Design of an own WWW-Homepage
PPS SS 2003

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Outline for Today

- Administrative details

- Goal of the Praktikum

- Technical requirements

- Introduction to Webpage design

- Practical exercises
  - Creating the first homepage
  - Publishing the page created previously

Administrative Details

- Assistants
  - Hasan Hasan: hasan@tik.ee.ethz.ch, ETZ H84
  - Károly Farkas: farkas@tik.ee.ethz.ch, ETZ G64.1
- Dates of the praktikum afternoons
  - 07. April 2003, 14.15 - 17.00, ETZ F76.1
  - 14. April 2003, 14.15 - 17.00, ETZ F76.1
  - 05. May 2003, 14.15 - 17.00, ETZ F76.1
  - 12. May 2003, 14.15 - 17.00, ETZ F76.1
  - 19. May 2003, 14.15 - 17.00, ETZ F76.1
  - 26. May 2003, 14.15 - 17.00, ETZ F76.1

Administrative Details (cont'd)

- Date of final presentation
  - 30. June 2003, 14.15 - 17.00, ETZ F76.1
- Praktikum Homepage
  - http://www.tik.ee.ethz.ch/tik/education/lectures/PPS/web/SS03/
- Praktikum mailing list
  - pps-web@tik.ee.ethz.ch
- Language of the Praktikum
  - English ☹

Goal of the Praktikum

- To become acquainted with the basics of WWW technology

- To be able to construct an own Homepage

- To be able to present this Homepage
  - Criteria to the final presentation
    - Should be clear by the end of the Praktikum

- To be able to evaluate others' work
  - Evaluation will be done by the participants themselves

Technical Requirements

- To join the praktikum
  - it's required:
    - a laptop with text editing and Webpage browsing capabilities
  - it's recommended:
    - wireless LAN or 10/100 Mbit/s Ethernet LAN (UTP) interface
- Moreover, the working of the student account on the computer infrastructure of ETH should be found out and checked

Introduction to Webpage Design

- Web history
- Terminology
- Using the Web
- Creating a Webpage

Web History

- Original motivation
  - To invent a globally distributed hypermedia system for better info exchange among researchers at CERN
- Idea inventor
  - Tim Berners-Lee, 1989
- Milestones
  - First working prototype: end of 1990
  - First real browser (NCSA's Mosaic): 1993
  - Netscape Corp. was founded: 1994
  - World Wide Web Consortium was founded: 1994
  - Microsoft released IEv1.0: 1995

Terminology

- User
  - Human being which interacts with the web through some kind of program

- Browser
  - Program which is used to access web servers and displays documents retrieved from them

- Client
  - Program which accesses web servers (eg., browser, search engine, etc.)

