaving sectarianism behind

**MoD to replace Snatch Land Rovers**  
Fleet of new armoured vehicles costing £100m seen as admission that existing Snatches not up to the job  
 ● Brown accused over Hermand visit  
 ● Regiment suffers third death in five days

**Venables in prison 'over child porn'**  
Straw refuses to comment on reports Bulger killer was recalled due to alleged sex offences  
 ● Venables revealed identity to others before recall  
 ● Venables and Sutcliffe: prisoners of the past

**Family linked to UK boy's abduction**  
Pakistani minister repeats police claim that 'someone close to family' helped kidnapers of Sahil Saeed, five

**Queen and Blair dragged into tax row**  
Ashcroft row casts shadow over advice given to monarch as more details emerge about his role  
 ● Ashcroft goes from Tory saviour to election liability  
 ● Andrew Rawnsley: you can smell the anxious sweat

**FA Cup  
Chelsea 2-0 Stoke City**

**The Oscars  
Live coverage**

**Football – LIVE  
Everton v Hull**

**Celebrity style  
Cheryl Cole**

**Three dead in Glasgow flat plunge**  
Police called to high-rise Red Road complex after three people fell to their deaths this morning

**Briton jailed in US for £50m fraud**  
Cancer victims and celebrities among victims of conman who played role of upper-class businessman

**Energy-saving bulbs 'left in drawers'**  
Millions of green lightbulbs sent out by overzealous energy companies are not being used, survey reveals

**guardianjobs**  
Search all jobs | Go  
 Upload your CV  
 Get jobs by email  
 Join our career forums

**Online dating**  
Find your Soulmate with the Guardian's dating site  
 Join Guardian Soulmates

**Mothers day spa gift offer**  
Starting from £89pp  
 Find 1,000s of offers

**Today's paper**  
 The Observer  
 Observer Sport  
 Observer Review

**Figure 2-20** Grid provides visual structure

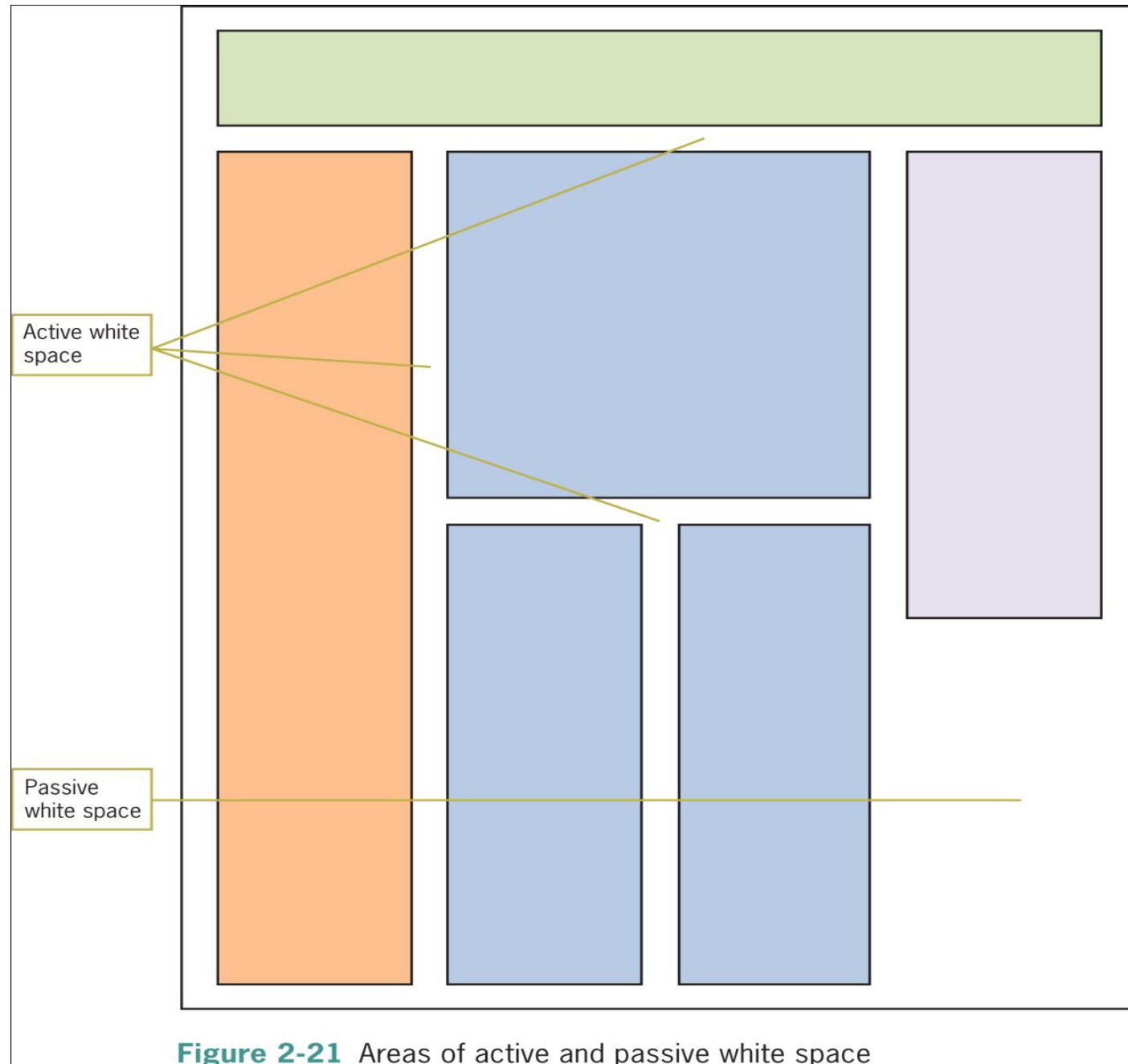


# Use Active White Space

- White spaces are the blank areas of the page
- Use white space deliberately
- Good use of white space guides the reader

**White space that is used deliberately is called active white space**

- Passive white space is the result of mismatched shapes
- Plenty of active white space reduces clutter and clarifies organization



