

HTML

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HTML

- Web page creation
- Main idea: **use elements to structure the content**
- Several version
 - Current version: HTML5
- HTML/XHTML
 - Will explain later

Hypertext Markup Language

- Tags, Elements and Attributes
 - Tags = tokens enclosed by angle brackets - < >
 - Elements define the structure of document and lay the foundation for its presentation and manipulation, contained within one or two tags
 - Attributes = Tag modifiers compose of 2 parts: name and value
- Mostly case insensitive and not necessary to quote the value part of the attributes

Element

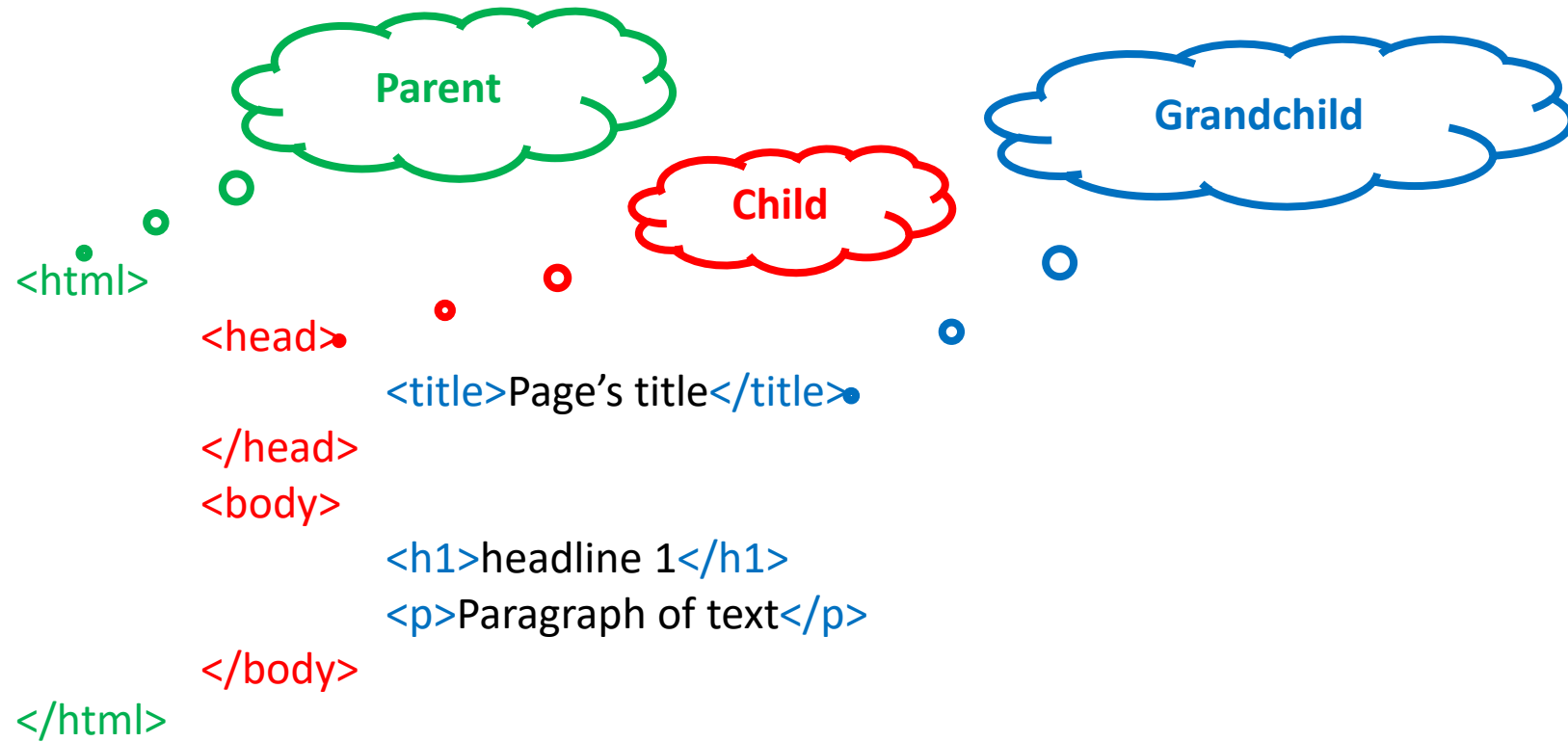
Computer Engineering

Attribute

Closing tag

Opening tag

- Relationship between elements are described in term from a family tree



HTML/XHTML

- Same main idea
- HTML is too relaxed
 - Hard to find a minor mistake
 - Ex:
 - `<h1>this is <i>KMITL</i></h1>`
 - `<h1>this is <i>KMITL</h1></i>`
- XHTML was then developed in 1998 by W3C to fix this issue
 - Strengthen rules
 - Version 2
 - too strict
 - forces the developer to change behavior
 - has no new desired features.
 - /Failure/

HTML5

- 3 key principles of HTML5
 - Don't break the web
 - Everything that was valid before HTML5 remains valid in HTML5
 - Pave the cowpaths
 - Standardizes the unofficial techniques that is widely used
 - Be practical
 - Changes should have a practical purpose
 - Ex: If people are using the web to watch video, then support video in HTML standard

HTML5

CSS3

Using me, you can draw right on your web page. With me, you can draw text, images, lines, circles, rectangles, patterns and gradients. I'll bring out your inner artist.

1

Web Workers

You might have used me in HTML 4 to enter information, but I'm even better in HTML5. I can require that you fill out fields, and I can more easily verify that you've typed an email, URL or phone number where you're supposed to.

2

Forms

You used to need a plug-in for us, but now we're first class members of the HTML family of elements. Wanna watch or listen to something? You need us.

3

Offline Web Apps

We're here to help with the structure and semantic meaning of your page, including new ways of making sections, headers, footers and navigation in your pages.

4

Audio & Video

I'm the most stylish one in the family. You've probably used me before, but did you know I can now animate your elements, give them great rounded corners and even drop shadows?

5

New Markup

Use me as a bit of local storage in every user's browser. Need to store a few preferences, some shopping cart items, or maybe even stash a huge cache for efficiency? I'm your API.

6

Local Storage

Need applications that work even when you aren't connected to the network? I can help.

7

Canvas

I'm the API that can tell you where you are, and I play nice with Google maps.

8

Geolocation

You'll want me whenever you need several scripts running concurrently and in the background, so your user interface remains responsive.

