introduction to

SCRIPTING, DATABASES, SYSTEM ARCHITECTURE

HTML Forms, Intro to PHP, HTML Validation

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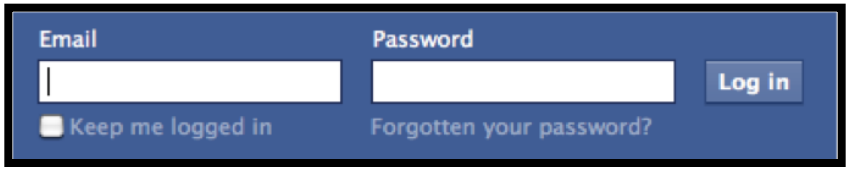
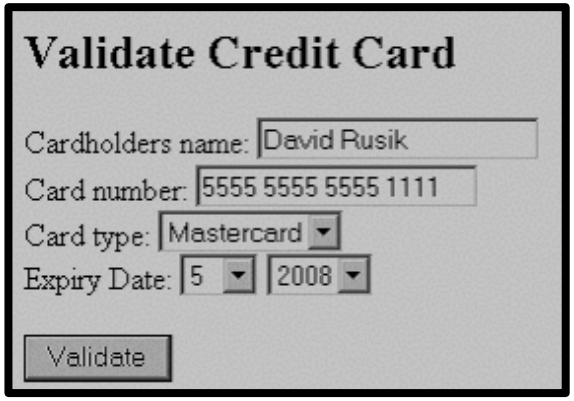
Agenda

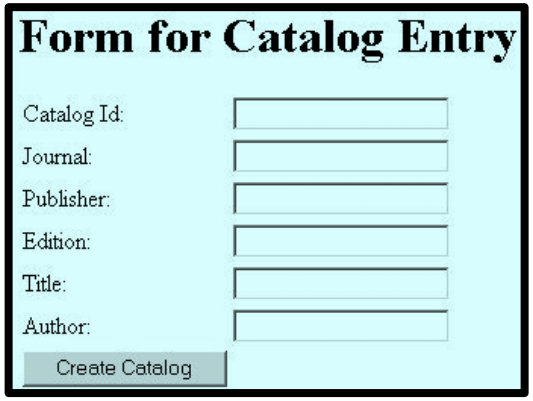
- 1) HTML FORMS
- 2) PHP (intro)
- 3) HTML VALIDATION
- 4) ASSIGNMENT

HTML Forms

- Forms allow user to submit info to server:
  - (e.g. Login, Email, Search, Polls, Surveys, …)



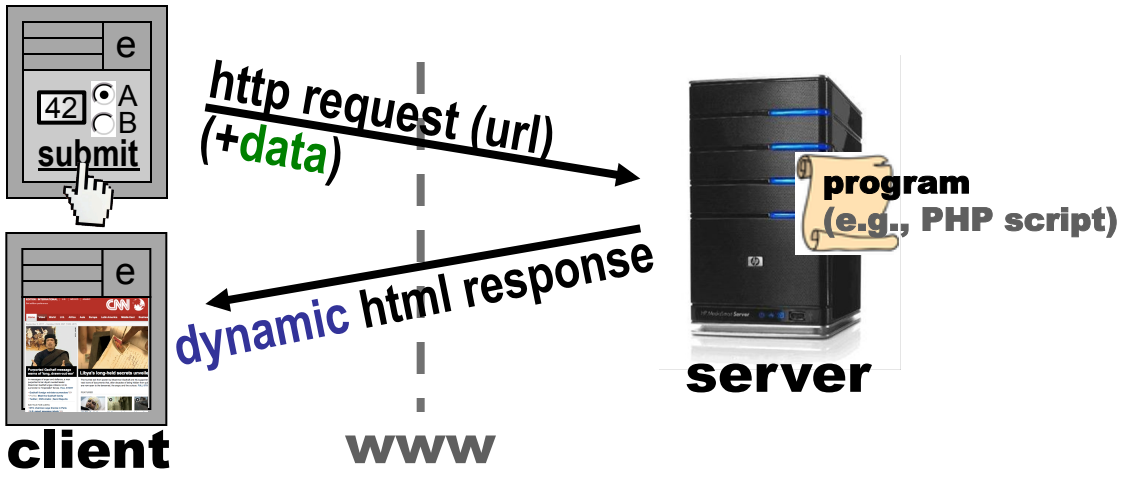




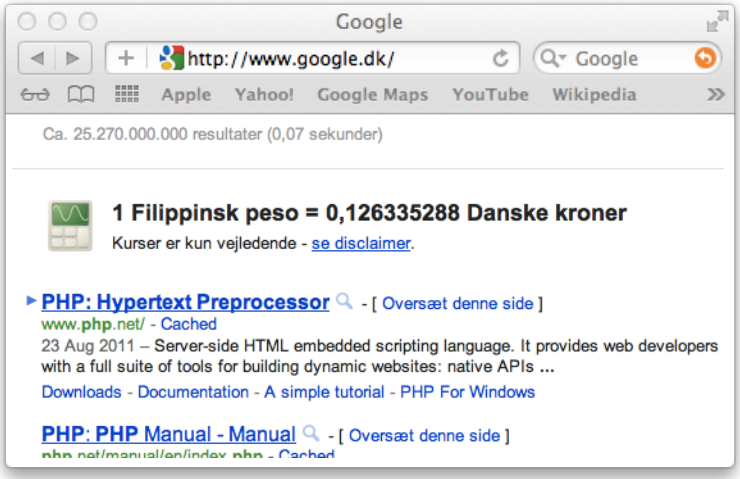
- This information is subsequently **processed** by a program on the server (e.g., PHP script)