**Figure 2-21** Areas of active and passive white space



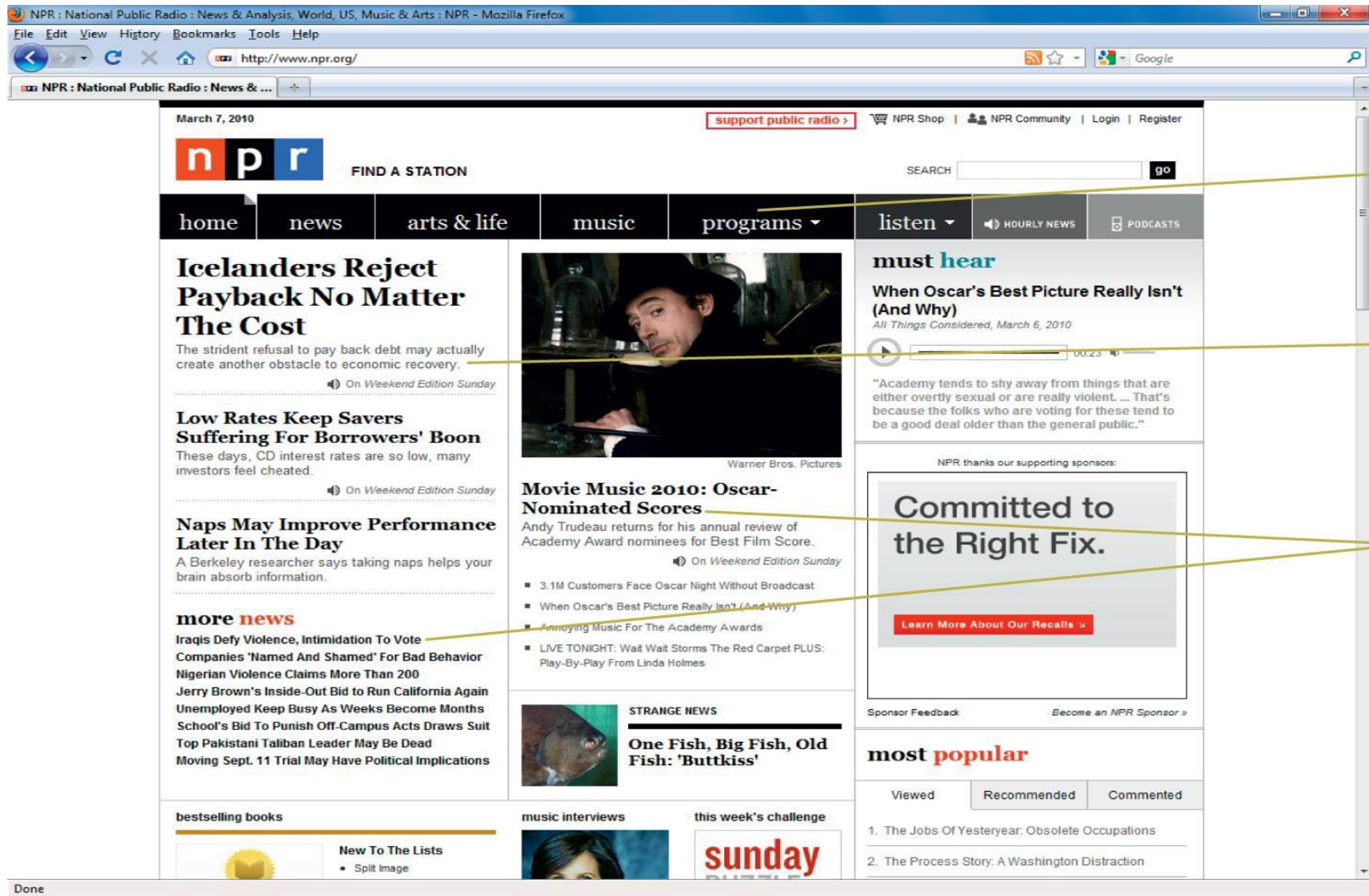
**Figure 2-22** Active white space enhances legibility

# Designing for the User

- Keep your design efforts centered solely on your user
- Find out what users expect from your site
- If you can, survey them with an online form
- Create a profile of your average user
- What do users want when they get to your site?

# Design for Interaction

- Think about how the user wants to interact with your information
- Design for your content type
- Decide whether the user is likely to read or scan
- Design pages for reading or scanning based on the content type