9

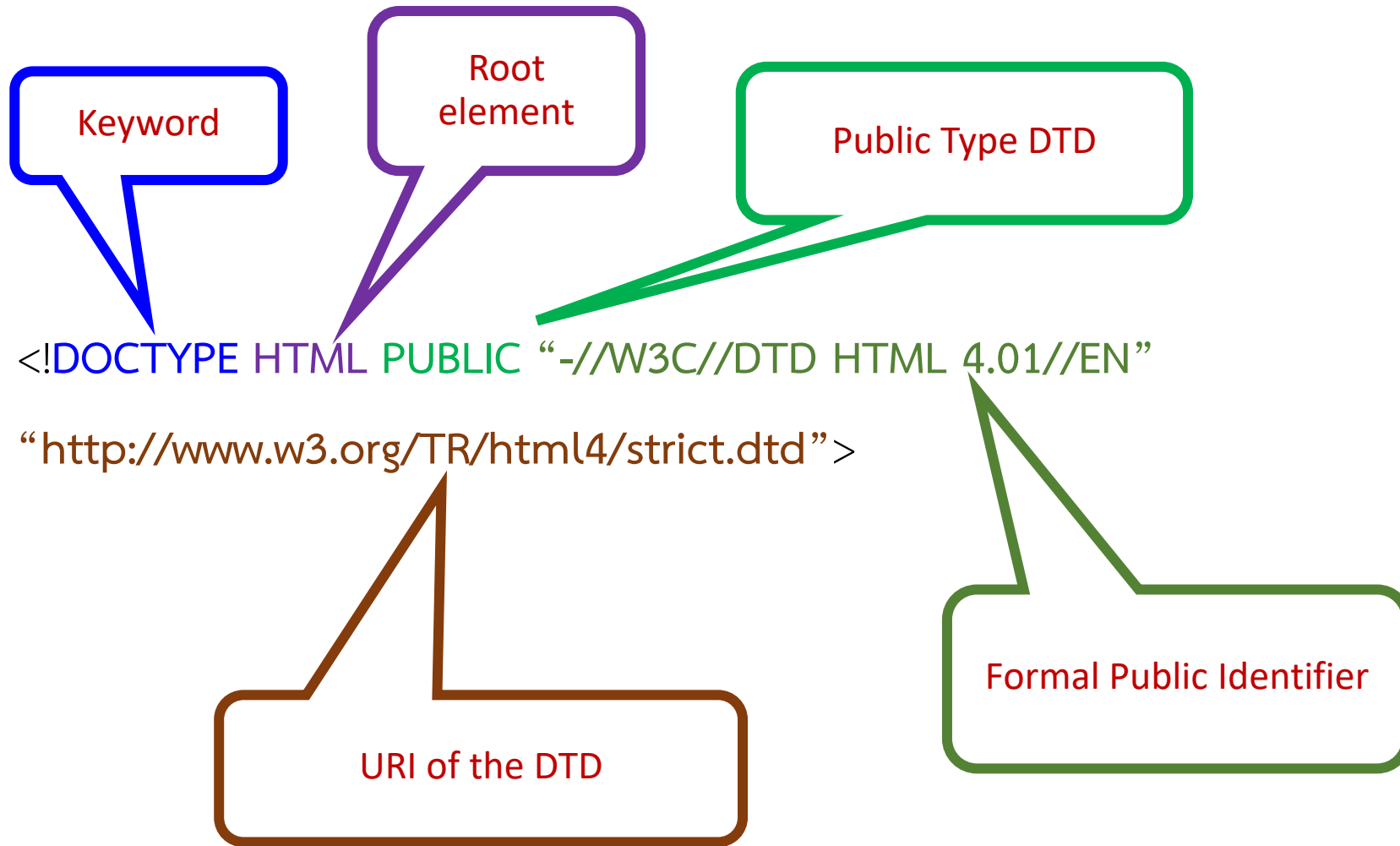
HTML Documents structure

- A valid document contains the following components, in order:
 - 1) The document type declaration
 - 2) The document's `html` element
 - 3) The `head` element inside of the `html` element
 - 4) The `title` element and (optional) `link`, `script`, `base`, `meta` element inside of the `head` element
 - 5) Within the `html` element after the `head` element must be `body` element
 - 6) Inside of `body` element, there must be at least 1 block element

HTML Document Type

- Document type
 - Declare which type the document are created
 - Should be the very first thing in HTML document
 - Contains information about HTML's version using in the page
- In HTML 4.01
 - Using DTD file which defines the legal building block of HTML document
 - 3 types: Strict, Transitional, Frameset

```
<!DOCTYPE HTML PUBLIC "-//W3c//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">  
<!DOCTYPE HTML PUBLIC "-//W3c//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/loose.dtd">  
<!DOCTYPE HTML PUBLIC "-//W3c//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/frameset.dtd">
```



HTML5 Document Type

Document structure

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">
```

```
<html>
```

```
<head>
```

```
<title>Head First Lounge</title>
```

```
<meta http-equiv="content-type" content="text/html; charset=UTF-8">
```

```
<link type="text/css" rel="stylesheet" href="lounge.css">
```

```
<script type="text/javascript" src="lounge.js"></script>
```

```
</head>
```

```
<body>
```

```
<h1>Welcome to Head First Lounge</h1>
```

```
<p>
```

```

```

```
</p>
```

```
<p>
```

```
Join us any evening for refreshing <a href="elixirs.html">elixirs</a>,
conversation and maybe a game or two of Tap Tap Revolution.
```

