IE 4727 Web Application Design

Web Design Principle and AI into Web

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Design Principles

1. **Design Guidelines**
2. Web Storyboard
3. Web Sitemap
4. Web Wireframe

Key Principle

- Visual Hierachy
  - Arrange elements on the page to guide the user's attention. Use size, color, contrast, and spacing to create a clear hierarchy of importance.
- Typography
  - Choose fonts that are easy to read and appropriate for the content. Use font sizes, weights, and styles to create visual hierarchy and enhance readability.
- Color Theory
  - Use a color scheme that complements your brand and enhances the user experience. Consider the psychological effects of colors and use them strategically to convey messages or evoke emotions.
- Consistency
  - Use consistent styles for fonts, colors, spacing, and layout throughout your website to create a cohesive look and feel. This helps users navigate the site more easily.
- Responsive Design
  - Design your website to be responsive, so it looks and works well on a variety of devices and screen sizes. This ensures a consistent user experience across different platforms.

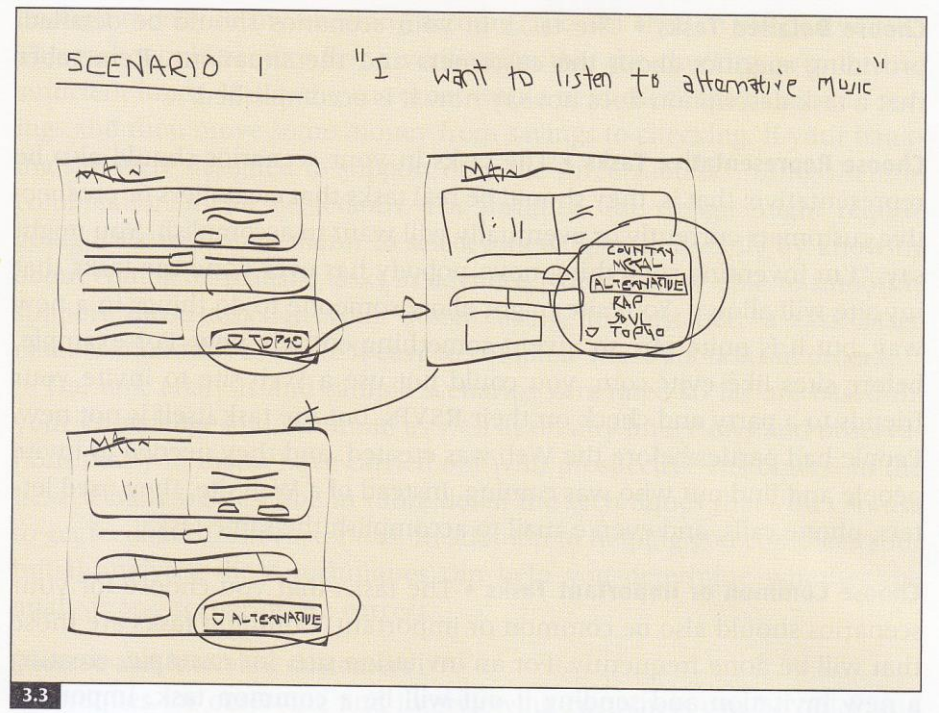
Key Principle

- Accessibility
  - ensure that your website is accessible to all users, including those with disabilities. Use alt text for images, provide keyboard navigation, and follow web accessibility guidelines.
- Mobile First
  - Design your website with a mobile-first approach, considering the needs of mobile users first and then scaling up for larger screens. This helps to ensure a better experience for users on mobile devices.

Storyboard

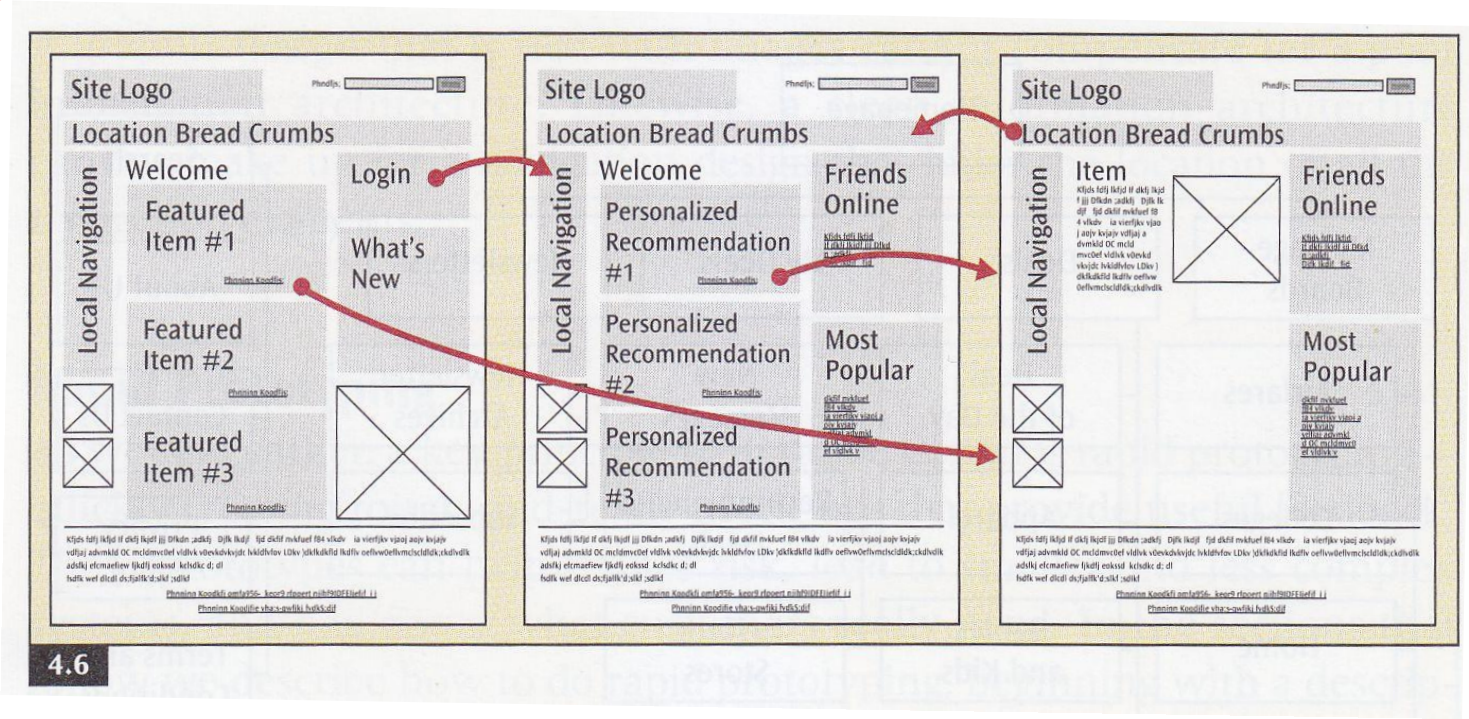
- Create scenarios illustrating why people would use your Web site.
- Use photographs or sketched storyboards.
- Storyboard is a sequence of Web pages that you create to give a rough idea of how someone might accomplish a given task.

Storyboard



This sketcher storyboard shows how a customer would accomplish one task using the design of a music site targeted at mobile device users.