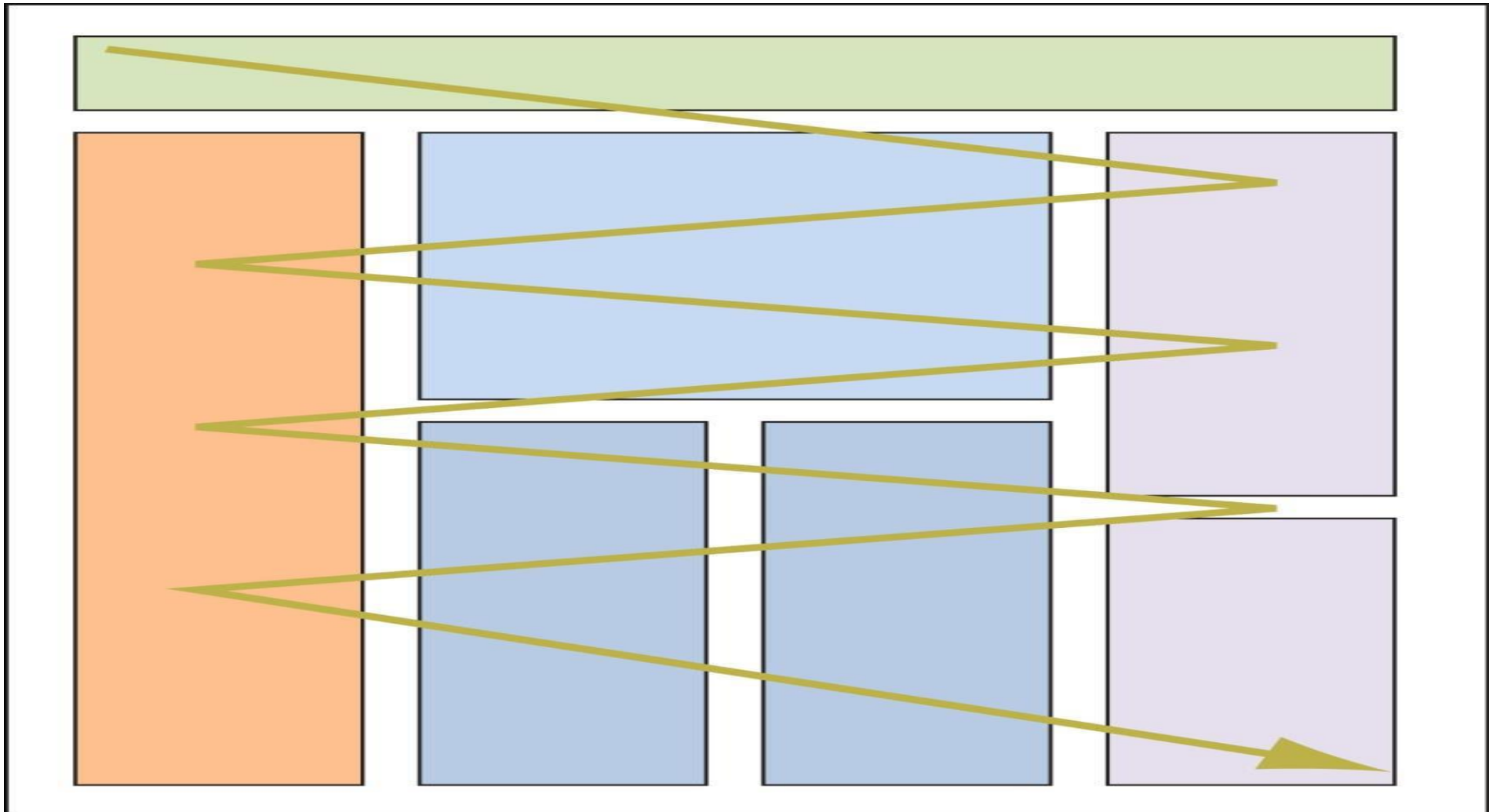


**Figure 2-26** Page designed for scanning

# Design for Location

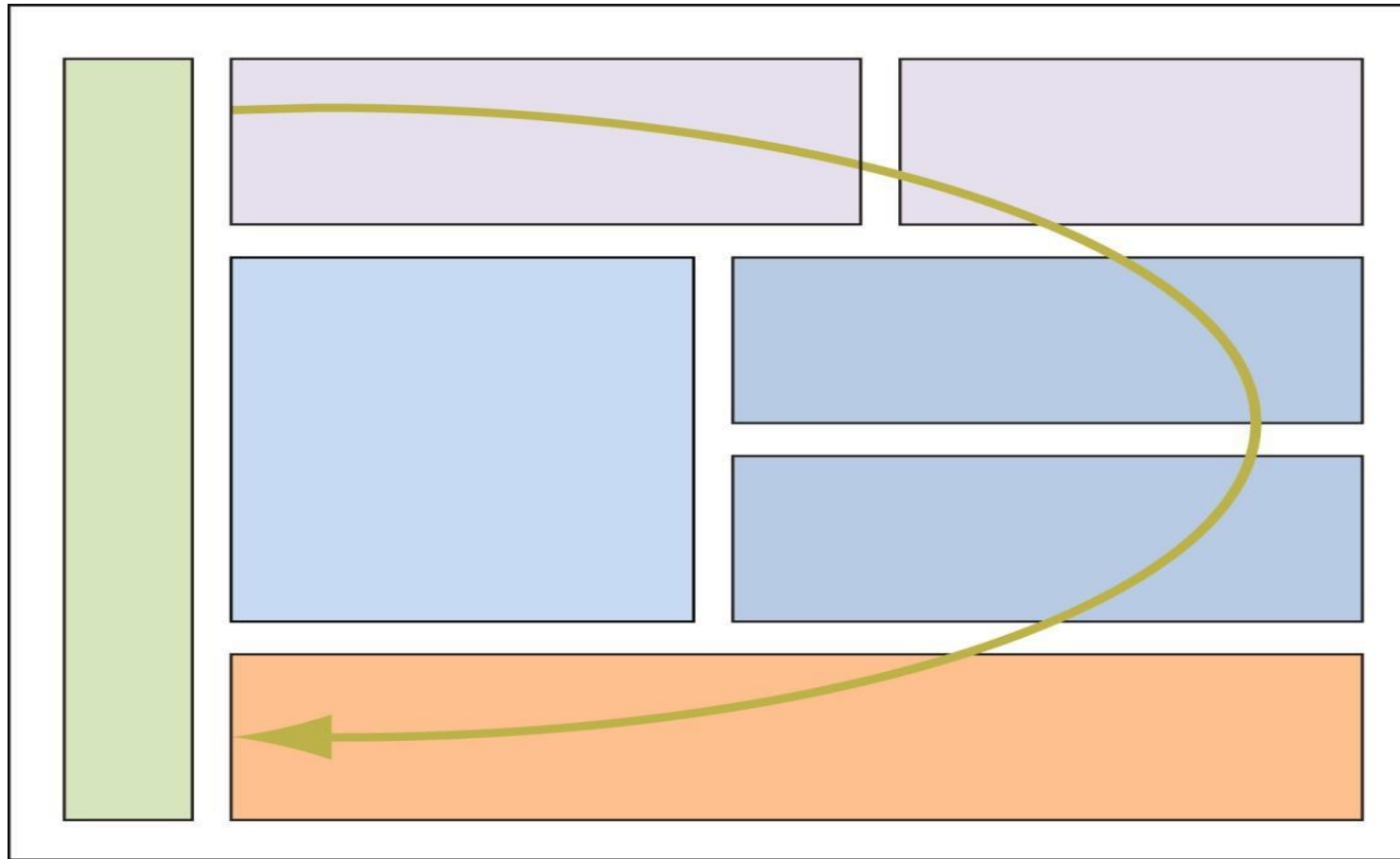
- The user can traverse a page in a variety of ways
- Consider the different ways your user could be viewing your Web pages