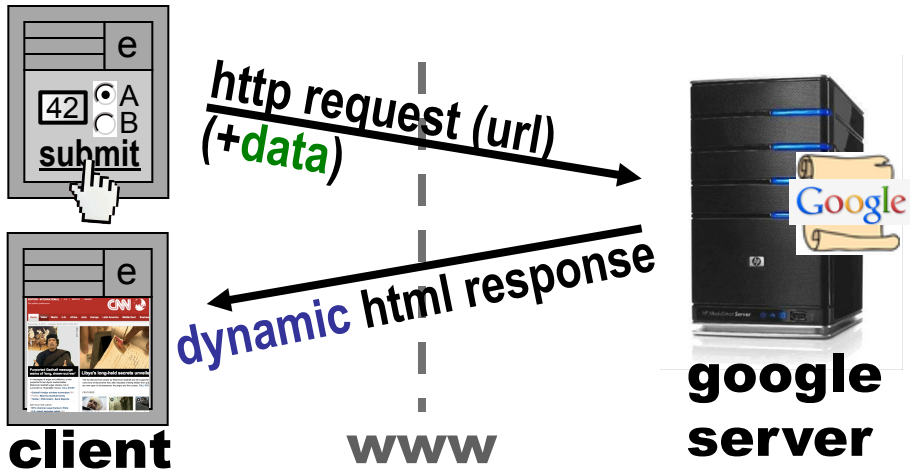
Form Submission

- 1) The user **fills out the form** and clicks "submit" (which sends the **data** back to the server)
- 2) The server **runs a web service** (PHP program) that processes the **data** and constructs an HTML reply
- 3) The server sends back the **dynamically constructed HTML** document (that may depend on the **data!**):



Form Submission





Dynamic HTML reply may depend on:

- **Data** (submitted by client)
- **Server state**
- **Time**
- **Other web sites…**

The <form> Element

- Form syntax:

```
<form action="address_of_script">
    ... text / input fields / images / ...
</form>
```

Value of the **action** attribute denotes the script that is to **process** the data of the form (when it is submitted)

- **Note:** forms cannot be ***nested***
  (i.e., a "form" cannot contain a "form")

Dictionary: ‘nest’

Merriam Webster’s(‘`nest`’):

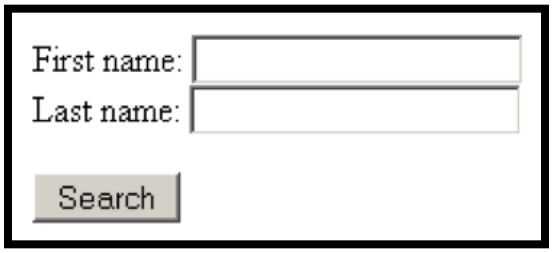
Main Entry: **¹nest**
Pronunciation: `\'nest\`
Function: ***noun***
Etymology: Middle English, from Old English; akin to Old High German nest nest, latin nidus
First Known Use: before 12th century

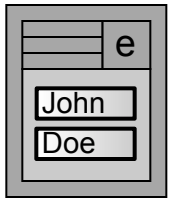
1a. A container or shelter made by a bird out of twigs, grass, or other material to hold its eggs and young.
1b. A similar structure in which fish, insects, or other animals deposit eggs or keep their young.
1c. A place in which young are reared; a lair.
1d. A number of insects, birds, or other animals occupying such a place: a nest of hornets.
2. A place affording snug refuge or lodging; a home.
3a. A place or environment that fosters rapid growth or development, especially of something undesirable; a hotbed: a nest of criminal activity.
3b. Those who occupy or frequent such a place or environment.
4a. A set of objects of graduated size that can be stacked together, each fitting within the one immediately larger; e.g., a nest of tables.
4b. A cluster of similar things.
5. [Computer Science]: A set of data contained sequentially within another.
6. A group of weapons in a prepared position: a machine-gun nest.

Example Form

- Example Form:

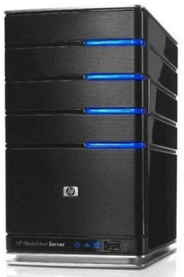
```
<form action="http://www.brics.dk/ixwt/echo">
    <p>
    First name: <input type="text" name="firstname" /> <br />
    Last name:  <input type="text" name="lastname" />  <br />
    </p>
    <input type="submit" value="Search" />
</form>
```