Storyboard: Rapid Prototyping

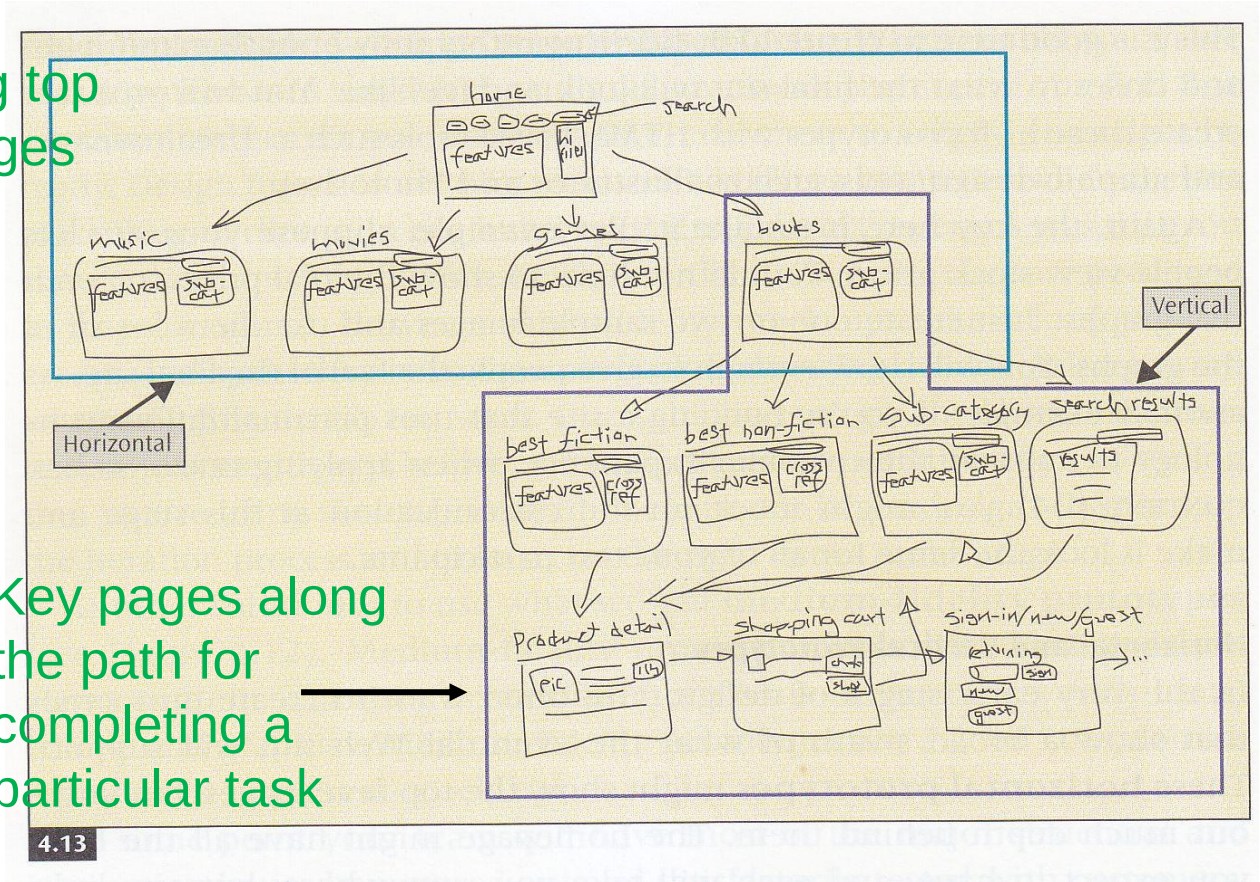


Storyboards show the steps that a customer would take to accomplish a task. This storyboard shows how a customer interacts with a site that lets groups of friends find, recommend, and share things with each other.

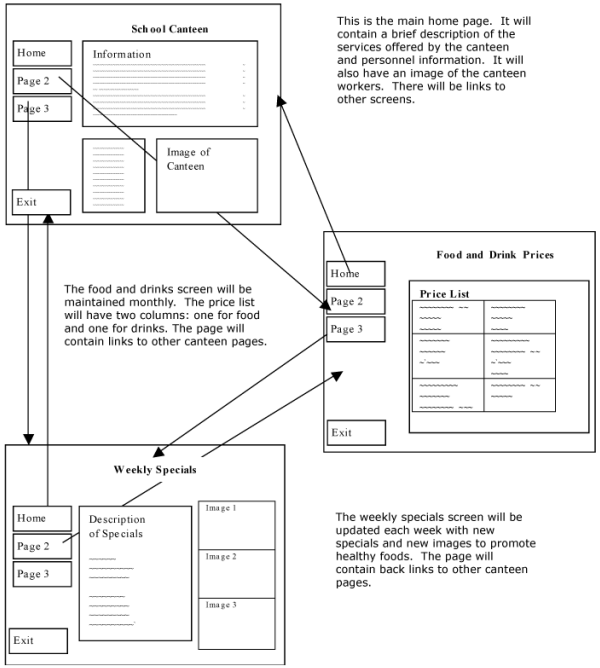
Storyboard: Horizontal and Vertical Prototypes

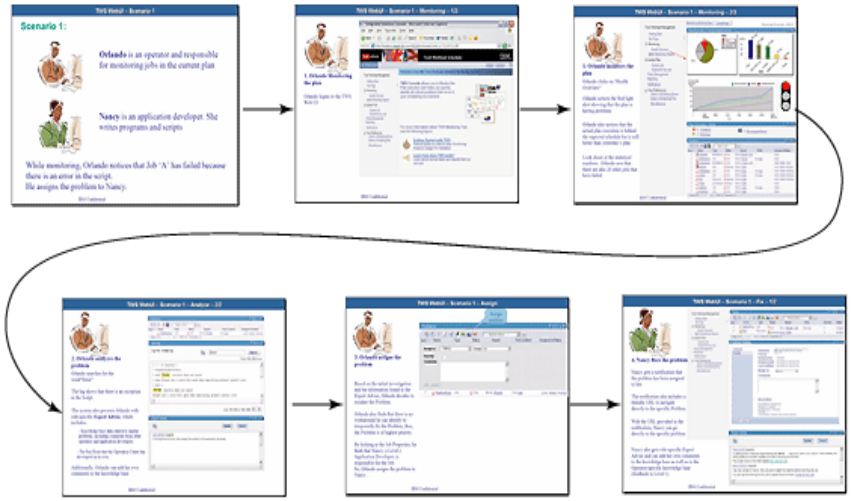
Showing top level pages

Key pages along the path for completing a particular task



Sample Storyboards

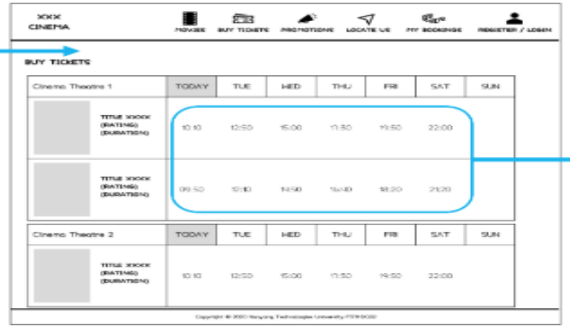




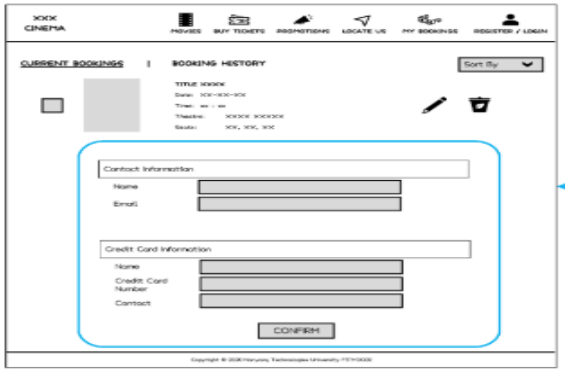
Sample Storyboards

3.2.2 Scenario 2 Book ticket via Buy Tickets

Click on "Movies" at the navigation bar to access page

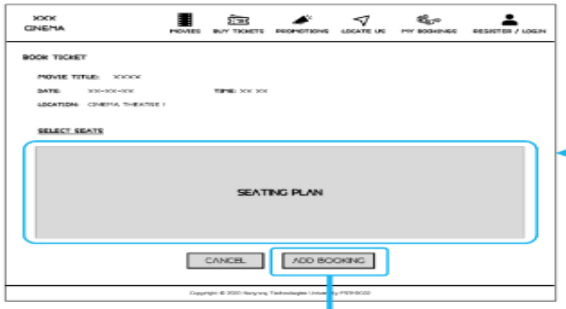


Displays showing times and movies by theatre.
User click on the desired movie and showing time in their desired theatre.