```
Wireless access is always provided; BYOWS (Bring Your Own Web Server).
```

```
</p>
```

```
</body>
```

```
</html>
```

Document
structure

Good HTML5 practices

- Including the optional `<html>`, `<head>` and `<body>` elements
- Using lowercase tags
- Using quotation marks around attribute values
- Validate the html5: <http://validator.w3.org>

XHTML5

- If HTML5 is too loose for you, XHTML5 may be your solution.
- To use XHTML5
 - Add xhtml namespace to the <html>
 - Ex:
<html xmlns="http://www.w3.org/1999/xhtml">

Structuring Documents for the web

- Heading
 - 6 levels from `<h1>` to `<h6>`
- Section
 - Paragraph `<p>`
 - Preformatted sections `<pre>`
 - Line breaks `
`
 - Addresses `<address>`
- Phrase elements
 - ``, ``, etc.
- Presentation
 - ``, `<i>`, `<u>`, `<sup>`, `<sub>`, etc.
- Lists
 - `` & ``
 - `` & ``
- Editing
 - `<ins>` and ``
- Structure & Grouping
 - `<article>`
 - `<header>`, `<footer>` and `<div>`
 - ``
- Link
 - `<a>`
- Form
 - `<input>`

Experiments

- <https://www.w3schools.com/>
- Click “Try it Yourself”

Link and Navigation Tags

- Link to other web page

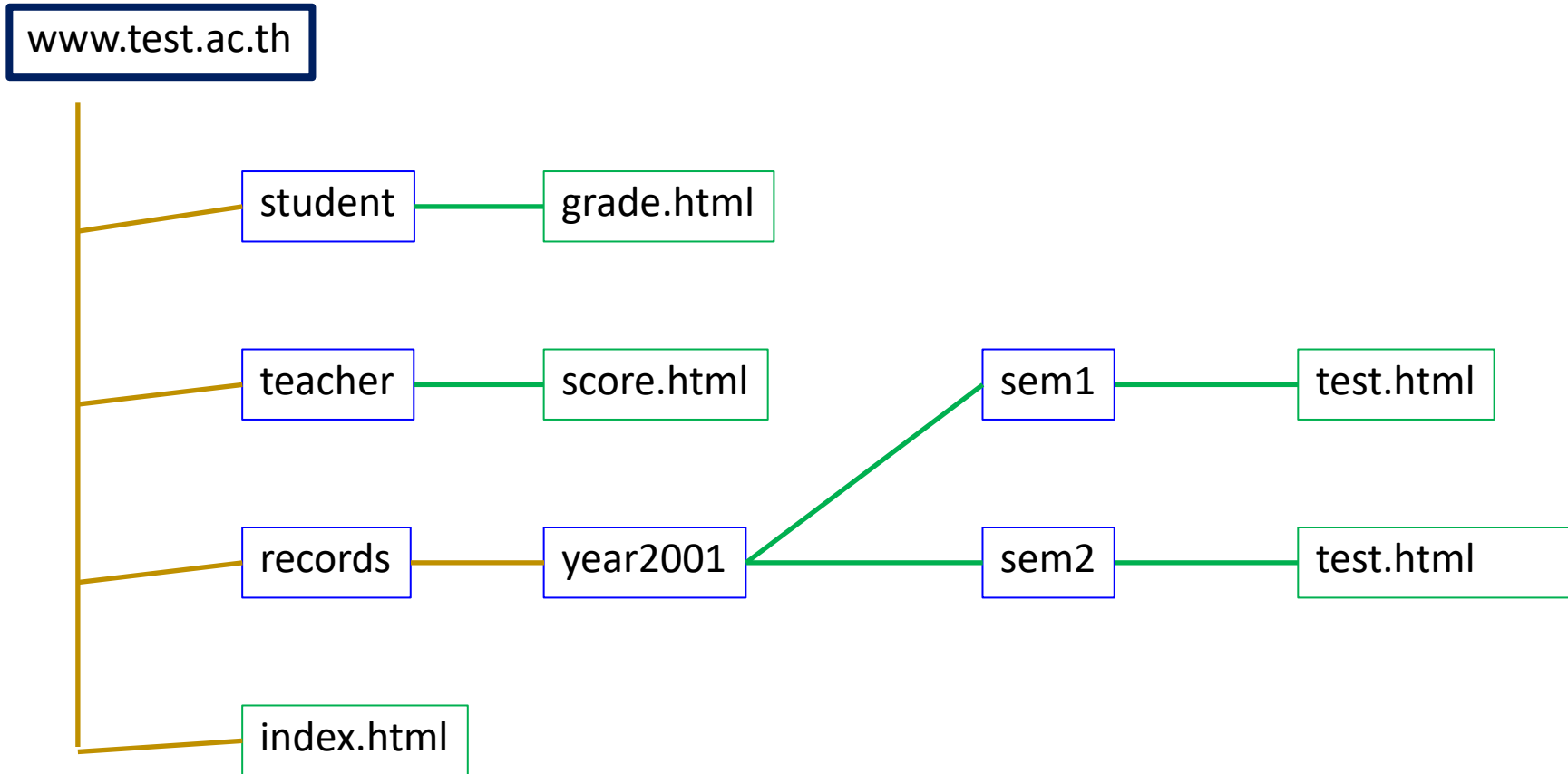
`Click here`

- Link to E-mail Address

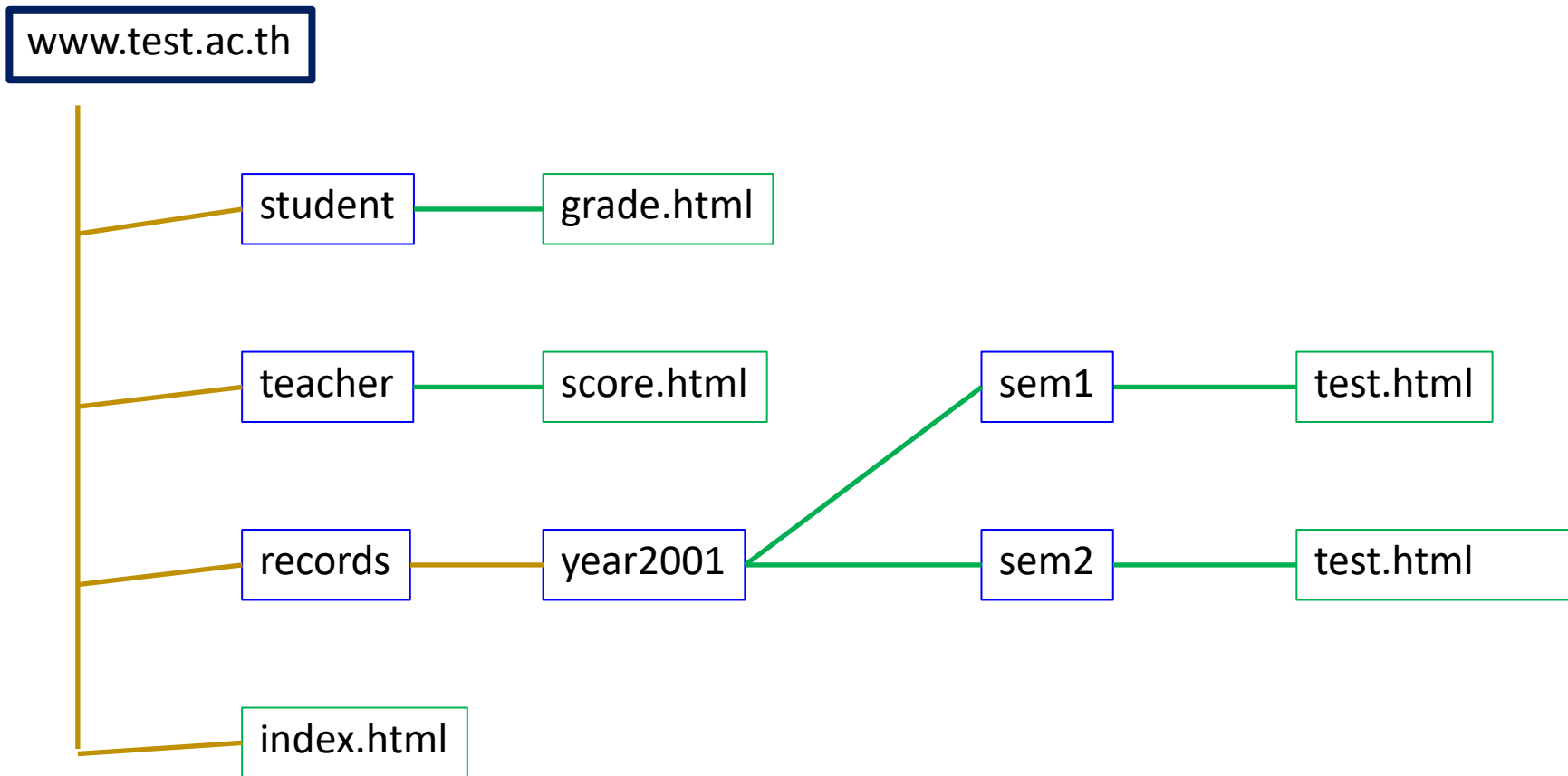
`mail to Admin`

- Link to URL types
 - Absolute URL
 - Relative URL

Absolute URL



- Location: <http://www.test.ac.th> or <http://www.test.ac.th/index.html>
- <http://www.test.ac.th/student/grade.html>
- <http://www.test.ac.th/records/year2001/sem1/test.html>

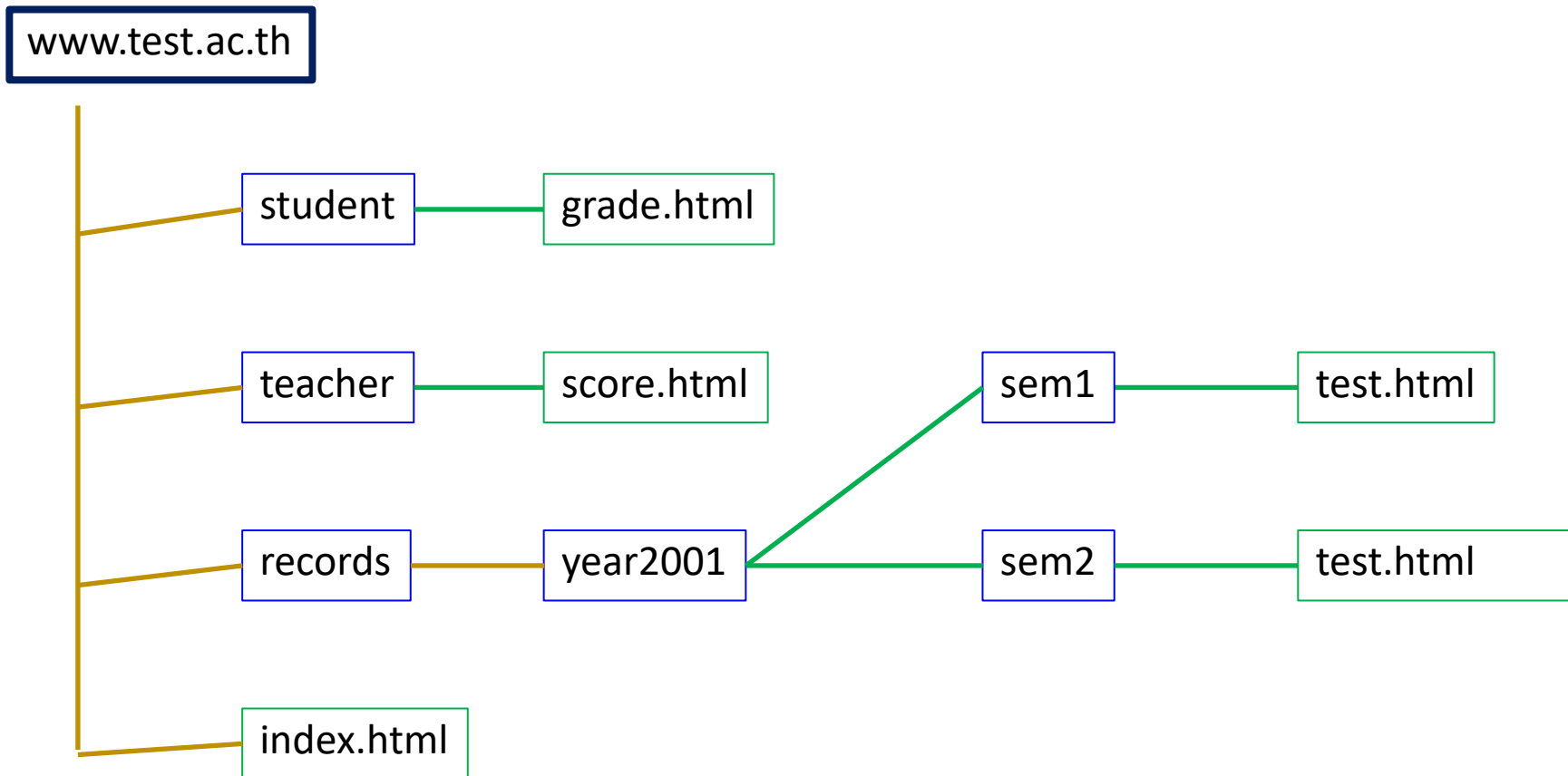


Grade

Score

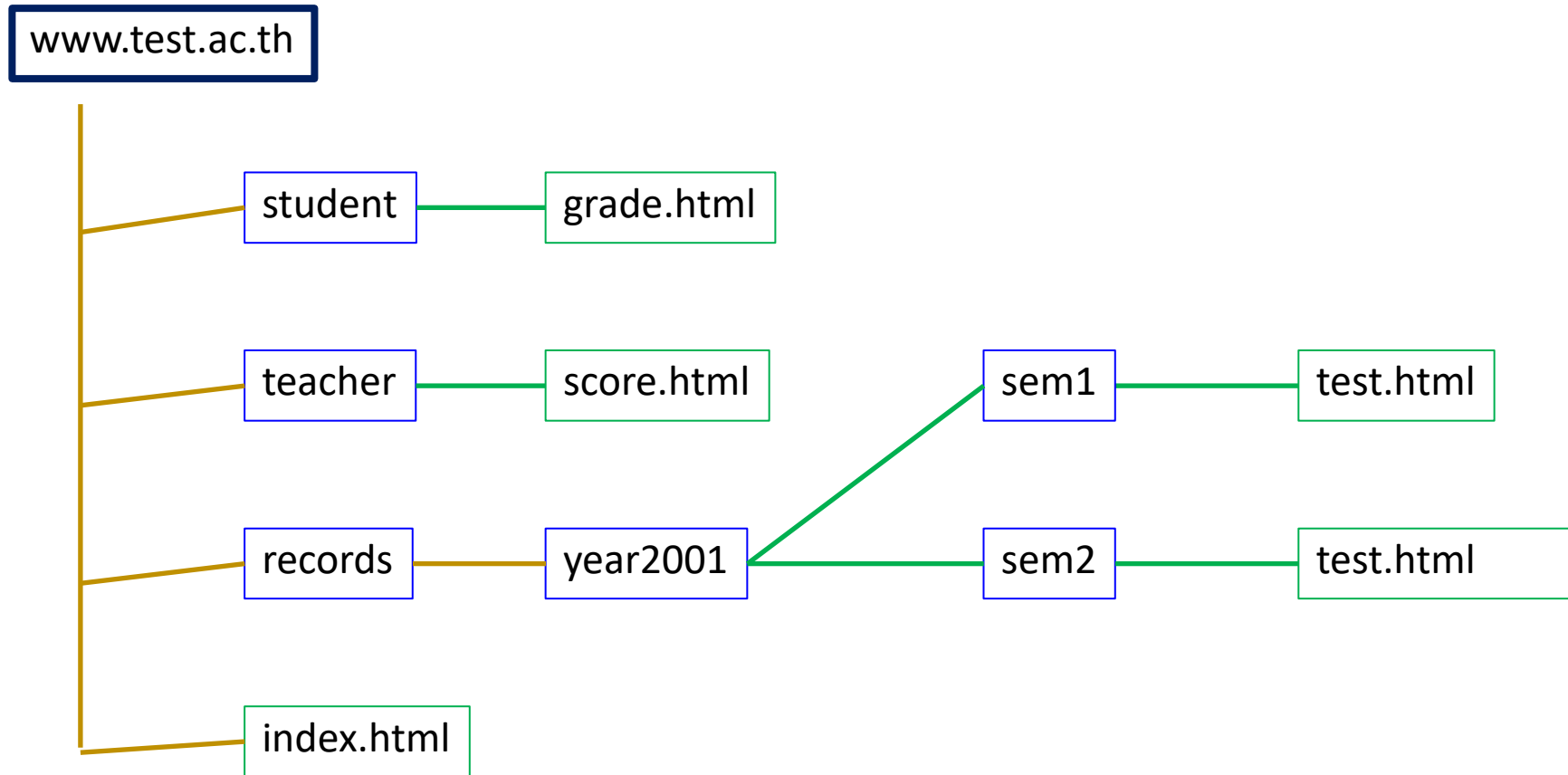
2001/1

Relative URL



- index.html link to grade.html

`grade.html`



- test.html in sem1 link to score.html
- `link to score`
- `link to score`

Destination Anchor

- Destination anchor

