

**Intro to Web  
Fundamentals  
Chapter 1- Foundations**

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**Issues of bad  
websites-**

- Name issues that we observe on the web

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**Issues Listed**

- Not user friendly
- Too long to download
- Broken links
- Confusing navigation
- Long Flashy Intros

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### Differences...

- Internet – World Wide computer network that links thousands of smaller networks
- World Wide Web – system of Internet servers that support specially formulated documents
- A network can have any number of devices that aren't necessarily part of the web
  - Web servers \*
  - Email servers
  - File servers

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### Purpose of Internet Early evolution –

- DOD (Department of Defense) communicate with contractors (1950-60)
- ARPA (Advanced Research Projects Agency) advance science and technology for military applications (Gotta make war!)
  - ARPA founded several research centers at universities across the country
  - Infrastructure needed to allow sites to communicate
  - ARPANET – cables laid & protocols developed "rules"
    - Protocols (standards of communication)

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### Purpose of Internet

- Email & Usenet (Bulletin Board system) first services developed (1970)
- BitNet – for activities not related to academics or research – start of other technologies
- DNS (Domain name System) mapping out to Internet Protocol (IP) addresses
- 1990 first graphical browser (Mosaic)
- Government allowed commercial access.

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## WWW...

- World Wide Web is a way of organizing information so that any computer that uses its rules (protocols) can access it
- HTTP – HyperText Transfer Protocols
- IP – Internet Protocol

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## 3 Critical Elements

of the web's system of linking information

1. uniform address (DNS/IP)
  2. protocol for transmitting linked information (TCP/IP)
  3. language for encoding the info (HTML)
- The basic DOCUMENT format was developed by Berners-Lee
    - HTML (HyperText Markup Language) based on SGML (Standard General Markup Language)

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## Major Characteristics of HTML

- Simplicity – logical & simple
- Universality – works on ANY browser
  - any computer could INTERPRET the basic collection of tags & INTERPRET them in the same way – anyone can exchange anything & have access
- Degradability – never break older releases of the language as HTML is upgraded – and as World Wide Web evolved – no upgrades needed (New browser versions embellish on old!)

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### **Question?**

- What sets aside web pages from paper communications?
  - BEHAVIOR
- Web is interactive, colorful, diverse, and can be changed on a real-time basis

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### **Organizational Model for Web**

- Presentation – what viewers see
- Structure – ease of use, ability to understand information
- Behavior – how user interacts – resulting behavior.

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### **CHARACTERISTICS**

- Non- linearity – use of hypertext links allows for a variety of paths
- Interactivity – unlike print
  - Responds to user input
  - Ordering capability (broadens accessibility of users to products worldwide)
  - Collects data (forms, data)
  - Animations (images or interactive animations)
  - Choices allowed by user (click here to submit/click to cancel/ move to next)
- Graphics Oriented – images!!

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## World Wide Web Organizations

- ISOC – (Internet Society)
  - not for profit, non-governmental
  - maintains/enhances Internet
- IETF – (Internet Engineering Task Force)
  - defines standard Internet operating protocols
- ICANN – (Internet Corporation for Assigned Names and Numbers)
  - responsible for IP addressing, DNS management
- IANA – (Internet Assigned Numbers Authority)
  - responsible for assigning domain names, IP addresses & protocol numbers.
- W3C – World Wide Web Consortium –
  - ensures interoperability to web
  - HUGE contributions to growth of web
  - Oversees standardization of HTML, protocols & languages related to World Wide Web including XML, CSS, and SMIL.

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## W3C Goals

- Universal Access – assessable to all technologies – despite culture, education, ability, material resources, and physical limitations of users
- Semantic Web – software permitting user to be able to use resources of WEB
- Web of Trust – guides industry through legal, commercial and social issues raised

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## W3C Tasks

- Vision - promotes & develops vision for future of the World Wide Web utilizing researchers & organizations of the entire web community.
  - Contributions of WEB groups enable W3C to identify the technical requirements to make World Wide Web universal as informational medium.
- Design – Designs web technologies that realize its vision
- Standardization – contributes to efforts to standardize web technologies (through recommendations) describing building blocks

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**W3C Design Principles**

- Interoperability – specifications for languages & protocols must be compatible with one another (hardware & software also need to work together)
- Evolution – must be able to accommodate future technologies
- Decentralization – allows scalability to Worldwide proportions (limiting breakdowns & errors)

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