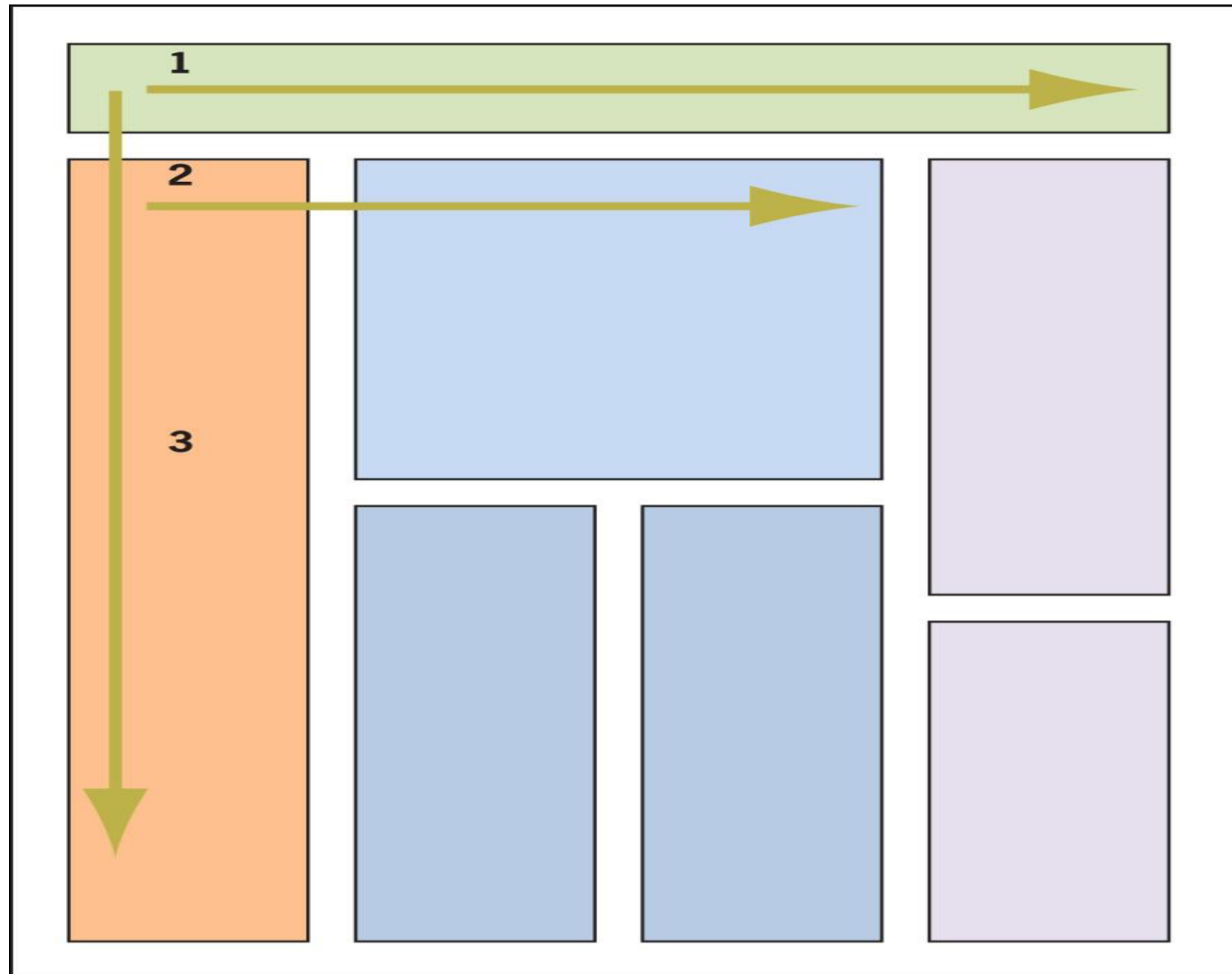


**Figure 2-28** Paper-based reading pattern

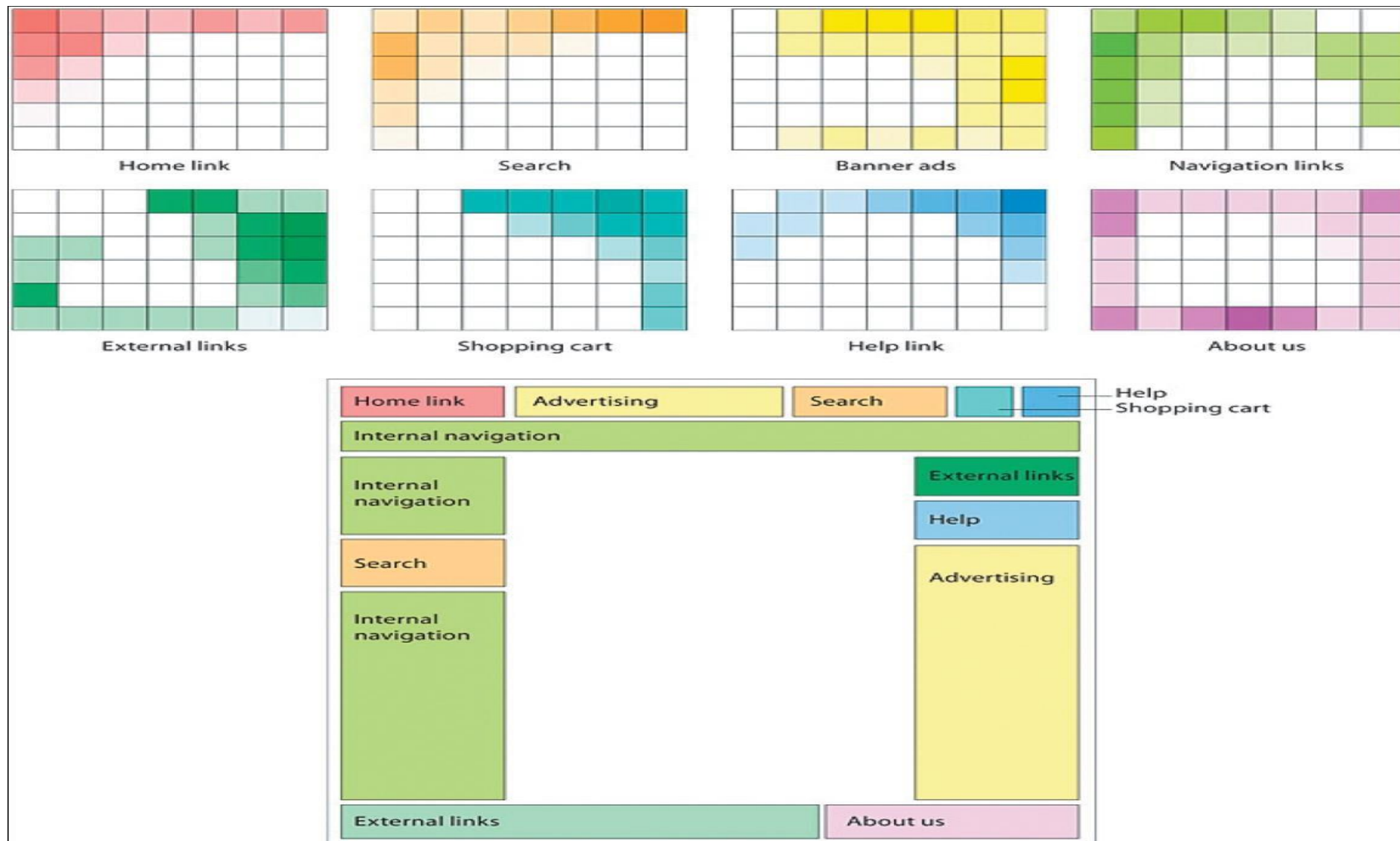




**Figure 2-29** Landscape-based viewing pattern



**Figure 2-30** F-based viewing pattern



**Figure 2-31** User expectations of Web page element locations  
(Source: Courtesy of Patrick J. Lynch and Sarah Horton)