- Server
  - Server program which stores documents

Main Components of the Web

- ## URI
  - Uniform Resource Identifier: How to name a document
    - http://www.tik.ee.ethz.ch/
- ## HTTP
  - Hypertext Transfer Protocol: How to get a document
- ## HTML
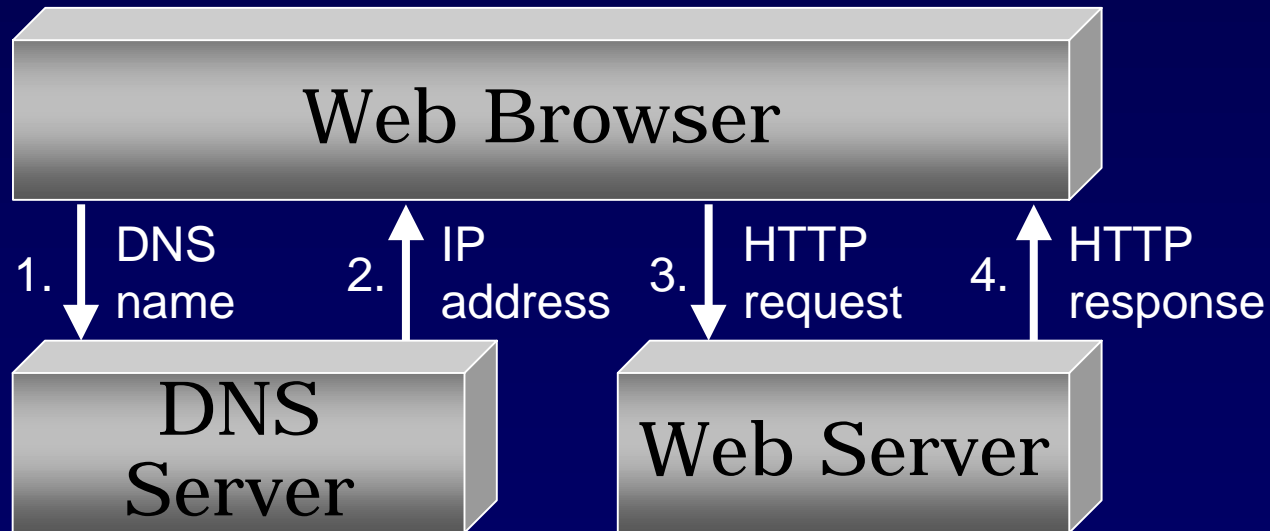 - Hypertext Markup Language: The document format for hypertext

URI

- URI : URN (Uniform Resource Name) or URL (Uniform Resource Locator)
- URL Syntax
  - scheme ":" scheme-specific-part
- Scheme
  - ftp, port #: 21
  - http, port #: 80
  - https, port #: 443
  - nntp, port #: 119
  - mailto
  - telnet, port #: 23
  - …

URL Scheme-specific-part

- Specific syntax
  - "//" [user[":"pass]"@"]host[":"port]"/"url-path
    - eg.: http://joe:cool@www.ethz.ch:80/~joe/hidden
- General syntactical rules
  - percent sign: %
    - escape character
  - hierarchical forms: /
    - delimit hierarchical substrings
  - hash sign: #
    - delimit an object reference from a fragment id
  - query strings: ?
    - Delimit the boundary between the id of the object and a query on that object

Host Name Resolution

- Host name: well specified name
  - fully qualified domain name or
  - IP address in its decimal form
- In case of domain name
  - using Domain Name Service (DNS)

```
                    ┌──────────────────────────┐
                    │      Web Browser         │
                    └──────────────────────────┘
           1. │ DNS    2. ↑ IP    3. │ HTTP    4. ↑ HTTP
              ↓ name      │ address    ↓ request   │ response
        ┌──────────┐           ┌──────────┐
        │   DNS    │           │Web Server│
        │  Server  │           │          │
        └──────────┘           └──────────┘
```