client

firstname=John
lastname=Doe



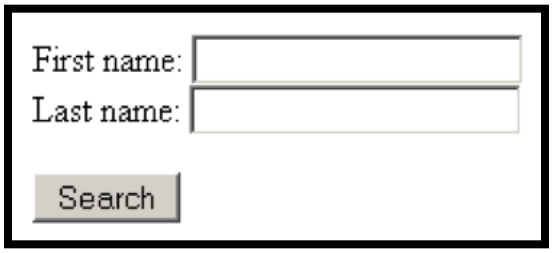
server

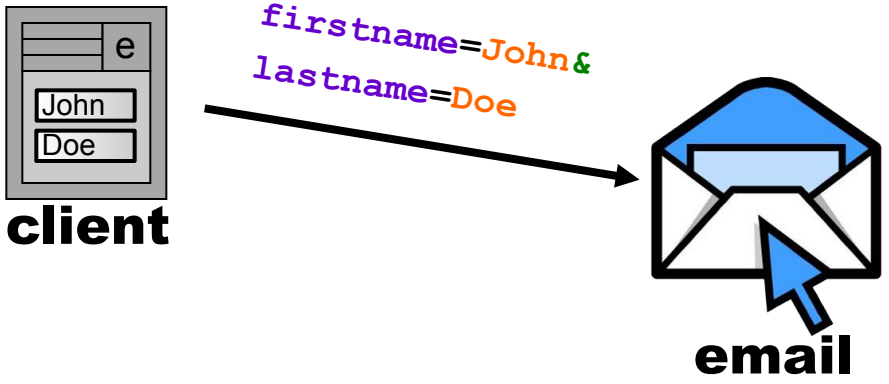
Try it: (http://itu.dk/people/brabrand/DSDS/form.html)
More info: (http://www.w3schools.com/html/html_forms.asp)

Example Form

- Example Form:

```
<form action="mailto:a@b.c" method="post" >
    <p>
    First name: <input type="text" name="firstname" /> <br />
    Last name:  <input type="text" name="lastname" />  <br />
    </p>
    <input type="submit" value="Search" />
</form>
```





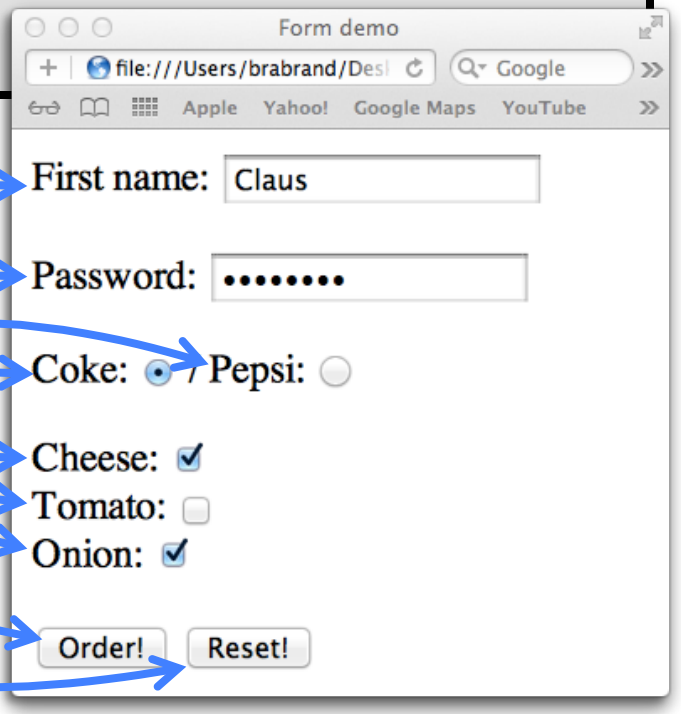
Try it: (http://itu.dk/people/brabrand/DSDS/all-fields.html)

<input ... />

- Many "type"s of <input>:

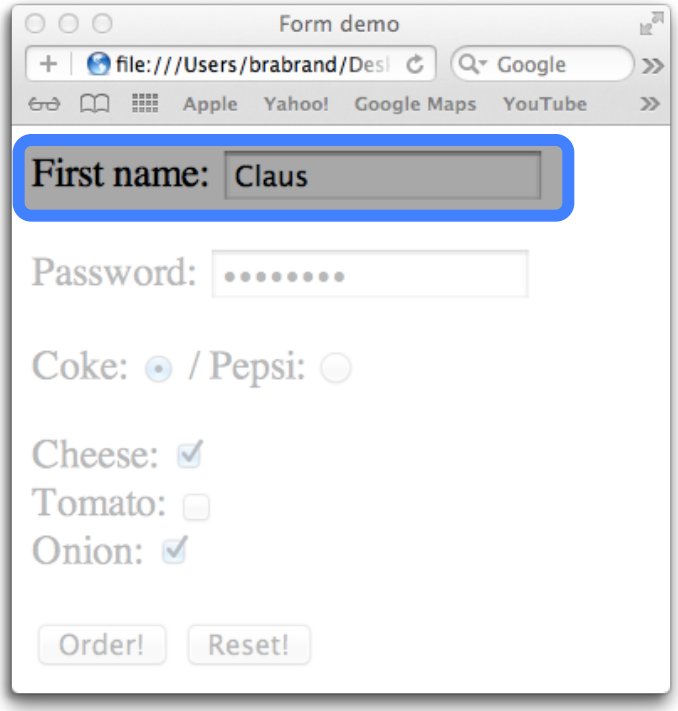
```
<form action="address_of_script">
    <p>
    First name: <input type="text" name="firstname" /> <br />
    ...
</form>
```