# Design for the Screen

- The computer display is very different from print-based media; the display is landscape-oriented for desktop, portrait and landscape for mobile apps etc.
- Know what expectations your user might have about your navigation and content
- Users have come to expect common elements of a Web page in certain locations

# Keep a Flat Hierarchy

- Do not make users navigate through too many layers of information
- Includes section on topic-level navigation pages
- Create content sections organized logically by theme
- Follow the three clicks rule; a user of a **website** should be able to find any information with no more than **three** mouse **clicks**.
- Use consistent navigation
- Consider providing a site map

# Use Hypertext Linking Effectively

- You determine where users can go on your Web site
- Let users move from page to page or section to section as they please
- Use contextual linking
- Avoid the use of “click here”
- Provide plenty of navigation options

# How Much Content Is Too Much?

- Don't overcrowd your pages with information
- Be conscious of the cognitive load of the user
- Carefully divide content into smaller sections
- Present content in a structured manner
- Provide plenty of navigation cues.

# Reformat Content for Online Presentation

- Cannot post print documents directly online
- Text length, font, and content length do not transfer well
- Re-design paper content for online display



# Designing for Accessibility

- Your audience includes users who have physical challenges;
- Design your pages to be accessible to users with disabilities or technological barriers
- Common accessibility features can be unobtrusive additions to your site
- Developing accessible content naturally leads to creating good design
- Follow W3 Accessibility Initiative guidelines at [www.w3.org/WAI/](http://www.w3.org/WAI/).

## Accessibility features



The screenshot displays the English in Chester website with several accessibility features highlighted. At the top, a dark navigation bar contains links for 'skip to content', 'high contrast version', 'accessibility information', and a 'site zoom' control set to 'AAA'. The main header features the school's logo and name. A blue navigation bar lists various site sections. The main content area includes a welcome message, a description of the school, and a list of reasons to study with them. On the right, there is a large image of a historic building and a video player with a 'View Video' button. At the bottom left, a footer mentions 'new courses for 2010'.

skip to content   high contrast version   accessibility information   site zoom: A A A

**ENGLISH IN CHESTER**  
ENGLISH LANGUAGE TRAINING SPECIALISTS

The School   Chester   Courses   Travelling   Accommodation   Excursions   FAQs   Apply

### Welcome to English in Chester!

English in Chester, established in 1976, is a medium-sized, owner-managed School. We are a team of professional and caring people dedicated to providing a first class experience for every student.

#### Why study with us?

- We put you at the centre of our thinking
- We are the only accredited, year-round English language school in Chester
- We are in the centre of a fantastic, very English, city in a wonderful region
- We are easy to get to from our local airports
- We offer an excellent service at sensible prices
- We have many different courses to meet your needs

new courses for 2010

A Student's View Video

**Figure 2-37** English in Chester Web site accessibility features

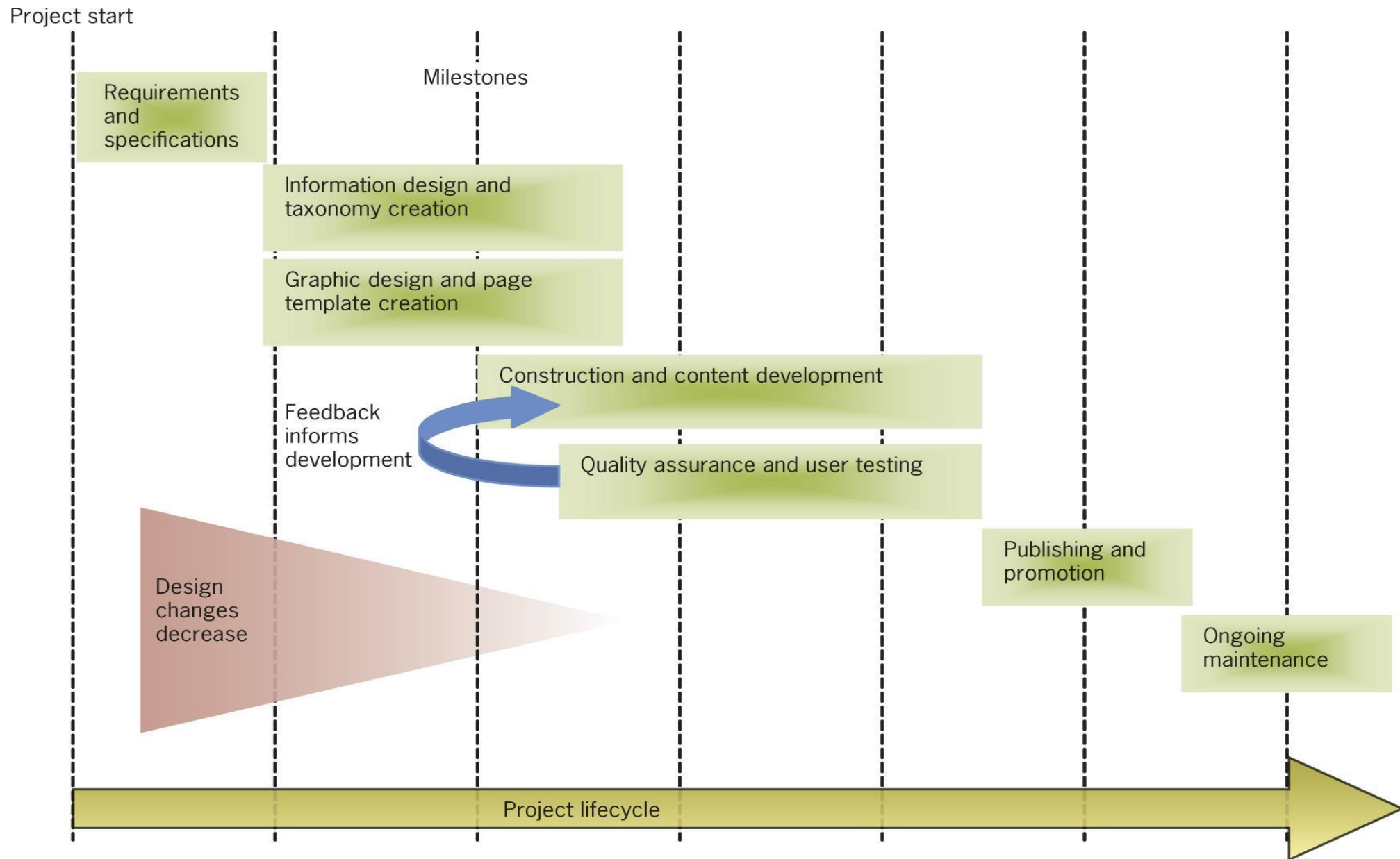
## Summary

- Craft an appropriate look and feel;
- Make a design portable;
- Plan for easy access to your information;
- Design a unified look for your site;
- Use active white space;
- Know your audience;
- Leverage hypertext linking;
- Design text for online display;
- Test your work continually as you build;
- Build accessibility from the start.