```
<a id="top">TOP</a>
```

- Link to destination anchor

```
<a href="#top">TOP</a>
```


Other Attributes of <a>

- Charset

```
<a href="http://www.test.ac.th/" charset="ISO-8859-11">go to  
test</a>
```

- hreflang

```
<a href="http://www.test.ac.th/" hreflang="JA">go to test</a>
```

- Target

```
<a href="http://www.test.ac.th/" target="_blank">go to test</a>
```

- Tabindex

```
<a href="http://www.test.ac.th/" tabindex="1">go to test</a>
```

Image, Audio, Video

- Adding image to the page

```

```

- Specify the size of image

```

```

- Align

```

```

- Border

```

```

- Space

```

```



- Image as links

```
<a href="http://www.test.ac.th/">
```

```
  
```

```
</a>
```

- Image Maps

<map> tag defines an image map (image with clickable area)

<area> tag defines clickable area

- Example:

```

```

```
<map name="workmap">
```

```
  <area shape="rect" coords="34,44,270,350" alt="Computer" href="computer.htm">
```

```
  <area shape="rect" coords="290,172,333,250" alt="Phone" href="phone.htm">
```

```
  <area shape="circle" coords="337,300,44" alt="Coffee" href="coffee.htm">
```

```
</map>
```

Example from: https://www.w3schools.com/html/html_images_imagemap.asp

Form

- `<form>` element carry at least 2 attributes
 - action = usually specifies program that will receive information
 - method = specifies HTTP post or HTTP get to be used to carry information to the server
- Others attributes:
 - id = uniquely identify `<form>` element within a page, value must be unique to the document
 - name (deprecated) = the same as id
 - onsubmit = fire submit event, uses in conjunction with script, its value is a script

- onreset = fire clear form event, its value is a script
- enctype = uses with HTTP post method to tell browser which kind of encoding to be used
 - application/x-www-form-urlencoded (default) = general data encoding
 - multipart/form-data = data encoding in case of uploading image or file
 - accept-charset = specifies character encoding used
 - target = specifies which frame the form's result will be displayed

Form Controls

- Text input
- Buttons
- Checkboxes and radio buttons
- Select boxes
- File select boxes
- Hidden control

Form

The Co-operative Motor Insurance - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://welcome42.co-operativeinsurance.co.uk/gdirect/motor/start.do

Google

Cover Details

How many years have you held your driving licence?

When would you like the insurance to start (dd/mm/yyyy) - -

Number of years No Claim Discount earned

Are you claiming NCD from a previous Co-operative Insurance motor policy? ☐ Yes ☐ No

Have you had any accident or loss in the last 4 years? ☐ Yes ☐ No

Have you been convicted of, or received a fixed penalty notice for, a motoring offence in the last 5 years or is any prosecution pending? ☐ Yes ☐ No

Are there any additional drivers? ☐ Yes ☐ No

Vehicle Details

If your vehicle is a van/pick-up, please call our Customer Contact Centre on 08457 484846 for a quotation

Vehicle Registration Number

Annual Mileage

Alternatively choose your vehicle below.

Vehicle type

Where is the vehicle normally kept overnight?

Estimated value of vehicle including accessories (£)

If you are having any problems locating your car please contact our call centre on 08457 484846

Purpose for which vehicle will be used

What prompted you to apply online?

Please tick if you do not wish to receive marketing material from The Co-operative family of Companies as described in 'Use of Your Personal Data' below.

By email ☐

By post ☐

By phone ☐


```
<form action="http://www.example.org/search.aspx" method="get">
```

```
< h3 > Search the site < /h3 >
```

```
< input type="text" name="txtSearchItem" >
```

```
< input type="submit" value="Search" >
```

```
< /form >
```



```
< form action="http://www.example.org/feedback.aspx" method="post" >
```

Please tell us what you think of the site and then click submit: < br >

```
< textarea name="txtFeedback" rows="20" cols="50" >
```

Enter your feedback here. < /textarea > < br / >

```
< input type="submit" value="Submit" / >
```

```
< /form >
```



The screenshot shows a Mozilla Firefox browser window titled "Multi line text input control - Mozilla Firefox". The browser's menu bar includes "File", "Edit", "View", "History", "Bookmarks", "Tools", and "Help". The main content area displays the text "Please tell us what you think of the site and then click submit:" followed by "Enter your feedback here." and a large, empty text input area. At the bottom of the form, there is a "Submit" button.