HTTP

- Hypertext Transfer Protocol
  - How to get a document?
  - Text based request/response protocol between the client and the server
  - Uses TCP (Transmission Control Protocol)
- HTTP history
  - HTTP/0.9: 1992
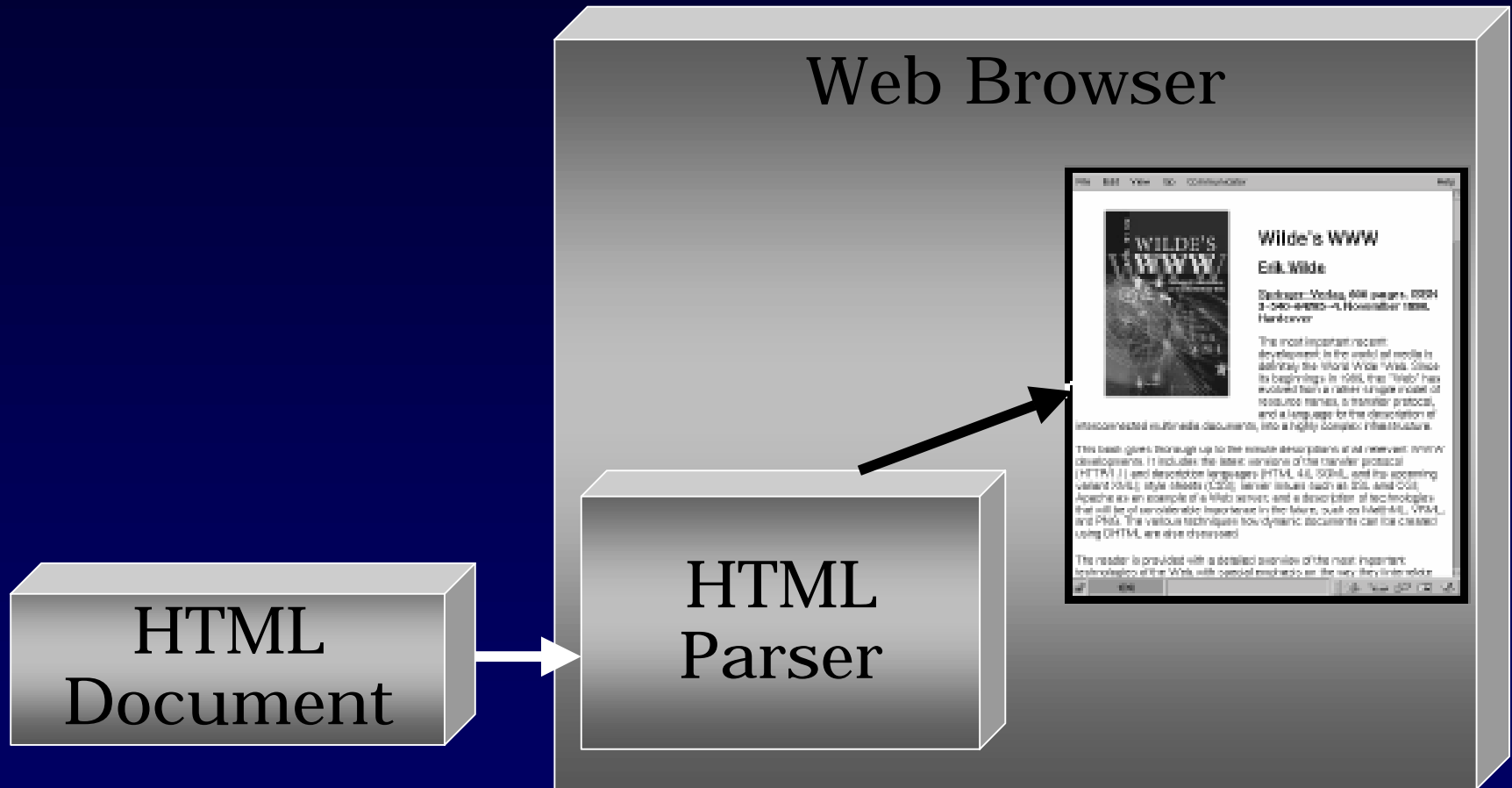 - HTTP/1.0: around 1996
  - HTTP/1.1: 1997

Creating a Webpage

- Content of a general Webpage
  - Textual information
  - Navigation aids
  - Images
  - Multimedia materials
  - Links to other materials
  - Data posting forms
  - Contact info (eg., email address)
  - Dynamic content (eg., from database)
  - ...

But how can we carry out this?

- Basic tool: HTML-Hypertext Markup Language
- Current version: 4.0 (since 1997)

Visualizing a Webpage

HTML Document → HTML Parser

Web Browser

Wilde's WWW

Erik Wilde

General Structure of a Webpage

HTML Document

Document Head
(Information about the document)