# Understanding the Web Site Development

- You need a good project plan;
- Larger projects need a project manager;
- Adopt a development framework; and
- The project life cycle encompasses the entire project from start to finish.



**Figure 3-1** Web development project lifecycle

# Requirements and Specification

- The client presents the requirements for the site
- Requirements are the list of customer needs
- The project team breaks the requirements down to tasks
- The team prepares a project specification that contains:
  - Page layout sketches
  - Audience definition
  - Technical requirements

# Information Design and Taxonomy Creation

- User analysis guides the design of site content
- Goal is to create meaningful content navigation
- Taxonomy is a classification and naming of contents in a hierarchy
  - The taxonomy of the site structures, the topic hierarchy and navigation

# Creating a Site Specification

- Who is the client for the site?
- Can you write a two- or three-paragraph mission statement that briefly states the site's goals?
- What do you envision as the goal of the site?
- What do you (or your company or organization) hope to gain from creating and maintaining a Web site?
- What are the requirements for the Web site?



# Creating a Site Specification

- Are the requirements feasible?
- How will you judge the success of the site?
- Who is the target audience?
- What are the limiting technical factors?
- What is the budget?
- Is this a new site or an upgrade?

# Identifying the Content Goal

- Examine closely what type of site you are building
- Your objectives and your users' objectives may be quite different
- Adopt your users' perspective
- Think about the type of content you're presenting and look to the Web for examples of how best to present it

# Identifying the Content Goal

- Types of Web sites:
  - Billboard
  - Publishing
  - Portal
  - Special interest
  - Blog
  - Social networking

# Identifying the Content Goal

- Wikis
- RSS
- Virtual gallery
- E-commerce, catalog, online shopping
- Product support
- Intranet/Extranet

# Analyzing Your Audience

Produce an audience definition:

- What is it that users want when they come to your site?
- How can you attract them and entice them to return for repeat visits?
- What type of computer and connection speed do your typical visitors have?

# Analyzing Your Audience

- Who are the typical members of your audience?
  - Are they male or female?
- What level of education do they have?
  - What is their reading and vocabulary level?
  - What level of technical aptitude do they have?
- Why do people come to your site?
  - Do they want information?
  - Do they want to download files?
  - Are they looking for links to other Web sites?

# Using Web Analytics

- Web analytics are statistics gathered by Web servers
- Reporting tools can analyze the statistics
- You can track user activity on your Web site
- You can see where your visitors come from and which pages they like the best

# Identifying Technology Issues and Accessibility Constraints

- Think about where users are located and what their technology level might be
- Test in different environments and with different technologies
- Consider the physical capabilities of your users



# Identifying Technology Issues and Accessibility Constraints

- You can identify accessibility constraints
- Review the WCAG 2.0 and section 508 guidelines
- In new sites, plan for accessibility
- In existing sites, assess the current accessibility
- Look to other real-life accessibility implementations

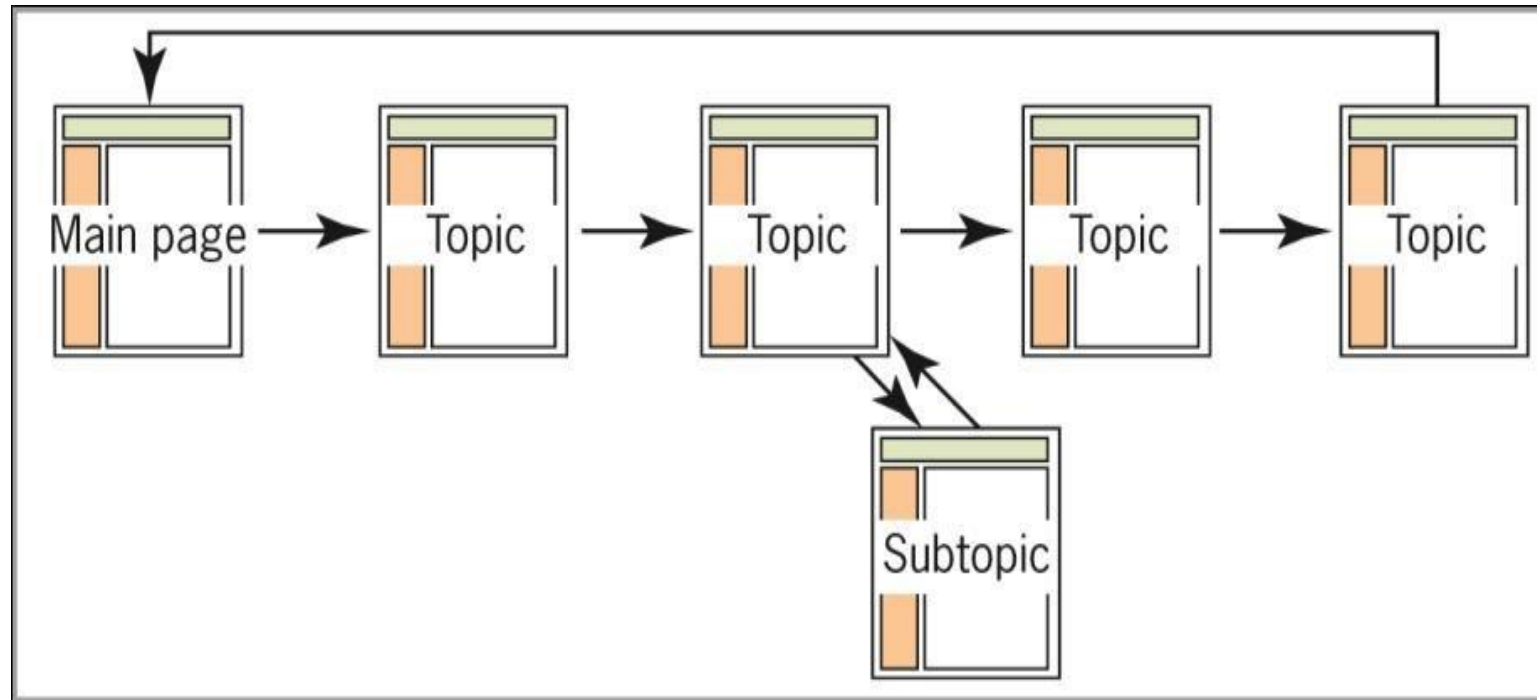
# Creating a Site Storyboard

- ❑ Plan your site by creating a storyboard flowchart
- ❑ The flowchart shows structure logic and taxonomy
- ❑ This is an important planning step
- ❑ You can visualize and refine your site design