```
< form action="http://www.example.com/login.aspx" method="post" >
```

Username:

```
< input type="text" name="txtUsername" value="" size="20" maxlength="20" >
```

```
< br >
```

Password:

```
< input type="password" name="pwdPassword" value="" size="20" maxlength="20" >
```

```
< input type="submit" value="Submit" >
```

```
< /form >
```



< input type="submit" name="btnVoteRed" value="Vote for reds" >

< input type="submit" name="btnVoteBlue" value="Vote for blues" >

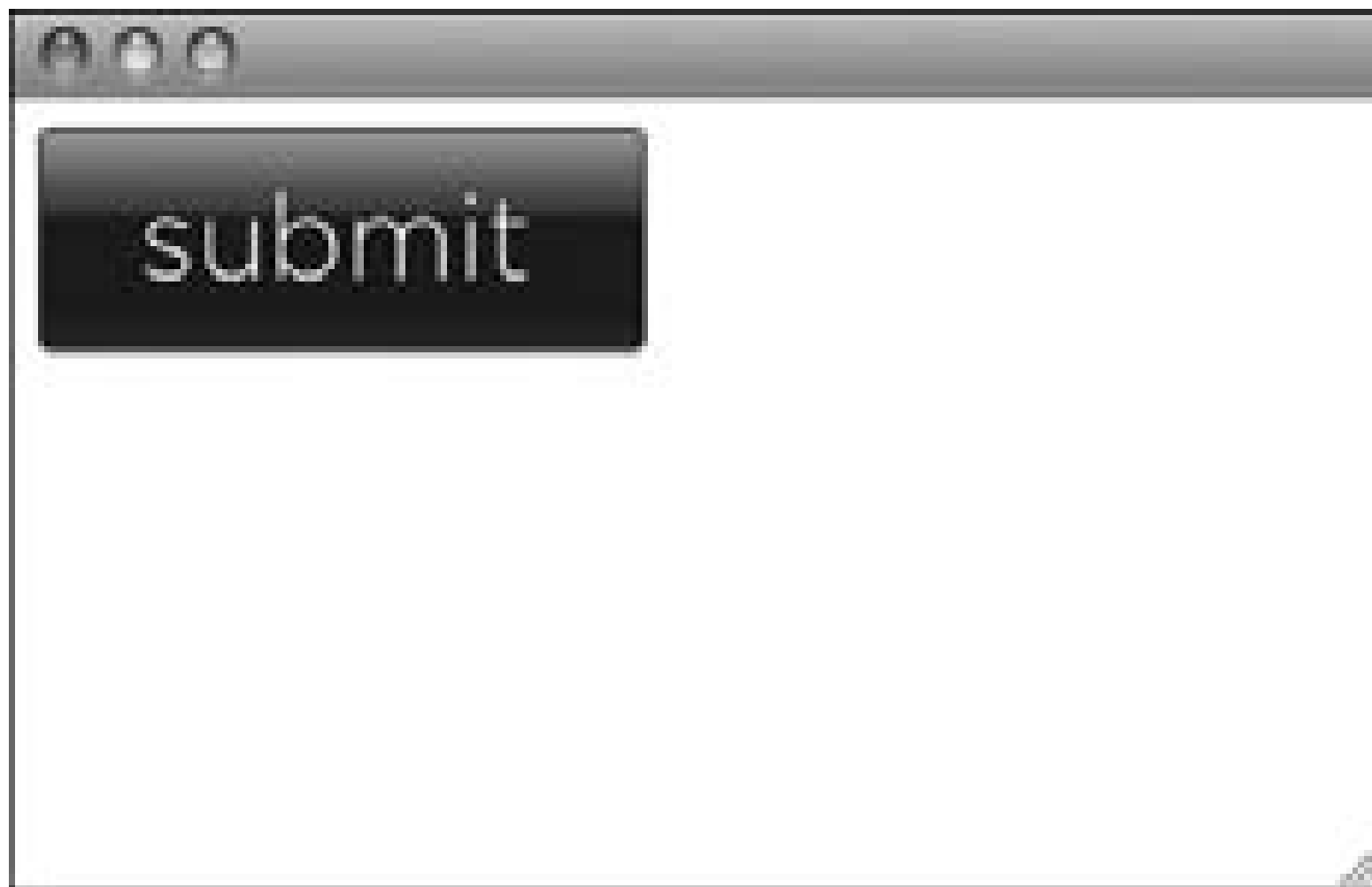
< br > < br >

< input type="reset" value="Clear form" > < br > < br >

< input type="button" value="calculate" onclick="calculate()" >



< input type="image" src="submit.jpg" alt="Submit" name="btnImage" >



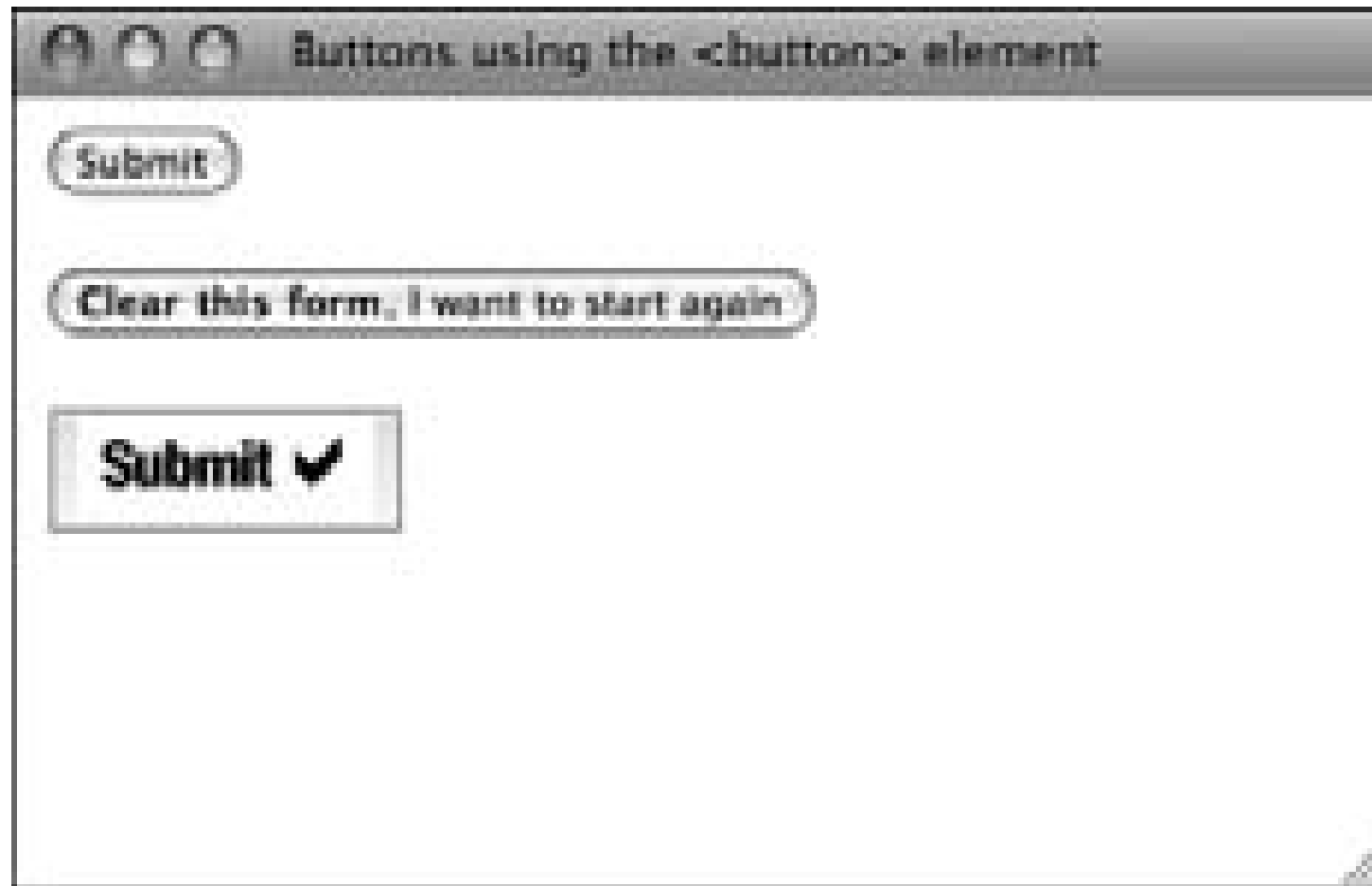
< button type="submit" > Submit < /button >

< br > < br >

< button type="reset" > Clear this form , I want to start again </button>

< br > < br >

< button type="button" > < img src="submit.gif" alt="submit" > < /button >



```
<form action="http://www.example.com/cv.aspx" method="get" name="frmCV">
```

Which of the following skills do you possess? Select all that apply.