For non-registered member, it will request them to input their details before confirmation.

User click on "Confirm" and an email acknowledgement will be sent to them upon successful booking of their tickets



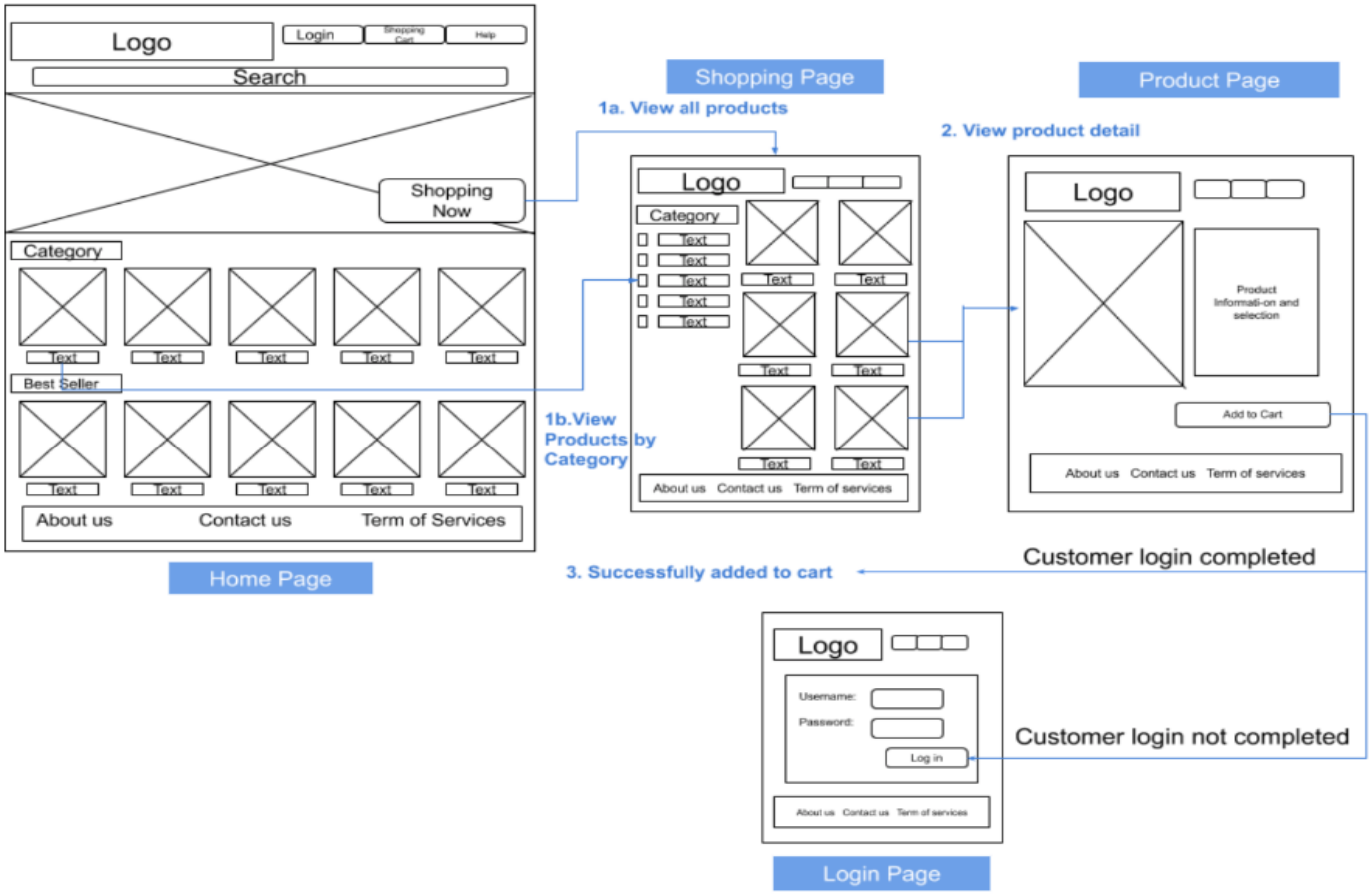
User select their seats in the theatre for booking and click on "Add Booking".

Upon clicking, user will have the booking added for confirmation.
It will prompt user if they would like to make more bookings for other movies or proceed to confirm bookings.

If they chosen not to add more bookings, they will be redirected to "My Bookings" page for ticket confirmation

Sample Storyboards

Scenario 3: Customers add product(s) into Shopping Cart

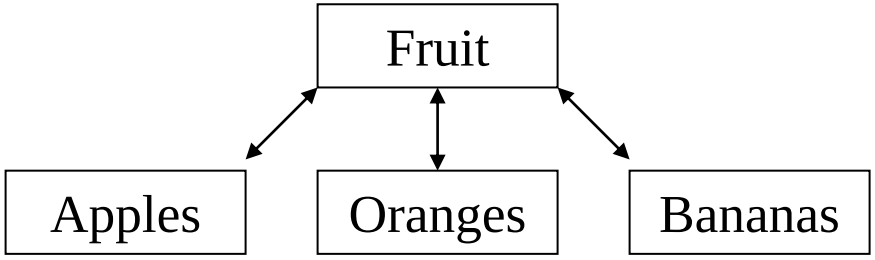


Card Sorting: Site Map Structure

- It helps to determine the best Site Map structure.
- Example

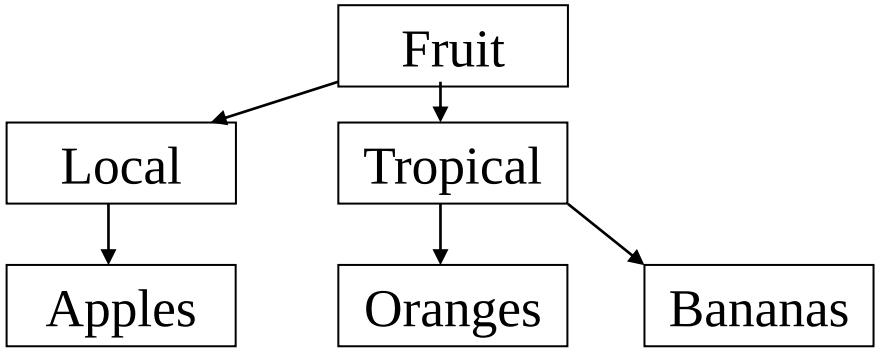
  suppose your site starts with the following content:

  - for a grocery site:

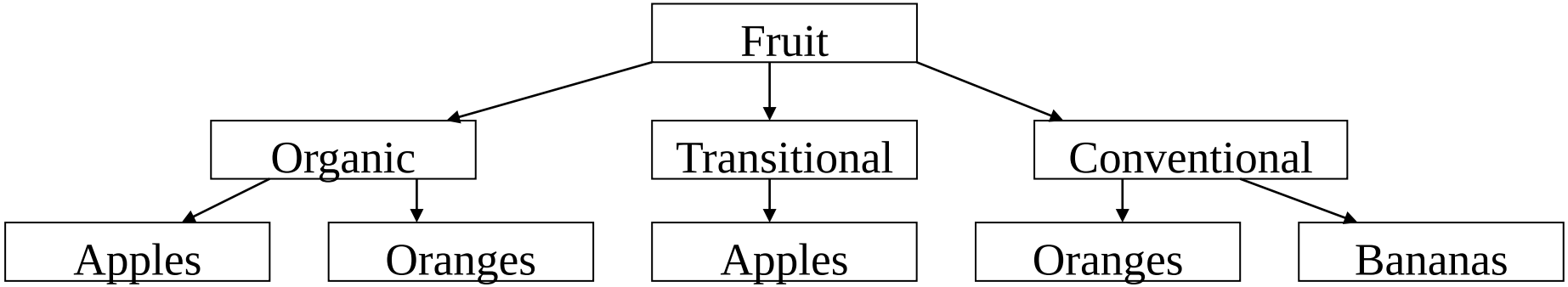


Card Sorting: Site Map Structure

- If customers were particularly concerned about freshly picked, locally grown fruit,