# Organizing Information Structure

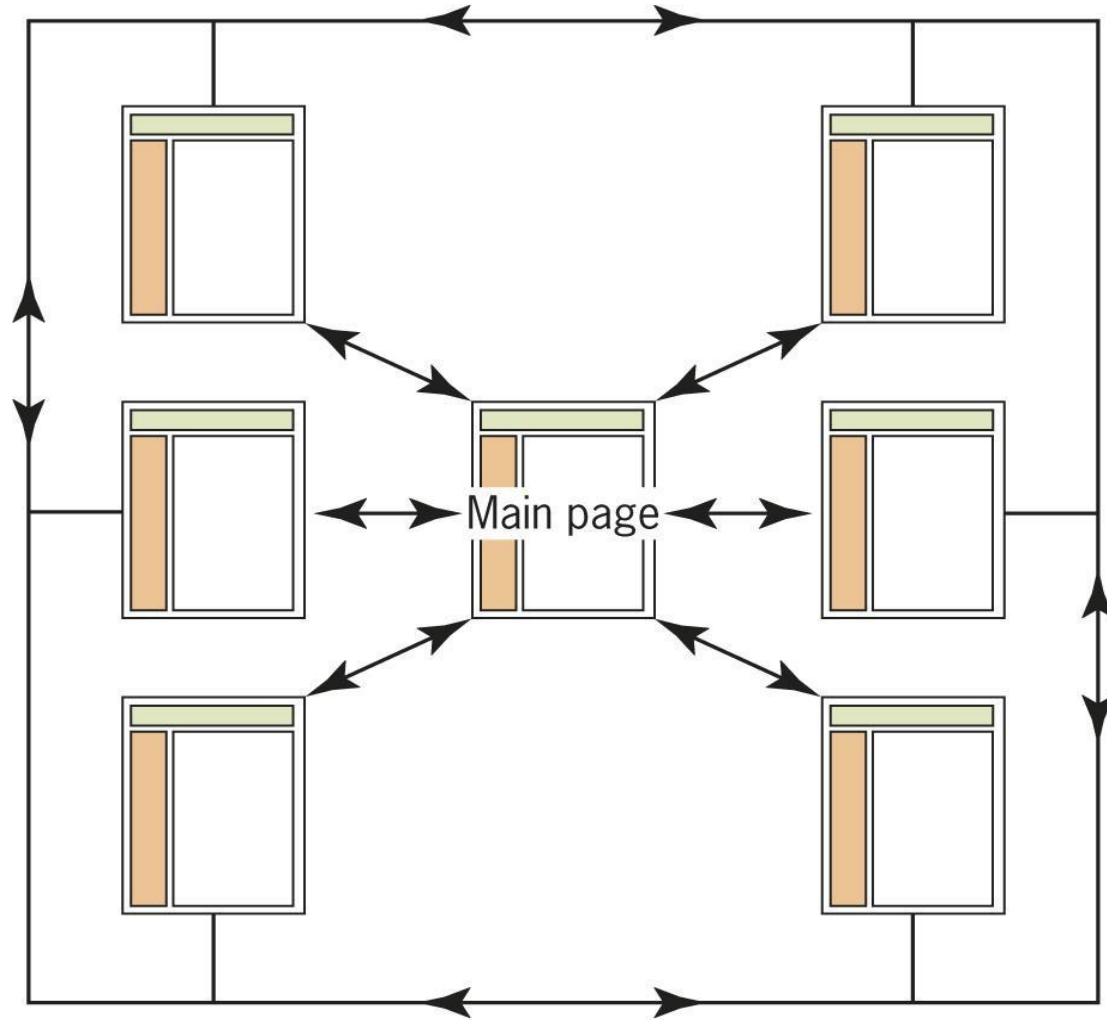
- ☐ Think about your users' information needs
- ☐ How should your information design map look?
- ☐ Review the following sample structures and adapt them to information needs

# Linear Structure



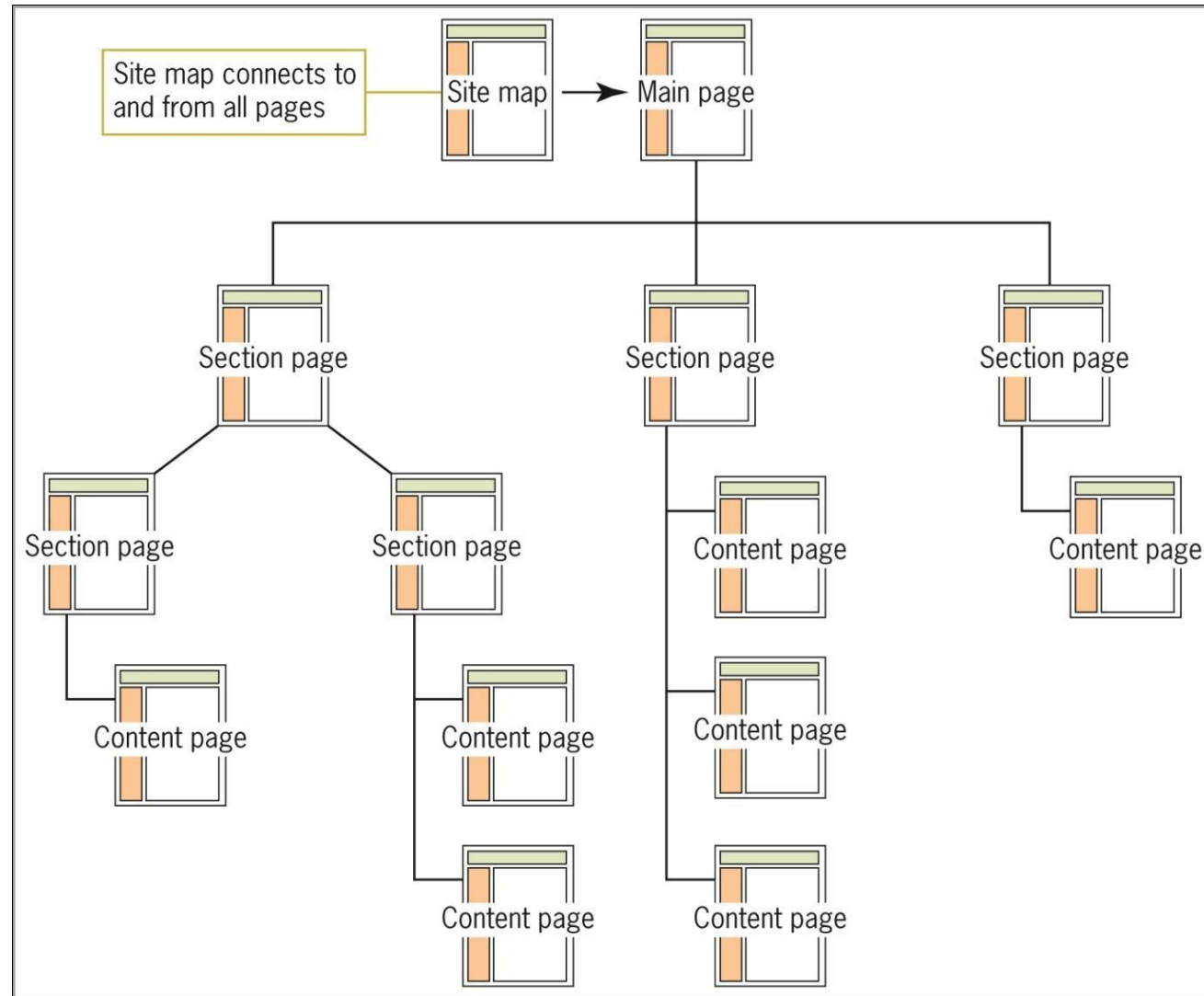
**Figure 3-11** Linear information structure