Document Body
(The real content of the document)
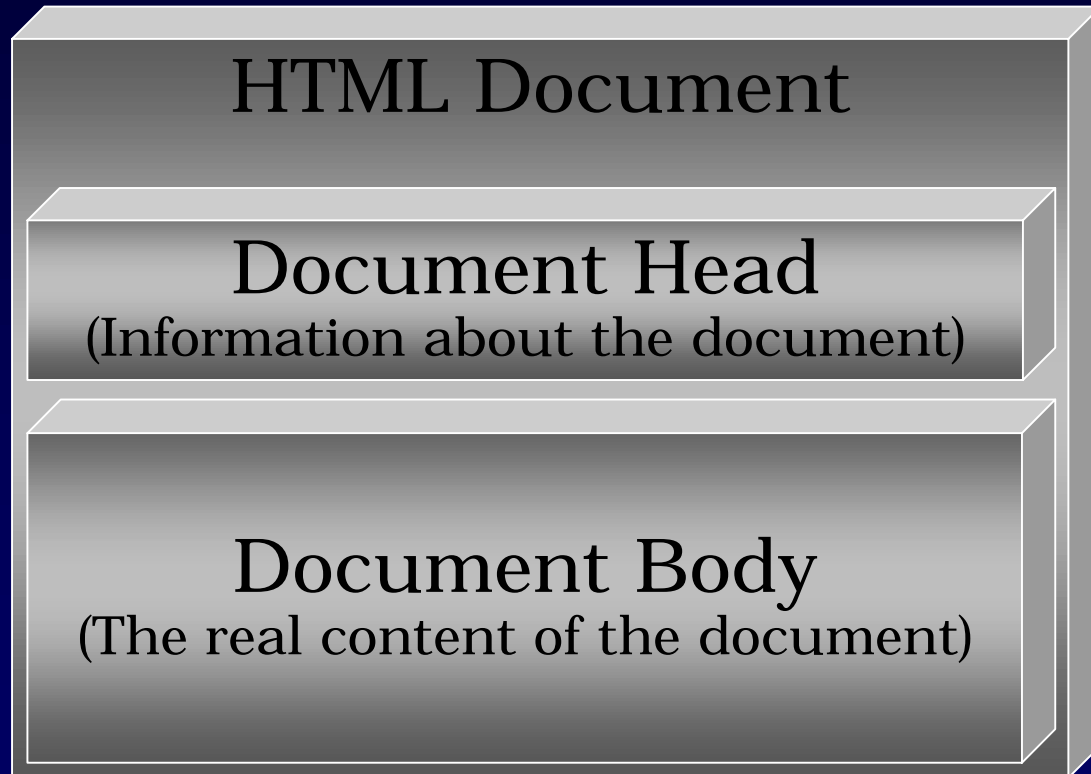
General Structure of a Webpage (2)
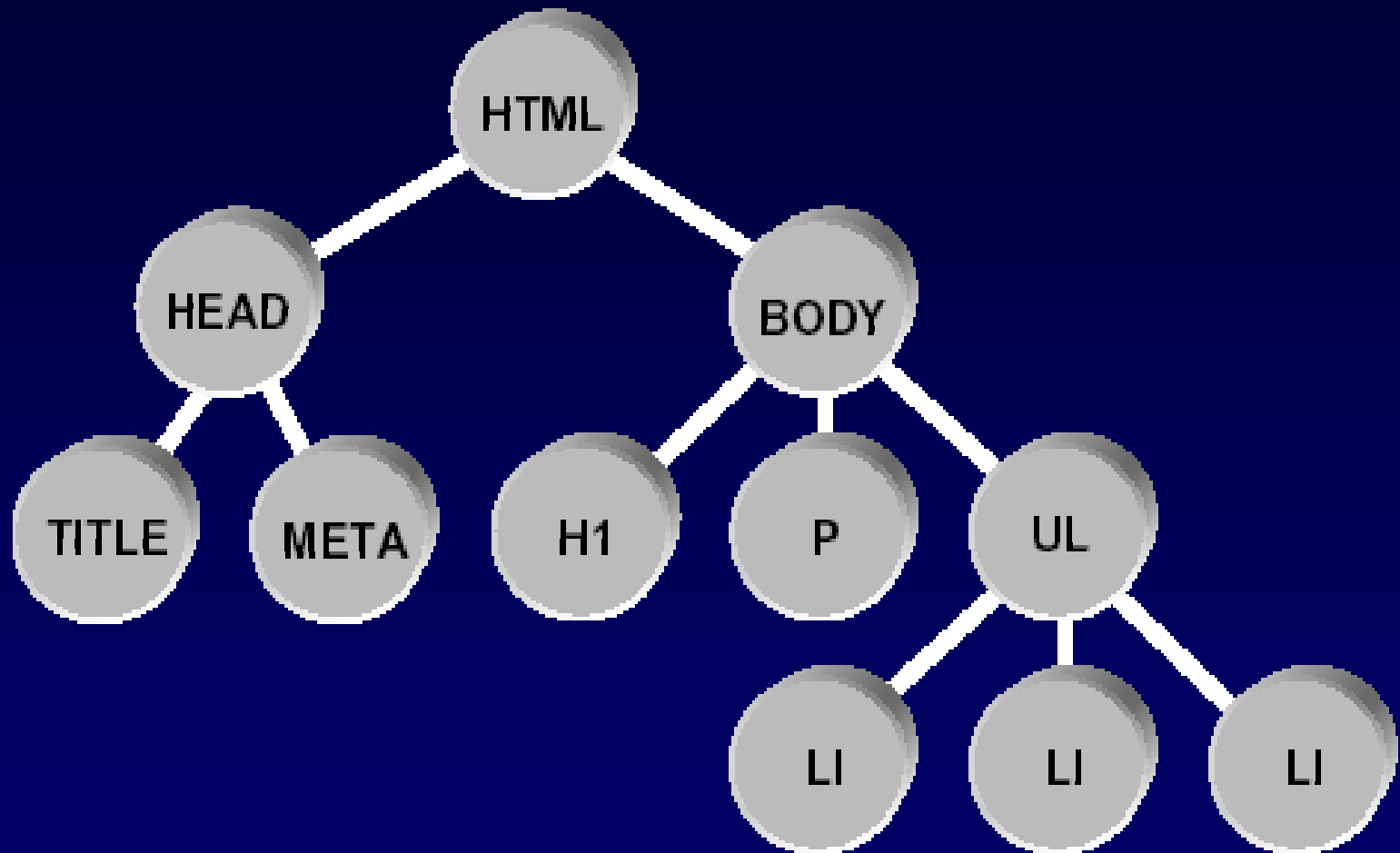
General Structure of a Webpage (3)