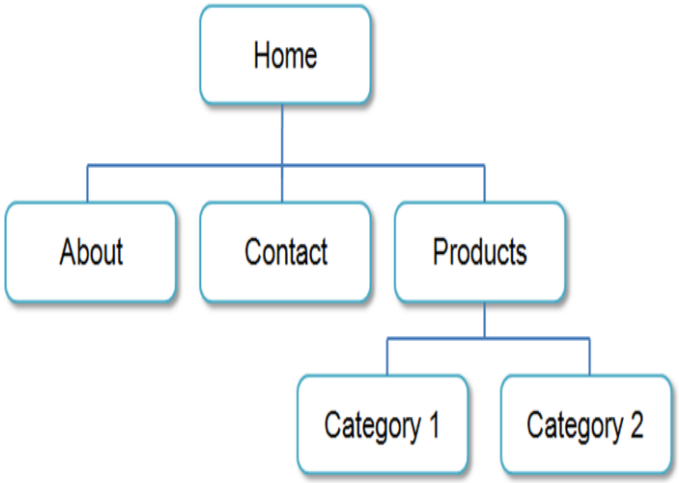
- If customers were concerned about pesticide use,



Website Organization

- Hierarchical
- Linear
- Random

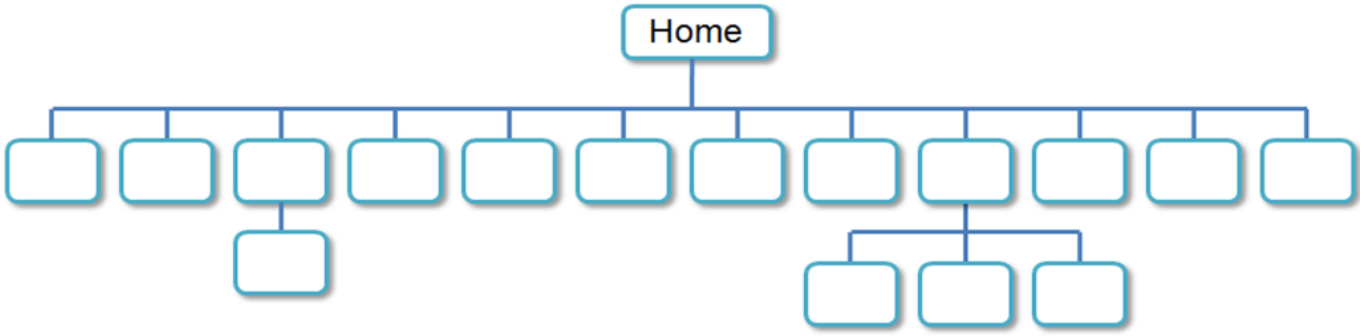
Hierarchical Organization



Site Map

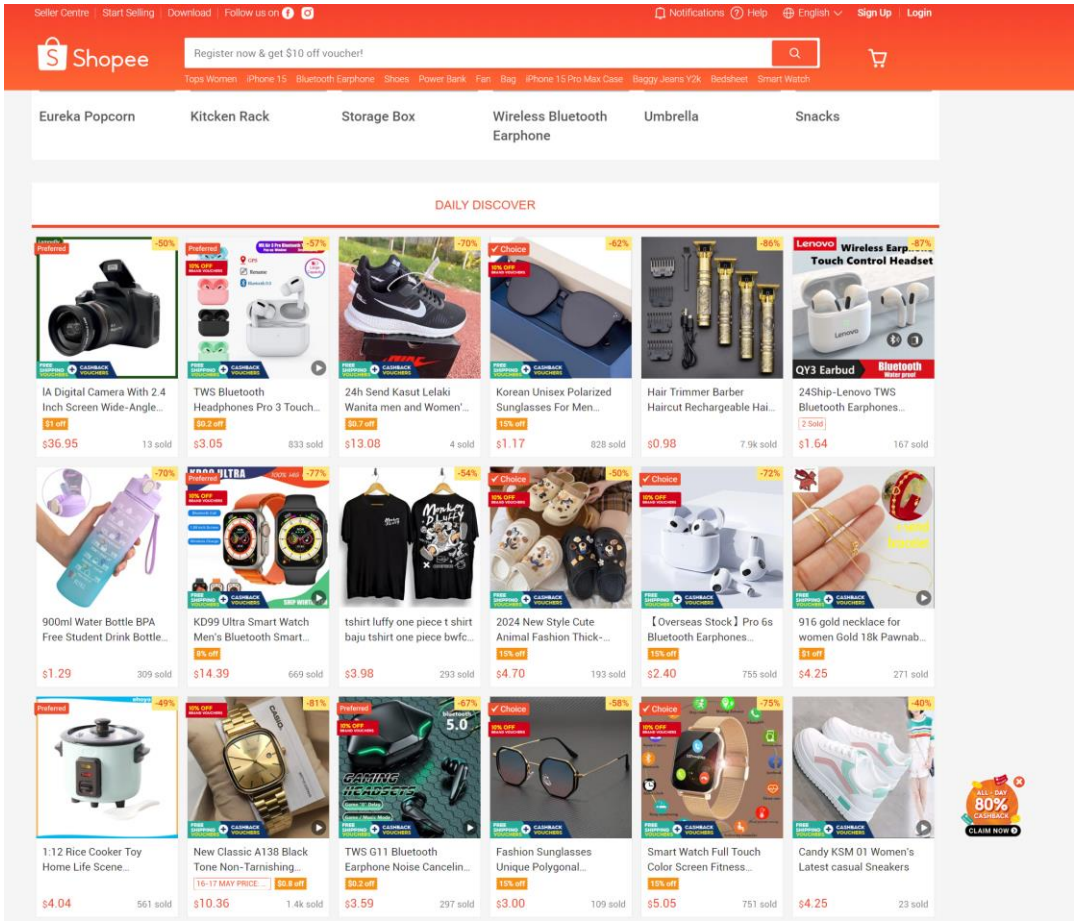
- A clearly defined home page
- Navigation links to major site sections
- Often used for commercial and corporate websites