# Web Site Structure



**Figure 3-13** Web structure

# Hierarchical Structure



**Figure 3-14** Hierarchical structure

# Summary - I

- ☐ A successful Web site is the result of careful planning
- ☐ Become familiar with the Web development lifecycle
- ☐ Start with pencil and paper
- ☐ Write a site specification document
- ☐ Identify the content goal
- ☐ Analyze your audience
- ☐ An effective site is a team effort

# GIT HUB

• For Window Users

tips & tricks





# What is version control?

1. It is a system that keeps record of your code changes.
2. Allows you to undo or revert to any of your previous code state.
3. Allows for team environment and collaborative development.
4. Keeps track of who made the changes and when.

# Quick Guide to GitHub

- Make an account
- Create repository in GitHub
- On your machine make a folder or use an existing folder.
- From your machine command line:
  - Use command: **git clone** <path of repository you created on GitHub>
  - Create file in the folder you created
  - Use **git add** <filename>
  - Then see the status using **git status**
  - If you see that your file is there, in red
  - Use **git commit -m** “any message”
  - Then use git status again to see that your file should be visible in green.
  - To send it to your online GitHub, use **git push** and file name
  - To download a file from the github, use **git pull** command.

```
3/11/2017 04:21 PM <DIR> .
3/11/2017 04:21 PM <DIR> ..
7/09/2017 01:23 PM <DIR> A2
3/11/2017 04:21 PM <DIR> hello-world
3/11/2017 04:20 PM <DIR> Test
```

```
C:\Users\aatig\Desktop\A2\Test>git add First.html
```

```
C:\Users\aatig\Desktop\A2\Test>git status
```

```
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

   new file:   First.html
```

```
C:\Users\aatig\Desktop\A2\Test>git commit -m "I added a grocery file"
[master f3f138e] I added a grocery file
1 file changed, 8 insertions(+)
create mode 100644 First.html
```

```
C:\Users\aatig\Desktop\A2\Test>git push
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 339 bytes | 169.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/ArzooAtiq/Test
869080b..f3f138e master -> master
```

```
C:\Users\aatig\Desktop\A2\Test>git pull
remote: Counting objects: 3, done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/ArzooAtiq/Test
f3f138e..0620bb7 master -> origin/master
Auto-merging First.html
CONFLICT (content): Merge conflict in First.html
Automatic merge failed; fix conflicts and then commit the result.
```

# Useful HTML Elements

- `<section>`
- `<div>`
- `<span>`

# <div>

- It is used for giving structure to HTML pages.
- Divides the web page into different divisions.
- Why? It is helpful in formatting and layout designs separation.
- Syntax:
  - `<div style="color:#0000FF">`  
    `<h3>This is a heading</h3>`  
    `<p>This is a paragraph.</p>`  
    `</div>`
  - In HTML5 there is a `<header>` element, as well as a `<nav>`, `<footer>` and a couple other new elements that replace these div tags.

# Quick Guide

- The new **section** element defines a part of a website with related content. It should not be used as a generic container element or for pure styling purposes. In that case rather use a simple div.
- An **article** defines an independent piece of content which should be able to stand alone and still make sense.
- A **header** defines a header for a document or a section.
- A **footer** is used for defining the footer of a document or a section.
- A **nav** defines a set of navigation links which should be the main navigation of your website.
- An **aside** defines a section with secondary content. If an aside is placed within an article the content should be related to that specific article. If it is placed outside an article the content should be related to the site as whole.

# <section> Element

- The <section> element and the elements we have covered in the last five pages are examples of what are known as **semantic HTML**.
- **Semantic HTML is the use of HTML markup to reinforce the semantics, or meaning, of the information in webpages rather than merely to define its presentation. (wiki)**

When to use?

- If all you want to do is have something look different use a div tag (a generic *container*) and CSS styles.
- If you want a particular part of a page separated from the rest of the page due to the information in it - its "content", use section elements (a generic *section*). Use the section element if there is what W3C calls a "semantic" distinction.
- All these new tags: [header](#), [nav](#), [article](#), [footer](#), [aside](#) and [section](#) are as a group called *section* elements

# <span> element

- The HTML <span> element is a generic inline container for phrasing content, which does not inherently represent anything.
- It can be used to group elements for styling purposes (using the class or id attributes), or because they share attribute values, such as lang.
- It should be used only when no other semantic element is appropriate. <span> is very much like a <div> element, but <div> is a block-level element whereas a <span> is an inline element.

# Block-level elements vs Inline elements

- A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).
- An inline element does not start on a new line and only takes up as much width as necessary.
- [https://www.w3schools.com/html/html\\_blocks.asp](https://www.w3schools.com/html/html_blocks.asp)