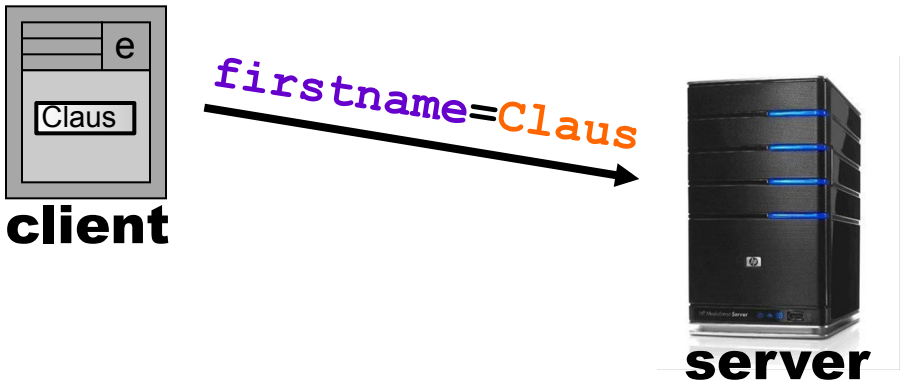
- <input type="text" .../>
- <input type="password" .../>
- <input type="radio" .../>
- <input type="checkbox" .../>
- <input type="submit" .../>
- <input type="reset" .../>
- ...



<input type="text" ... />

```
First name:
<input type="text" name="firstname" />
```

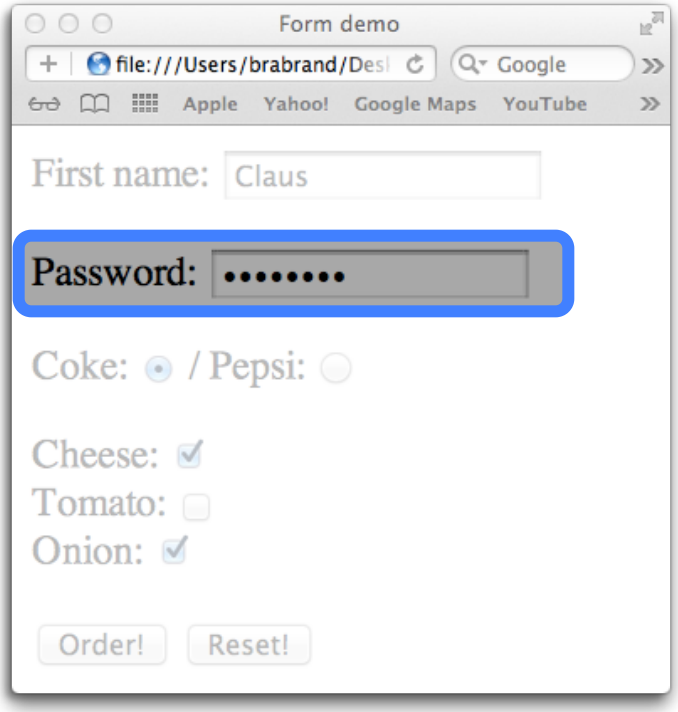


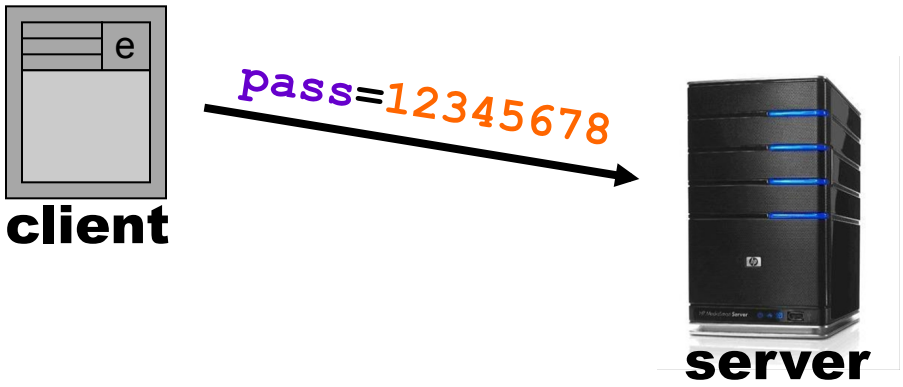


`size="30"` (width of text field) `maxlenght="10"` (max text length allowed)

<input type="password" ... />

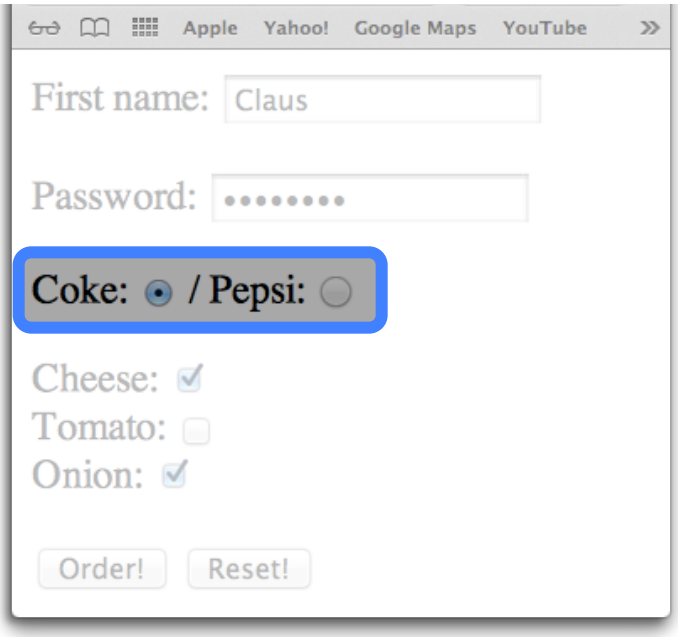
```
Password:
<input type="password" name="pass" />
```