Hierarchical: Too Shallow

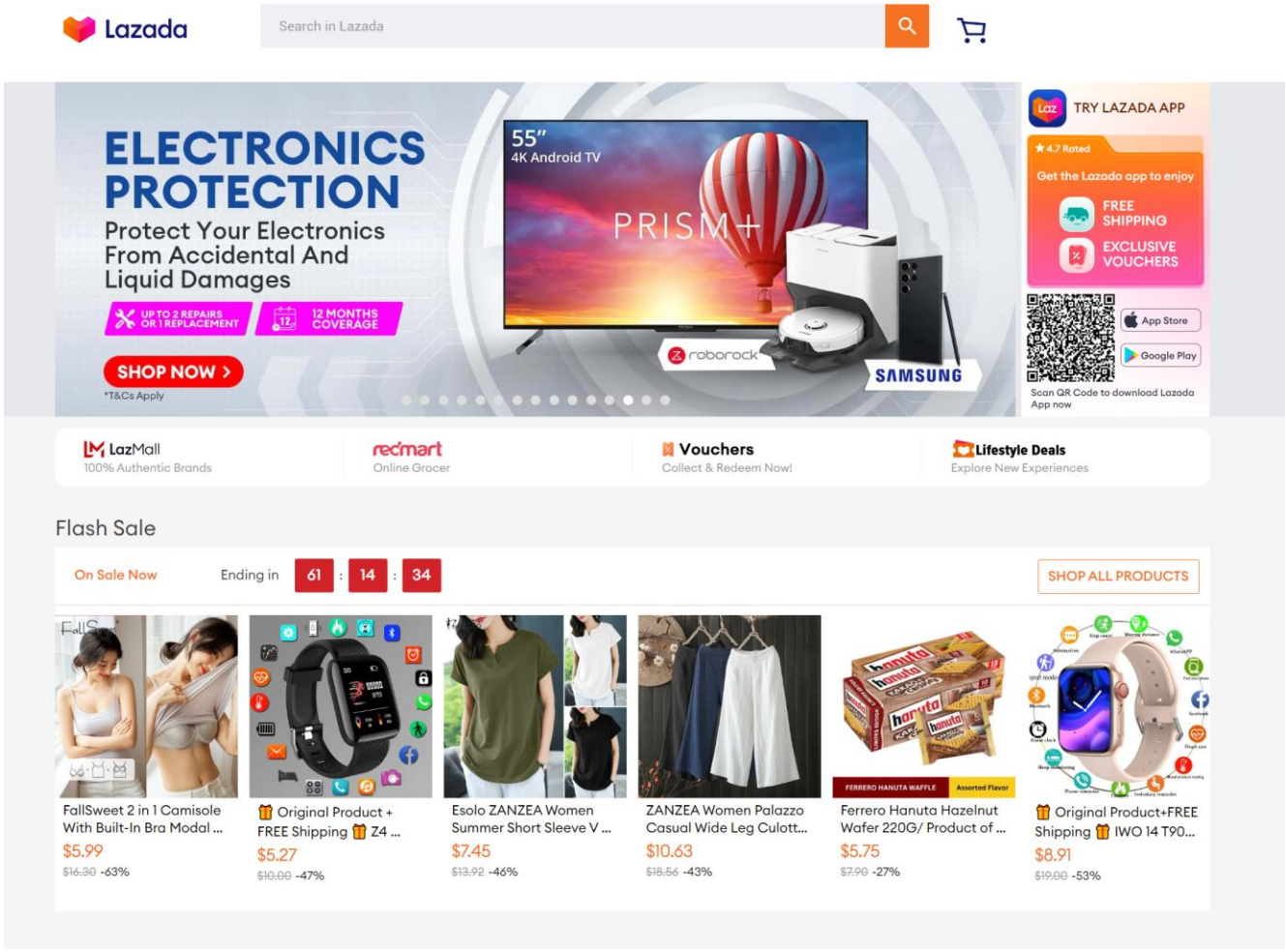


- Be careful that the organization is not too shallow.
- Too many immediate choices → a confusing and less usable website.
- Group, or “chunk”, related areas

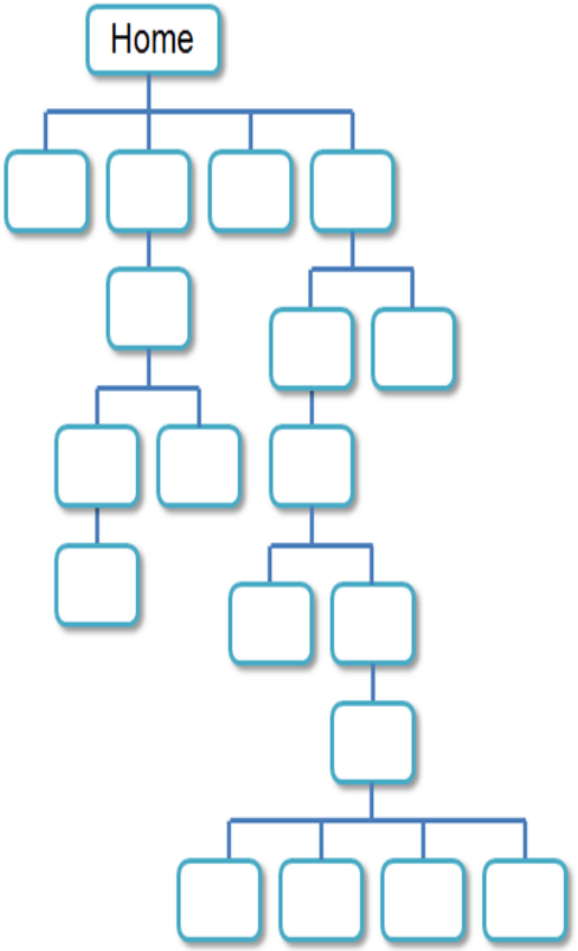
Hierarchical: Shallow



Hierarchical: Shallow



Hierarchical: Too Deep

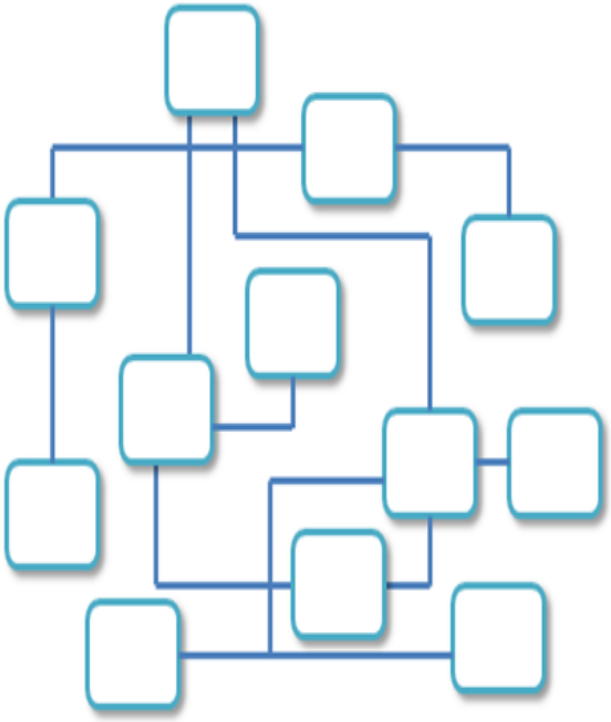


- Be careful that the organization is not too deep.
  - This results in many “clicks” needed to drill down to the needed page.
  - User Interface “Three Click Rule”
    - A web page visitor should be able to get from any page on your site to any other page on your site with a maximum of three hyperlinks.

Linear Organization

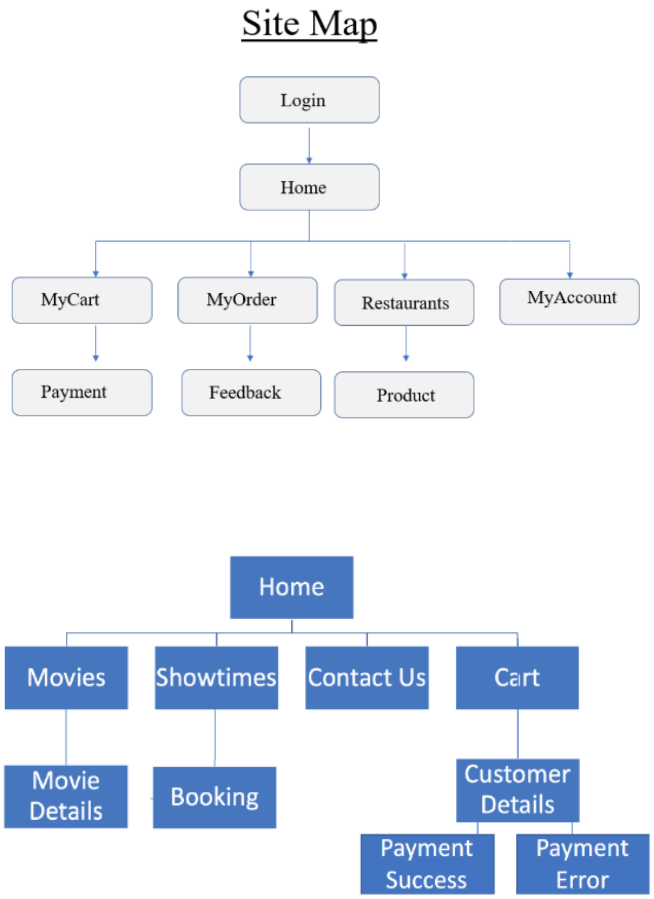
- A series of pages that provide a tutorial, tour, or presentation.
- Sequential viewing