- HTML
  - The file contains HTML-coded information
- Head
  - Contains info about the document
- Title, Meta
  - Identifies the document with a 'title' and occasionally contains some additional meta info
- Body
  - Contains the content of the document
- Hx, P, UL, …
  - Header format, paragraph, list, …

HTML Basic Syntax

- Fundamental components: *elements*
  - Eg., head, table, paragraph, list, etc.
- To denote elements
  - Use tags: "*<*" *tag_name*"*>*"
  - Tags are usually paired: <H1> and </H1>
  - Some elements may include an attribute
    - eg.: top, middle or bottom as alignment
  - HTML is not case sensitive: <title> = <TITLE>
- Minimal required elements to a valid Webpage
  - <HTML>, <HEAD>, <TITLE>, <BODY> end their end pairs

Creating Our First Webpage

```html
<html>
<head>
<TITLE>A Simple HTML Example</TITLE>
</head>
<body>
<H1>HTML is Easy To Learn</H1>
<P>Welcome to the world of HTML. This is
the first paragraph. While short it is
still a paragraph!</P>
<P>And this is the second paragraph.</P>
</body>
</html>
```

Editing a Webpage

- Using a plain text editor
  - Notepad, vi, emacs, …
- Using a WYSIWYG (What You See Is What You Get) editor
  - Netscape Composer
  - Microsoft Frontpage
  - Adobe PageMill
  - …

Publishing Our Homepage

- Information for D-ITET students
  - http://computing.ee.ethz.ch/www/homepage.en.html
- Information for D-INFK students
  - http://www.isg.inf.ethz.ch/services/index.html