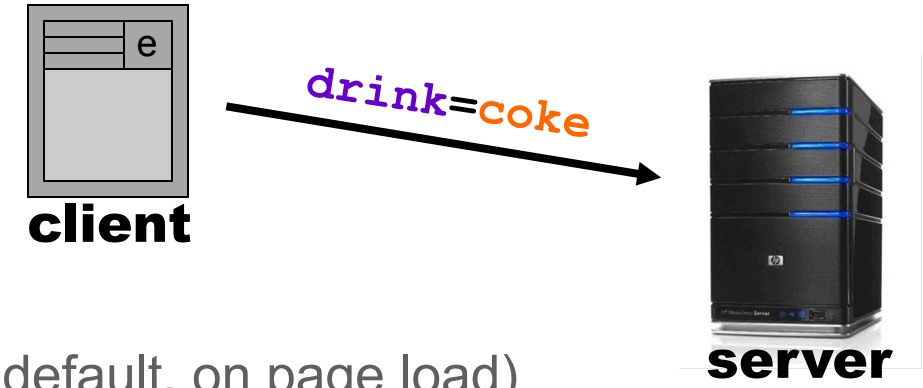


<input type="radio" ... />

```
Coke:
<input type="radio" name="drink" value="coke" />
/ Pepsi:
<input type="radio" name="drink" value="pepsi" />
```



Note: same name !
(radio button ***group***)

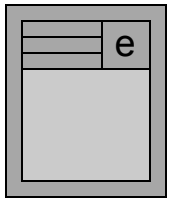


`checked="checked"` (to tick off by default, on page load)

<input type="checkbox" ... />

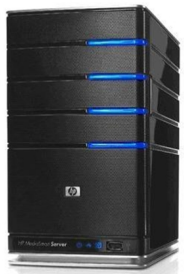
```
Cheese:
<input type="checkbox" name="ingr" value="cheese" /> <br />
Tomato:
<input type="checkbox" name="ingr" value="tomato" /> <br />
Onion:
<input type="checkbox" name="ingr" value="onion" /> <br />
```

Note: same name ! (checkbox ***group***)



client

ingr=cheese
ingr=onion

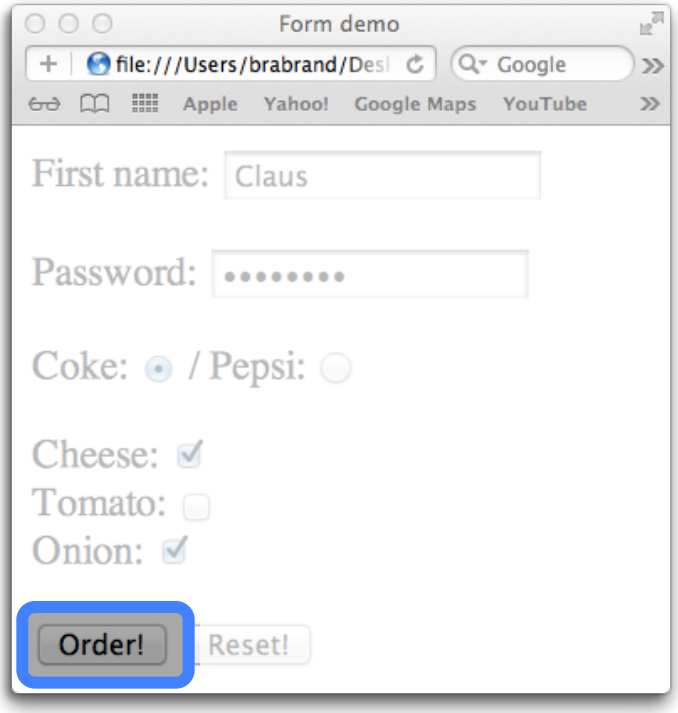


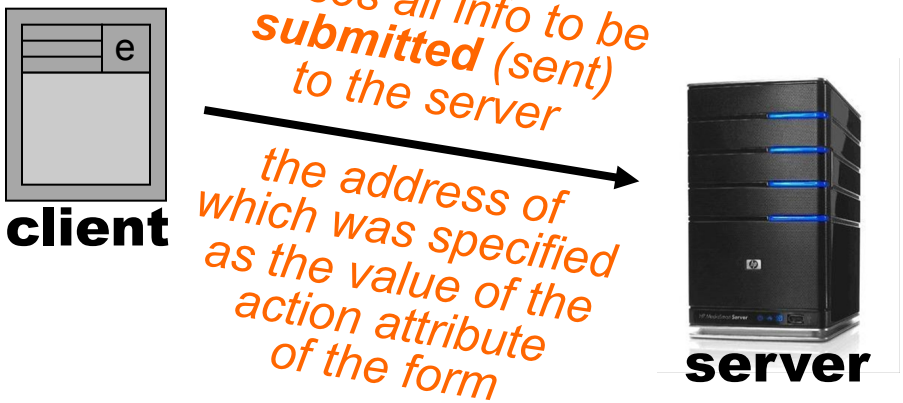
server

checked="checked" (to tick off by default, on page load)