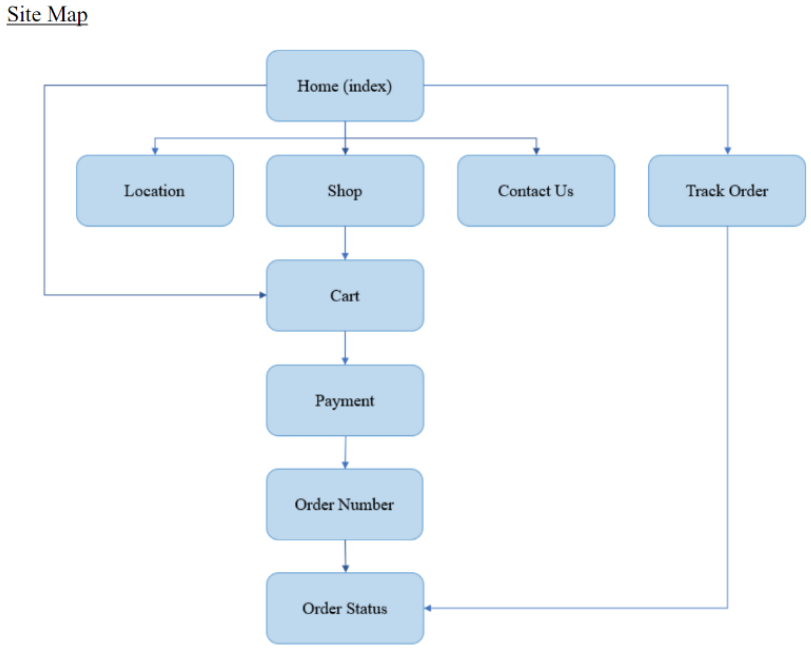
Random Organization



- Sometimes called “Web” Organization
- Usually there is no clear path through the site
- May be used with artistic or concept sites
- Not typically used for commercial sites

Sample Site Maps





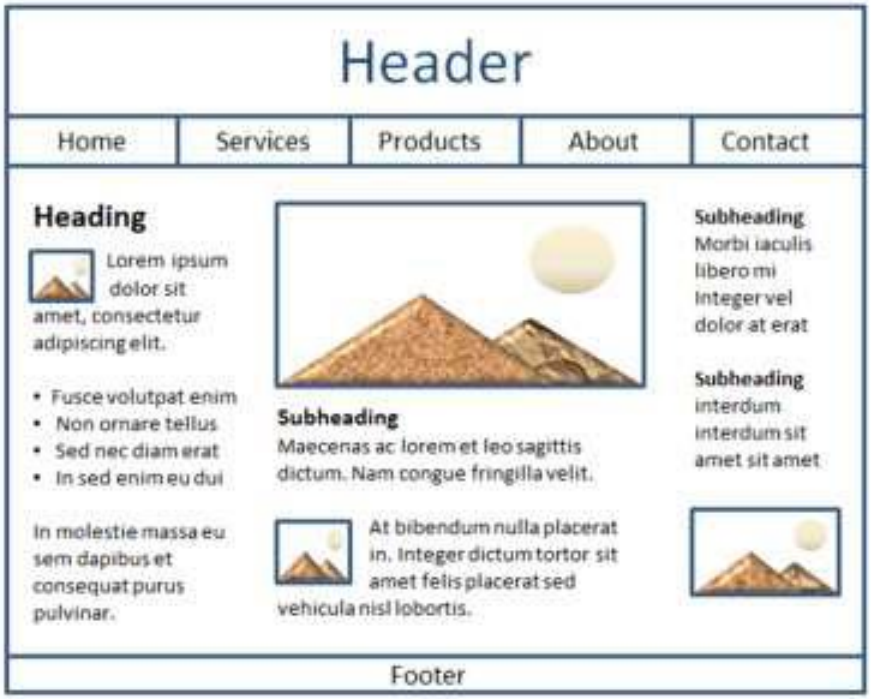
Navigation Design

- Make your site easy to navigate
  - Provide clearly labeled navigation in the same location on each page
  - Most common – across top or down, left side

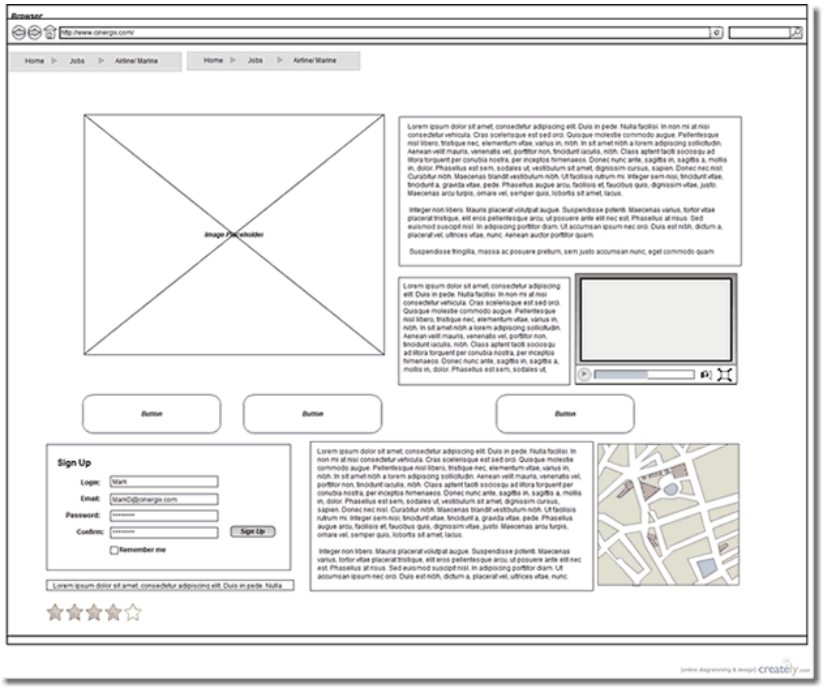
- Consider:
  - Navigation Bars
  - Breadcrumb Navigation
  - Using Graphics for Navigation
  - Dynamic Navigation
  - Site Map Links
  - Site Search Feature

Wireframe

- A sketch of blueprint of a web page
- Shows the structure of the basic page elements, including:
  - Logo
  - Navigation
  - Content
  - Footer