```
< input type="checkbox" name="chkSkills" value="xhtml" > XHTML < br >
```

```
< input type="checkbox" name="chkSkills" value="CSS" > CSS < br >
```

```
< input type="checkbox" name="chkSkills" value="JavaScript" > JavaScript < br >
```

```
< input type="checkbox" name="chkSkills" value="aspnet" > ASP.Net < br >
```

```
< input type="checkbox" name="chkSkills" value="php" > PHP
```

```
< /form >
```



```
< input type="checkbox" name="chkAcceptTerms" checked="checked" >
```

In the absence of a value attribute, the value is `on`


```
<form action="http://www.ex.com/flights.aspx" name="frmFlightBooking" method="get">
```

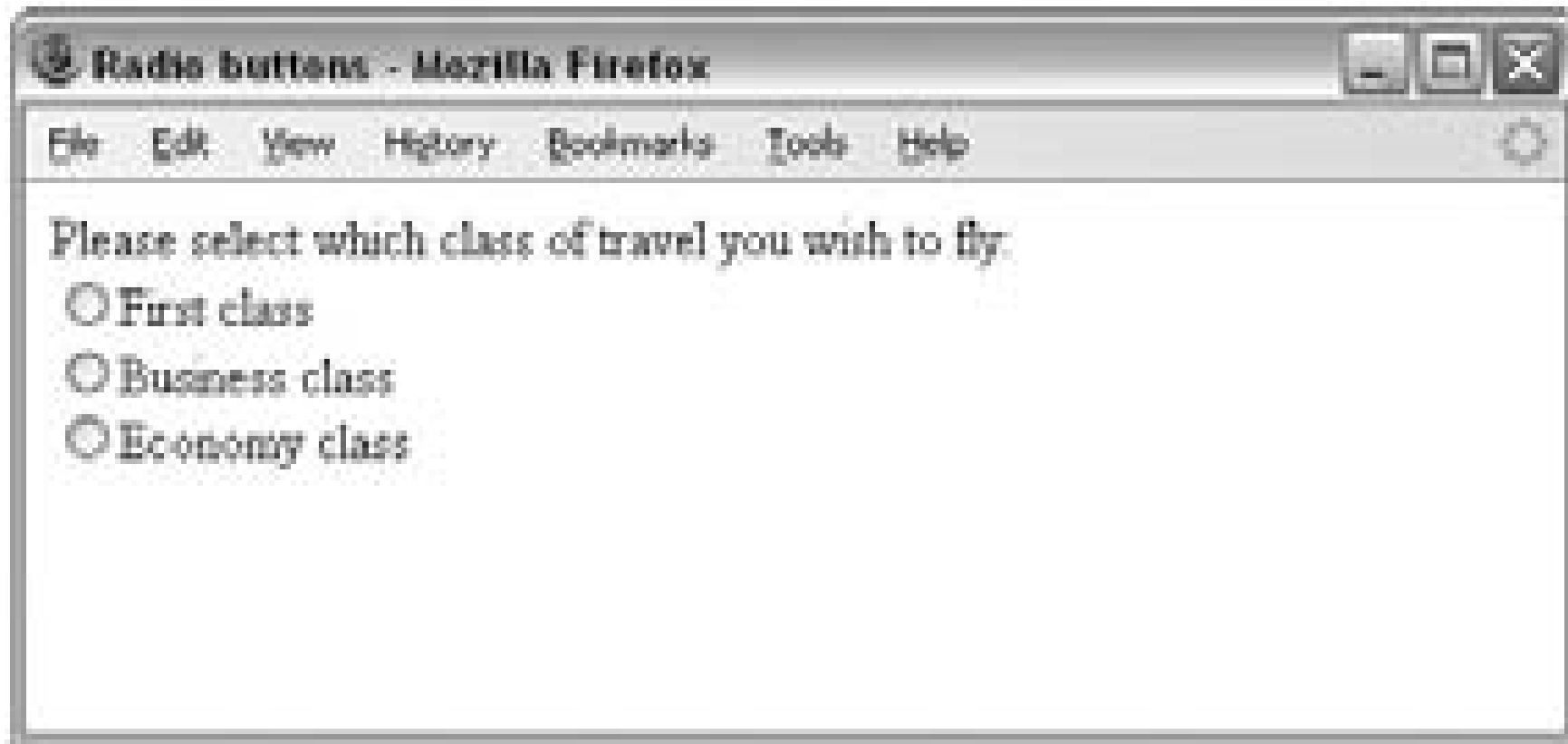
Please select which class of travel you wish to fly: < br >

```
< input type="radio" name="radClass" value="First" > First class < br >
```

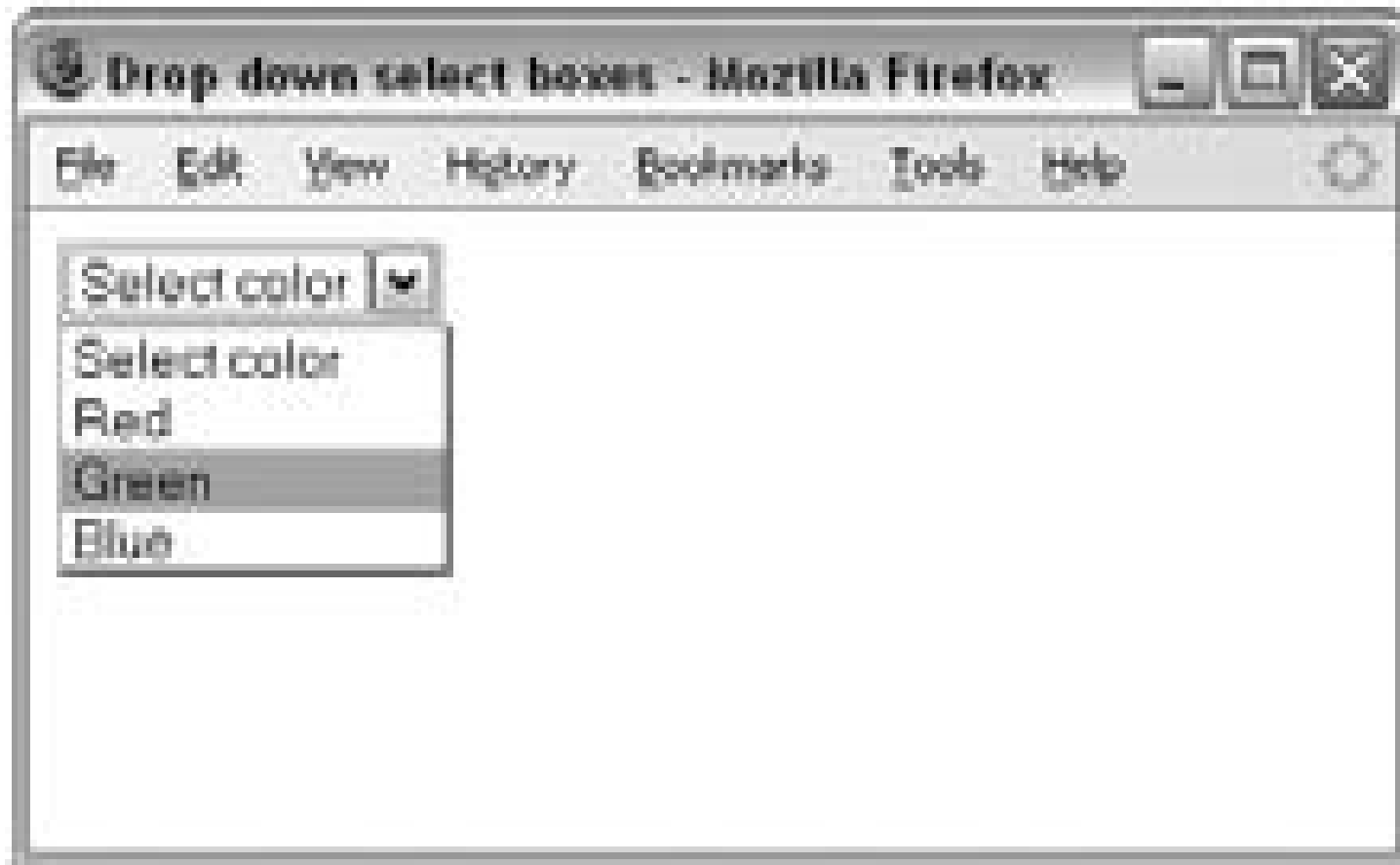
```
< input type="radio" name="radClass" value="Business" > Business class < br >
```

```
< input type="radio" name="radClass" value="Economy" > Economy class < br >
```