<input type="submit" ... />

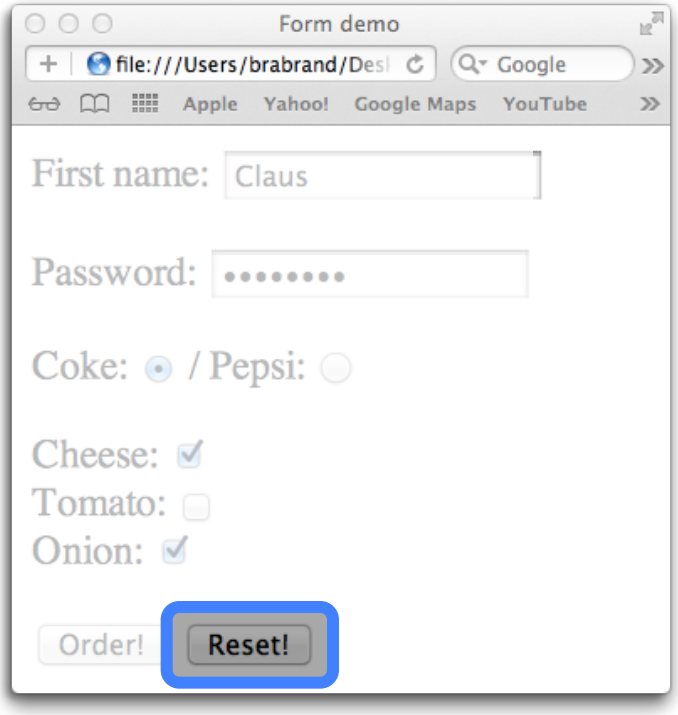
```
<input type="submit" value="Order!" />
```

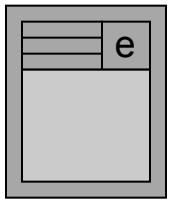




<input type="reset" ... />

```
<input type="reset" value="Reset!" />
```





client

Clicking reset causes the info in the form to be ....well, **reset**

<input/> attributes

type	name	value	checked	size	maxlength
text					
password					
hidden					
submit					
reset					
checkbox					
radio					

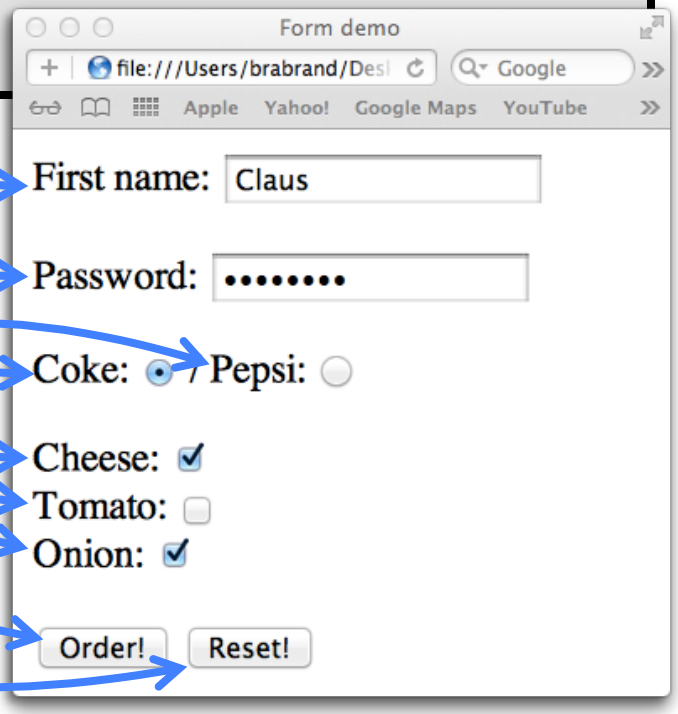
Obligatory	
Not obligatory	
Not allowed	

<input ... />

- Many "type"s of <input>:

```
<form action="address_of_script">
    <p>
    First name: <input type="text" name="firstname" /> <br />
    ...
</form>
```

- <input type="text" .../>
- <input type="password" .../>
- <input type="radio" .../>
- <input type="checkbox" .../>
- <input type="submit" .../>
- <input type="reset" .../>
- ...



EXERCISE

For each of the "**type**"s of **<input>** fields (text, password, radio, checkbox) do:

- 1) Make an HTML form with the input field:

```
<form>
    ...input field goes here...
    <input type="submit" value="Submit Form!" />
    <input type="reset" value="Reset Form!" />
</form>
```

- 2) Submit to "echo service" (to see info submitted):

```
<form action="http://www.brics.dk/ixwt/echo">
```

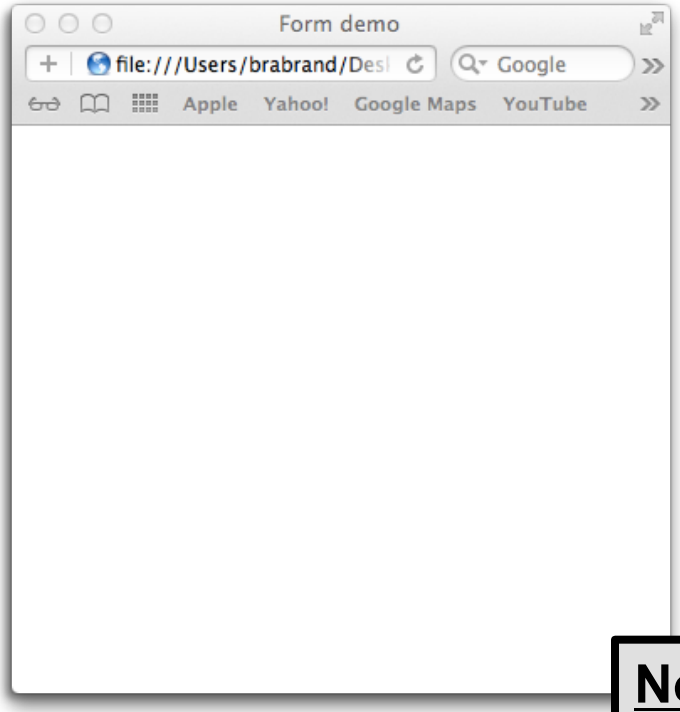
- 3) Submit form "via email" (to see info formatted):