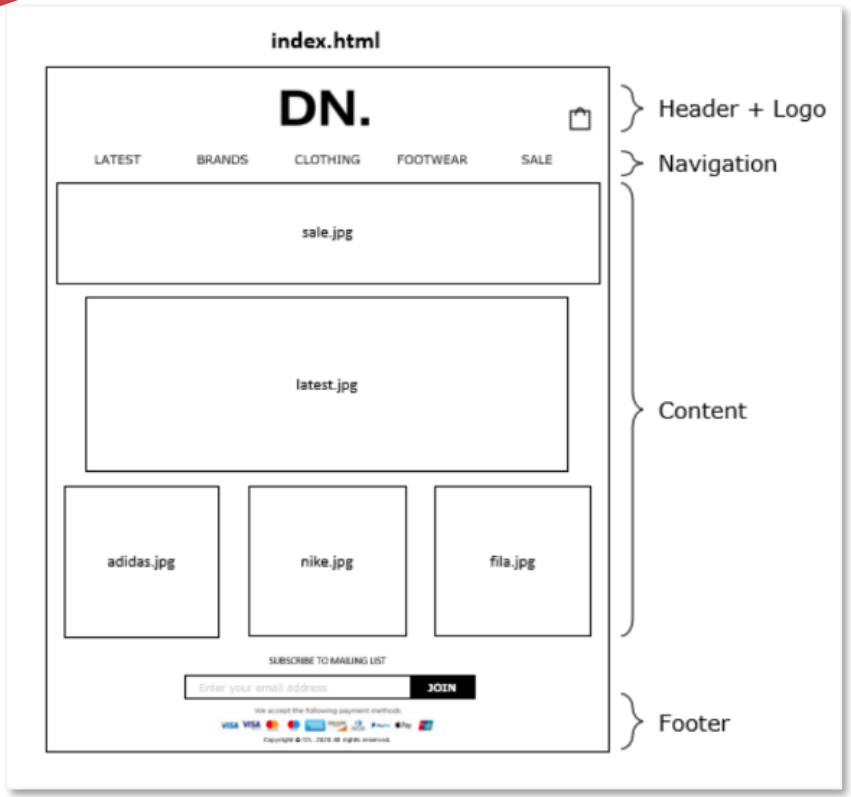


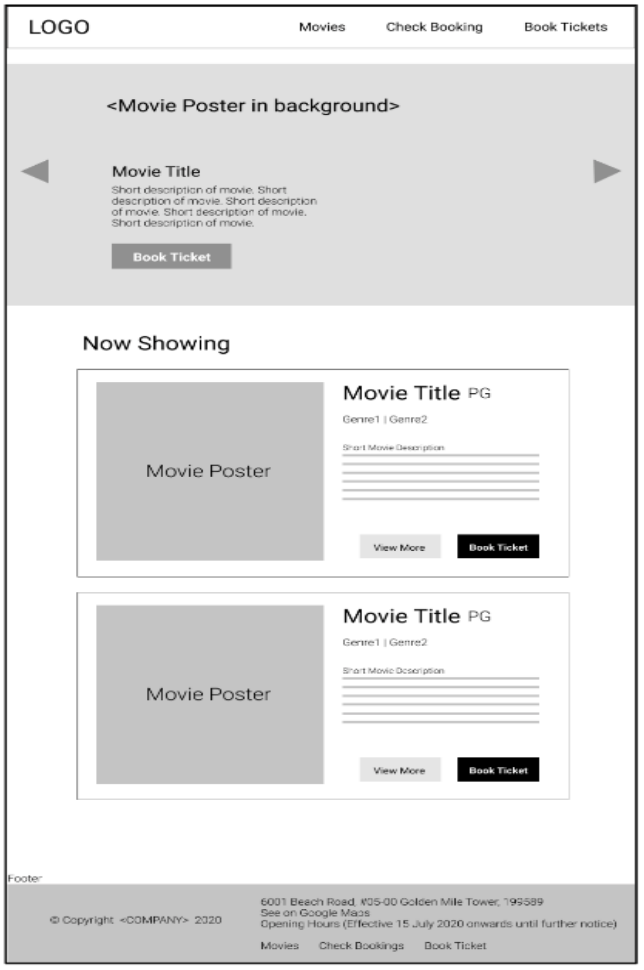
Sample Wireframe



1. For Q1 release, music search only
2. Related artists determined by user purchasing data mining
3. Album art to be approved by legal

Sample Wireframe





Sitemap VS Storyboard VS Wireframe

- Three important steps in the web design that help designers plan the layout and functionality of a website before the dual design work.

- Sitemap: The first step is usually to create a sitemap, which outlines the structure and hierarchy of the website or application. This includes identifying the main pages or screens, as well as how they are connected through navigation links or pathways. The sitemap helps to establish the overall organization and flow of the site or app.

Sitemap VS Storyboard VS Wireframe

- Storyboard: Storyboarding is a visual representation of the flow of a website or web application. It typically consists of a series of sketches or images that show the various pages or screens of the site and how they are connected. Storyboarding focuses more on the overall flow and user experience of the site.

- Wireframe: is the process of creating a basic layout for a website or web application, is more about the layout and structure of individual pages.

Sitemap -> Storyboard -> Wireframing

Web Page Design – Page Layout 01

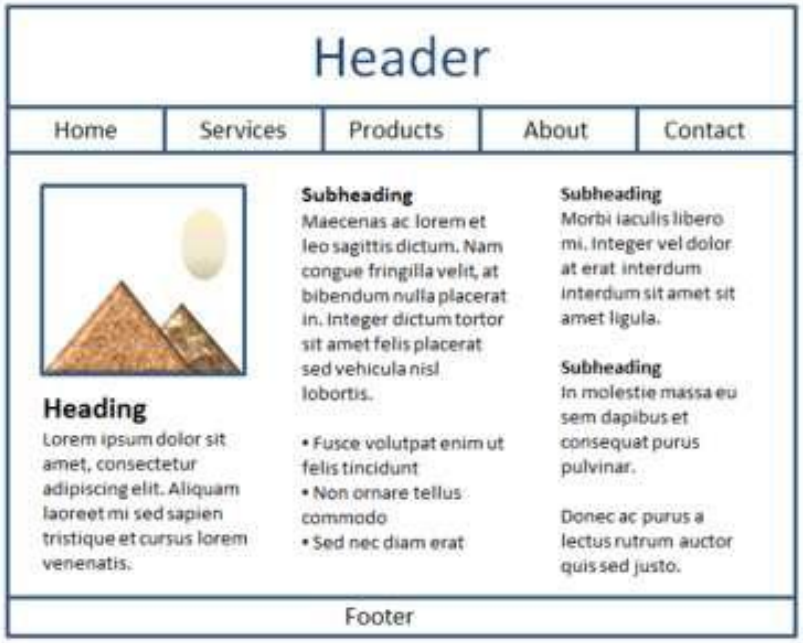
- Place the most important information "above the fold"
- Use adequate "white" or blank space
- Use an interesting page layout

This is usable, but a little boring. See the next slide for improvements in page layout.

Web Page Design – Page Layout 02

Better

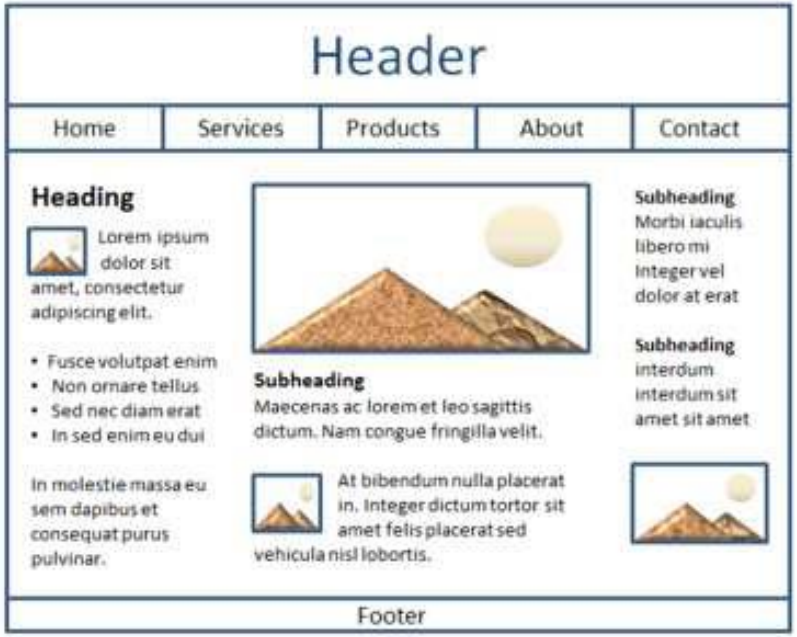
Columns make the page more interesting and it's easier to read this way.