```
< /form >
```



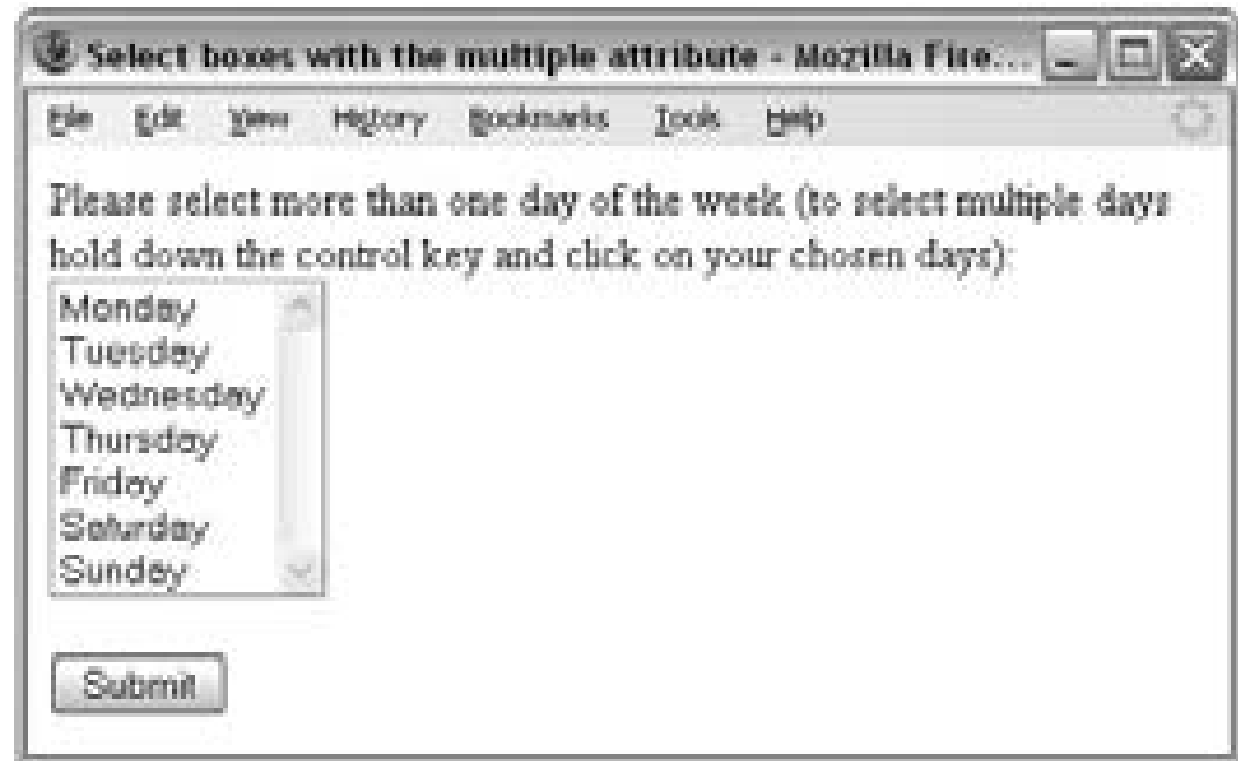
```
< select name="selColor" >  
< option selected="selected" value="" > Select color < /option >  
< option value="red" > Red < /option >  
< option value="green" > Green < /option >  
< option value="blue" > Blue < /option >  
< /select >
```



```
< select size="4" name="selDay" >  
< option value="Mon" > Monday < /option >  
< option value="Tue" > Tuesday < /option >  
< option value="Wed" > Wednesday < /option >  
< option value="Thu" > Thursday < /option >  
< option value="Fri" > Friday < /option >  
< option value="Sat" > Saturday < /option >  
< option value="Sun" > Sunday < /option >  
< /select >
```

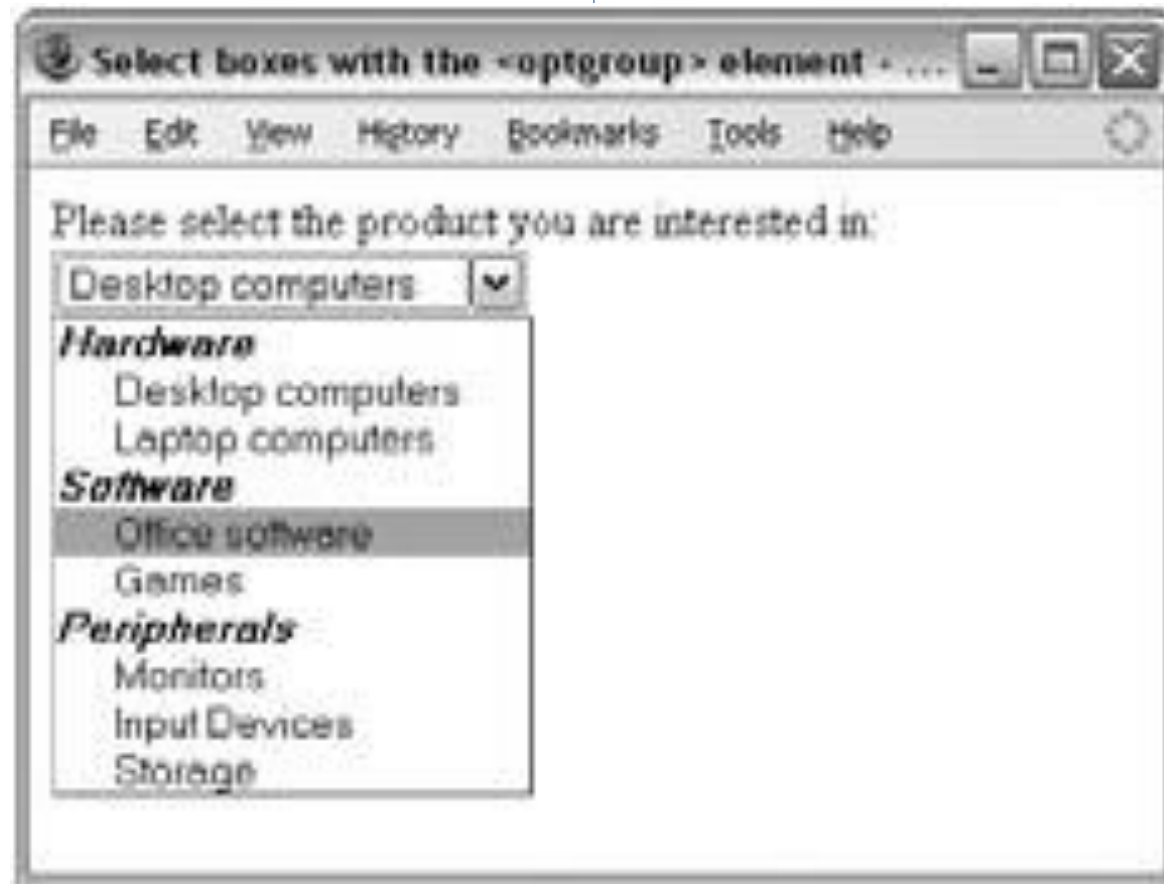


```
< select name="selDays" multiple="multiple" >  
< option value="Mon" > Monday < /option >  
< option value="Tue" > Tuesday < /option >  
< option value="Wed" > Wednesday < /option >  
< option value="Thu" > Thursday < /option >  
< option value="Fri" > Friday < /option >  
< option value="Sat" > Saturday < /option >  
< option value="Sun" > Sunday < /option >  
< /select >
```

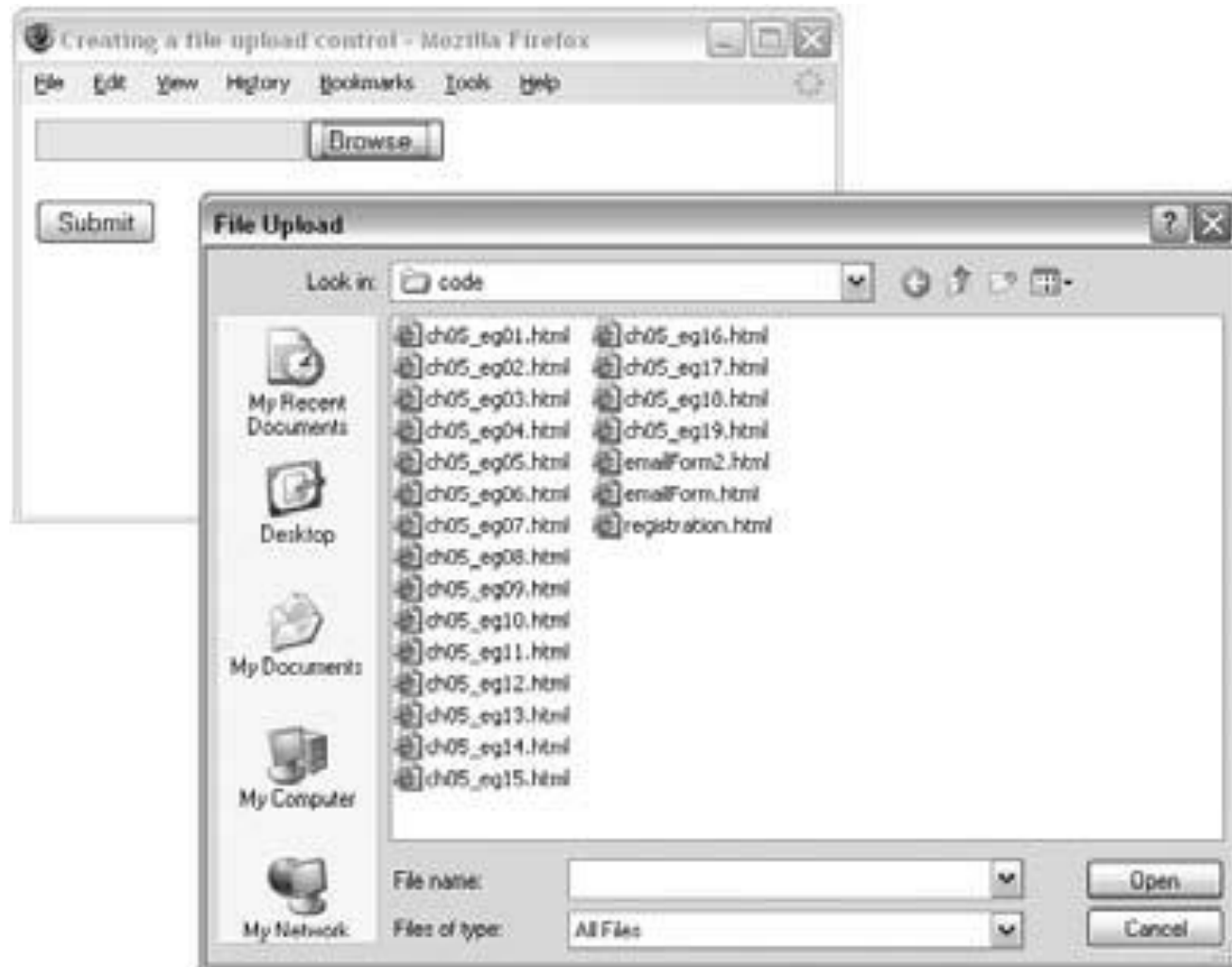