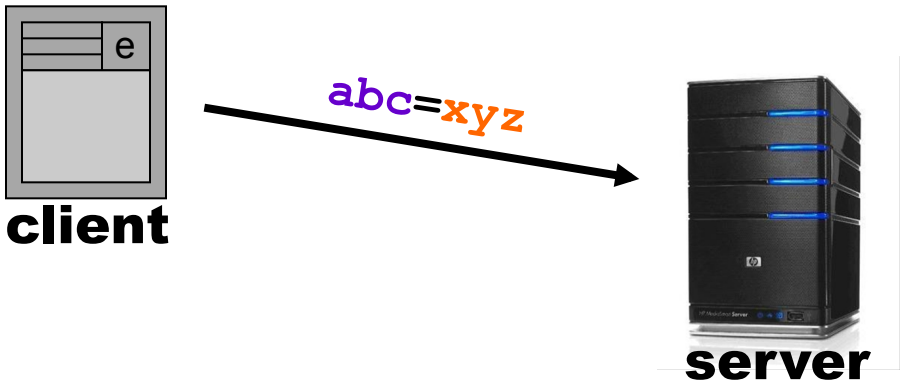
```
<form action="mailto:a@b.c" method="post" >
```

More <input/> fields...

<input type="hidden" ... />

```
<input type="hidden" name="abc" value="xyz"/>
```

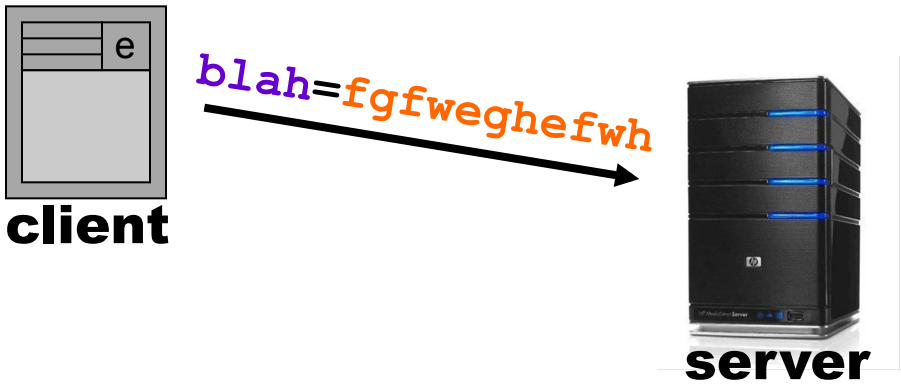




Note: serves to communicate information (state) from server to client and then back to server again

<textarea>

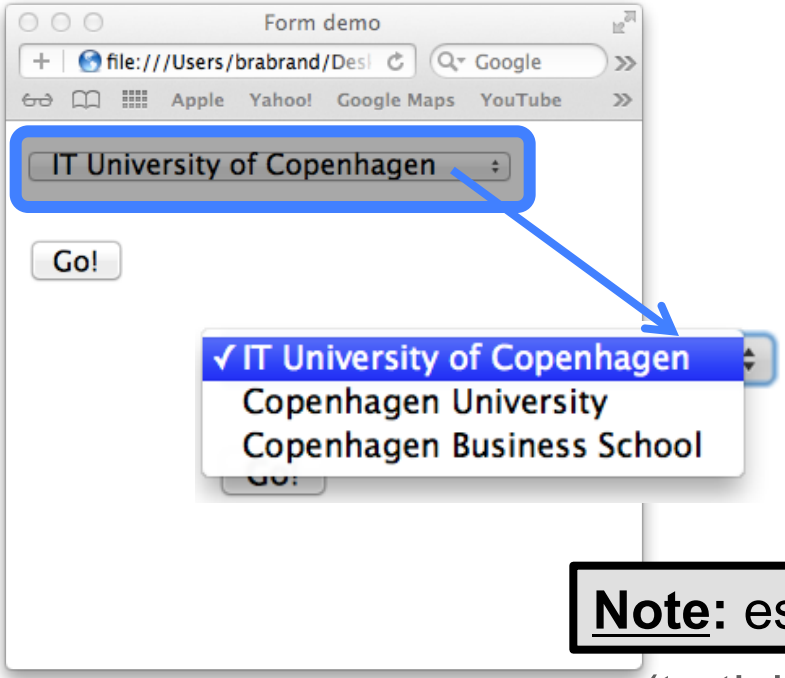
```
<textarea name="blah" rows="5" cols="30" >
    Enter text here...
</textarea>
```