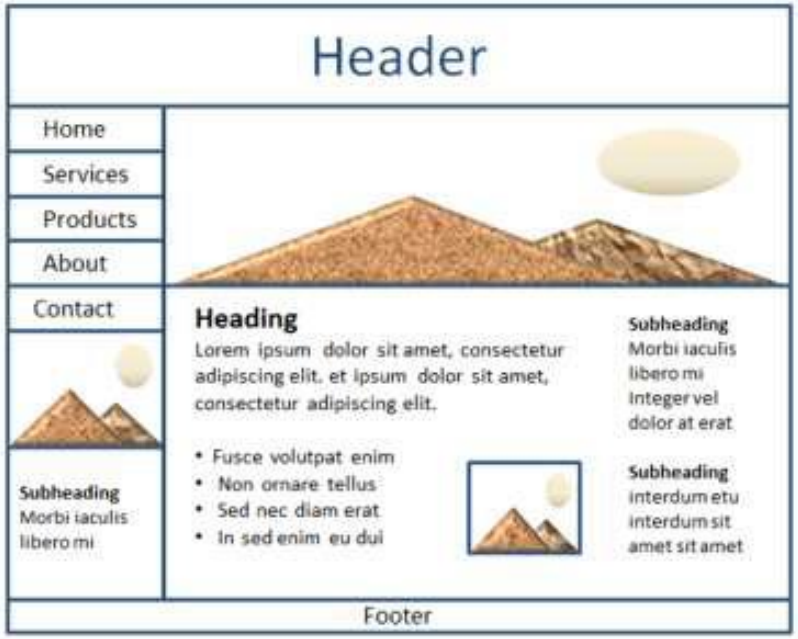


Web Page Design – Page Layout 03

Best

Columns of different widths, interspersed with graphics and headings create the most interesting, easy to read page.



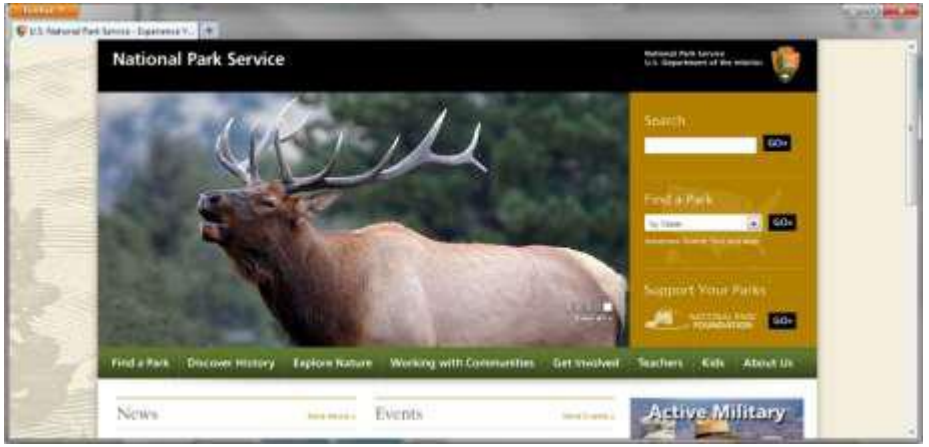


Page Layout Design Techniques

Fixed Layout

- AKA rigid or "ice" design
- Fixed-width often at left margin

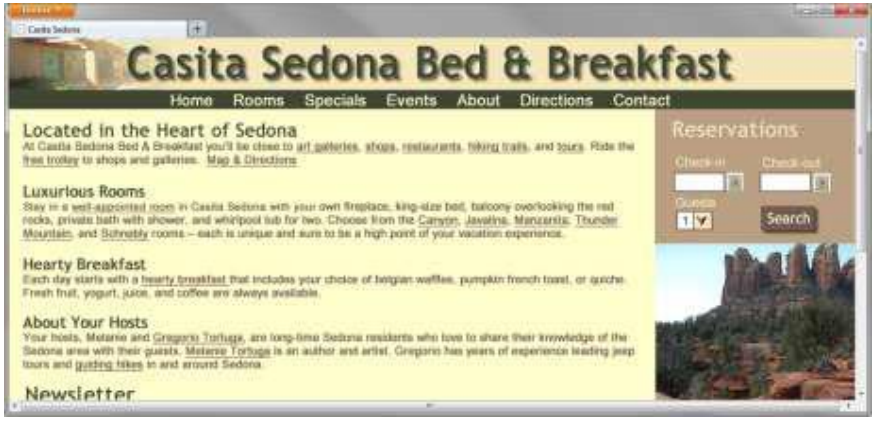
- More appealing if fixed with content centered



Page Layout Design Techniques

Fluid Layout

- AKA “liquid” design
- Expands to fill the browser at all resolutions.



Adaptation:

- Page content typically centered, with a percentage width (such as 80%)
- Set Minimum width

Web Design -- Checklist

http://terrymorris.net/bestpractices

- Page Layout
- Browser Compatibility
- Navigation
- Color and Graphics
- Multimedia
- Content Presentation
- Functionality
- Accessibility

AI Into Web

1. **Role of AI in Web Development**
2. Challenges
3. Future

Role of AI in InfoComm

- **Network Management:** AI is being used to optimize network performance, predict failures, and automate troubleshooting. AI-powered tools can analyze network traffic patterns, detect anomalies, and make real-time adjustments to improve efficiency and reliability.
- **Cybersecurity:** AI is used in cybersecurity for threat detection, anomaly detection, and incident response. AI algorithms can analyze large volumes of data to identify patterns indicative of cyber attacks and help in developing more effective defense strategies.
- **Data Management and Analysis**: AI technologies such as machine learning and natural language processing are used to analyze and extract insights from large datasets. This helps in making data-driven decisions, improving business processes, and enhancing customer experiences.

Role of AI in Web Development

- **The AI tool is transformative to the web development industry. It has created new ways of machine learning that result in faster and more efficient results, creating better-performing websites.**

- **Artificial intelligence brings together different building blocks of software development that enable web developers to be innovative in their jobs.**

Leading AI contributions to web development

Chatbots: The creation of chatbots is one of the most common additions to the web development process. Ai-powered chatbots are essential to modern websites as they provide round-the-clock customer assistance with enhanced reply predictions.

Voice-based search: Voice-based search on the web allows users to search for information using spoken commands instead of typing queries into a search engine. This technology leverages speech recognition and natural language processing (NLP) to understand and process spoken language.

Personalized user experience: The increasing accessibility to the internet has put website owners in a critical place. Each website builder aims to enhance customer experience. The introduction of AI into the web development industry has made it possible.

Challenges

1. Compromised accuracy
2. Lack of creativity
3. Limited decision making

Limitations

Compromised accuracy: Voice search, powered by AI and machine learning algorithms, offers a hands-free, efficient, and convenient way of interacting with devices and applications. It allows users to perform searches, place orders, and access information without typing.

However, the accuracy of voice-based searches can sometimes be compromised. Speech recognition technology still struggles with understanding accents, dialects, and the nuances of spoken language. This can lead to misunderstandings and incorrect search results, leading to a less-than-optimal user experience.

Lack of creativity:
AI-generated code might lack the nuance and sophistication of human-written code. AI does not offer the human touch in design and artistic skill. As a result, websites that rely solely on AI tools are ordinary and need an emotional connection in customer interaction.

Limited decision-making capability: Relying too heavily on AI can discourage developers from fully understanding their code, leading to potential issues. This will cause the issue of limited decision-making capability, the AI development tools cant deal with complex tasks independently.

Future

The Future of AI

"The future of web development is intrinsically linked with Artificial Intelligence. As AI becomes more sophisticated, we can anticipate more websites incorporating AI-driven functionality into their web design."

Will AI Take Over Web Development ?

"AI is progressively entering the domain of web development. In the future, we can expect a more personalized user experience as AI algorithms are trained to understand individual behaviors and preferences. However, the human touch in creativity and decision-making will remain irreplaceable."

Thanks

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