```
< select name="selInformation" >
< optgroup label="Hardware" >
< option value="Desktop" > Desktop computers < /option >
< option value="Laptop" > Laptop computers < /option >
< /optgroup >
< optgroup label="Software" >
< option value="OfficeSoftware" > Office software < /option >
< option value="Games" > Games < /option >
< /optgroup >
```

```
< optgroup label="Peripherals" >
< option value="Monitors" > Monitors < /option >
< option value="InpD" > Input Devices < /option >
< option value="Storage" > Storage < /option >
< /optgroup >
```



```
< form action="http://www.example.com/imageUpload.aspx" method="post"
name="fromImageUpload" enctype="multipart/form-data" >
< input type="file" name="fileUpload" accept="image/*" >
< br > < br > < input type="submit" value="Submit" >
< /form >
```



```
< form action="http://www.example.com/vote.aspx" method="get" name="fromVote" >  
< input type="hidden" name="hidPageSentFrom" value="home page" >  
< input type="submit" value="Click if this is your favorite page of our site." >  
< /form >
```



Semantic elements – document structure

- html4

- <div>
-

- html5

- <header>
- <footer>
- <div>
- <figure>
- <aside>
- <nav>
- <section>
- <main>

Example

- html4

```
<div>  
    header content  
</div>  
<div>  
    content  
</div>  
<div>  
    footer content  
</div>
```

- html5

```
<header>  
    header content  
</header>  
<div>  
    content  
</div>  
<footer>  
    footer content  
</footer>
```

Example

- html4

```
<div>
```

```
    content
```

```
    
```

```
    <p>x picture description</p>
```

```
    content
```

```
</div>
```

```
<div>
```

```
    content
```

```
    <div>
```

```
        
```

```
        <p>x picture description</p>
```

```
    </div>
```

```
    content
```

```
</div>
```

- html5

```
<div>
```

```
    content
```

```
    <figure>
```

```
        
```

```
        <figcaption>x picture  
        description</figcaption>
```

```
    </figure>
```

```
    content
```

```
</div>
```

Tag <details> & <summary>

<details>

 <summary>section topic</summary>

 <p>section content bla bla</p>

</details>

- Collapsible content

Text-level semantic elements

- `<time>`
- `<output>`
- `<mark>`

<time>

- Indicates date-time in the content
- Provides date-time value in standard format
- Ex:

<time datetime="2020-02-07">วันที่ 7 กุมภาพันธ์ 2020</time>

<time datetime="19:19">ทุ่มสิบเก้านาที</time>

<time datetime="2020-02-07 19:19">วันที่ 7 กุมภาพันธ์ 2020 เวลา 7:19 p.m.</time>

<output>

- Uses with JavaScript
- html4
 - `<p>result:</p>`
- html5
 - `<p>result:<output id="r1"></output></p>`

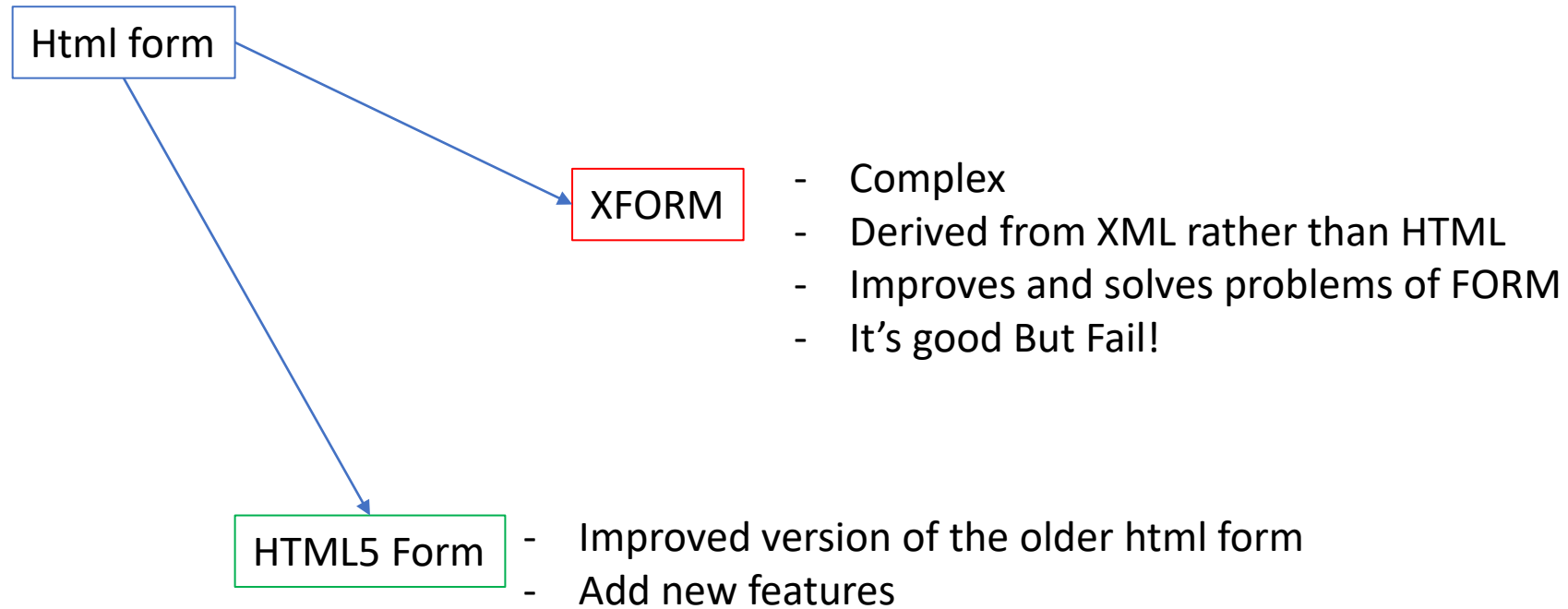
<mark>

- Highlighted text
- Ex:
 - <p>text text text <mark>text</mark> text text text</p>

Other standards of semantic elements

- ARIA
 - Use attribute 'role'
- RDFa
 - Attributes based
- Microformats
 - Not an official standard
 - Agreement upon dev.
 - Use standardized style name of class attribute
- Microdata
 - Attributes based
 - Quite similar to RDFa but less complexity

HTML5 form



Understanding forms

- Web form is
 - A collection of input fields
 - Textbox
 - Radio button
 - Check box
 - Clickable button
 - Use to supply data to the server

Basic input

- Example

```
<input type="text" id="name" placeholder="John smith">
```

Client-side validation

- Perform by browser
- Use attributed “required”
- Ex:

`<input type=“text” required>`

Stop validate

- Disable validate feature
- Use attribute “novalidate” / “formnovalidate”
- Ex:

```
<form action="xxxx.cgi" novalidate>
```

Or

```
<input type="submit" value="xxx" formnovalidate>
```

Regular expression

- Verify the correctness of the input pattern
- Ex:
- `[A-Z]{3}-[a-z]{2}-[0-9]{6}`
- `<input type="text" pattern="[A-Z]{3}-[a-z]{2}-[0-9]{6}">`

New input types in HTML5

- email
- url
- search
- tel
- number
- range
- date, month, week, time*
- Color*

New elements

- Input suggestions with `<datalist>`
- Progress bars and meters: `<progress>` and `<meter>`
- Toolbars and menus: `<command>` and `<menu>`