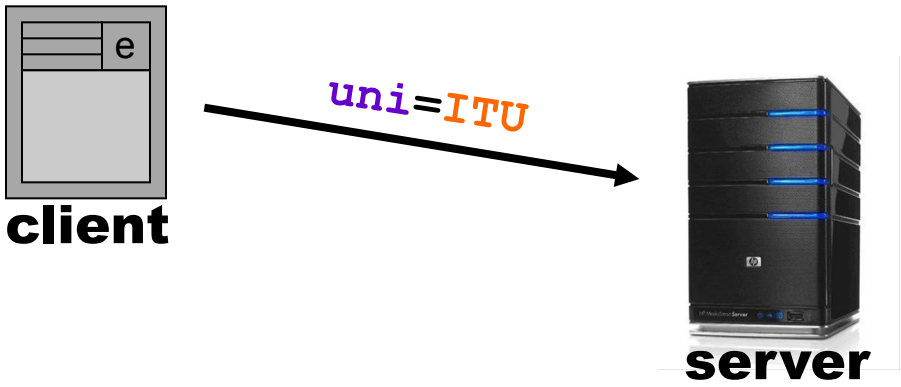


Note: as **text input** field, but permits multiple lines of input

<select>

```
<select name="uni" >
    <option value="ITU" >IT University of Copenhagen</option>
    <option value="KU"  >Copenhagen University</option>
    <option value="CBS" >Copenhagen Business School</option>
</select>
```



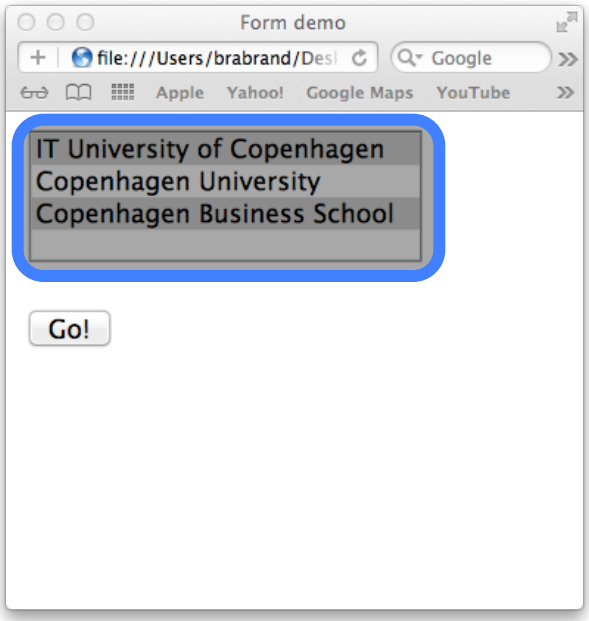


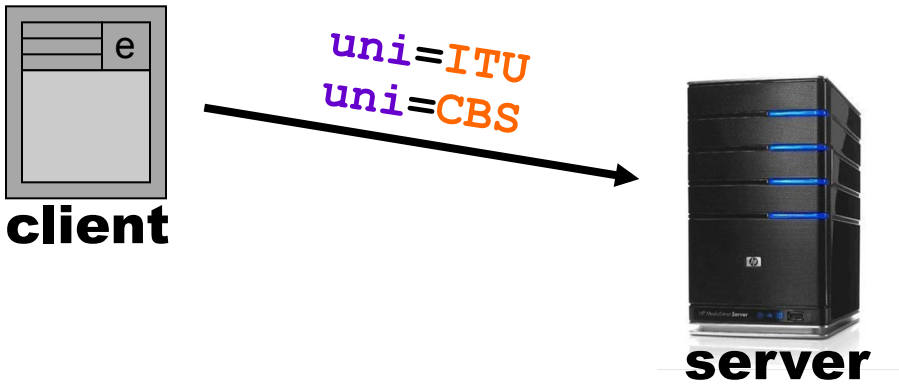
Note: essentially the same as a **radio button** group

`selected="selected"` (to tick off by default, on page load)

<select multiple="multiple">

```
<select name="uni" multiple="multiple" >
    <option value="ITU" >IT University of Copenhagen</option>
    <option value="KU"  >Copenhagen University</option>
    <option value="CBS" >Copenhagen Business School</option>
</select>
```





Note: essentially the same as a **checkbox** group

`selected="selected"` (to tick off by default, on page load)

EXERCISE (II)

For each of the "**type**"s of **<input>** fields (hidden, textarea, select, select-multiple) do:

- 1) Make an HTML form with the input field:

```
<form>
    ...input field goes here...
    <input type="submit" value="Submit Form!" />
    <input type="reset" value="Reset Form!" />
</form>
```

- 2) Submit to "echo service" (to see info submitted):

```
<form action="http://www.brics.dk/ixwt/echo">
```

- 3) Submit form "via email" (to see info formatted):

```
<form action="mailto:a@b.c" method="post" >
```

Agenda

- 1) HTML FORMS
- 2) PHP (intro)
- 3) HTML VALIDATION
- 4) ASSIGNMENT

Programming Language

- A programming language allows us to tell (instruct) a computer what to do
- There are ***many*** different prog. languages:
  - PHP, Java, C, C++, Pascal, JavaScript, … (10000s)
  - They all have different characteristics
  - Which one to use depends on what we want to do
    - **PHP:** made specifically for web service programming!
- Learning to program can be hard. Be patient!
  - Initially: 20% programming + 80% debugging

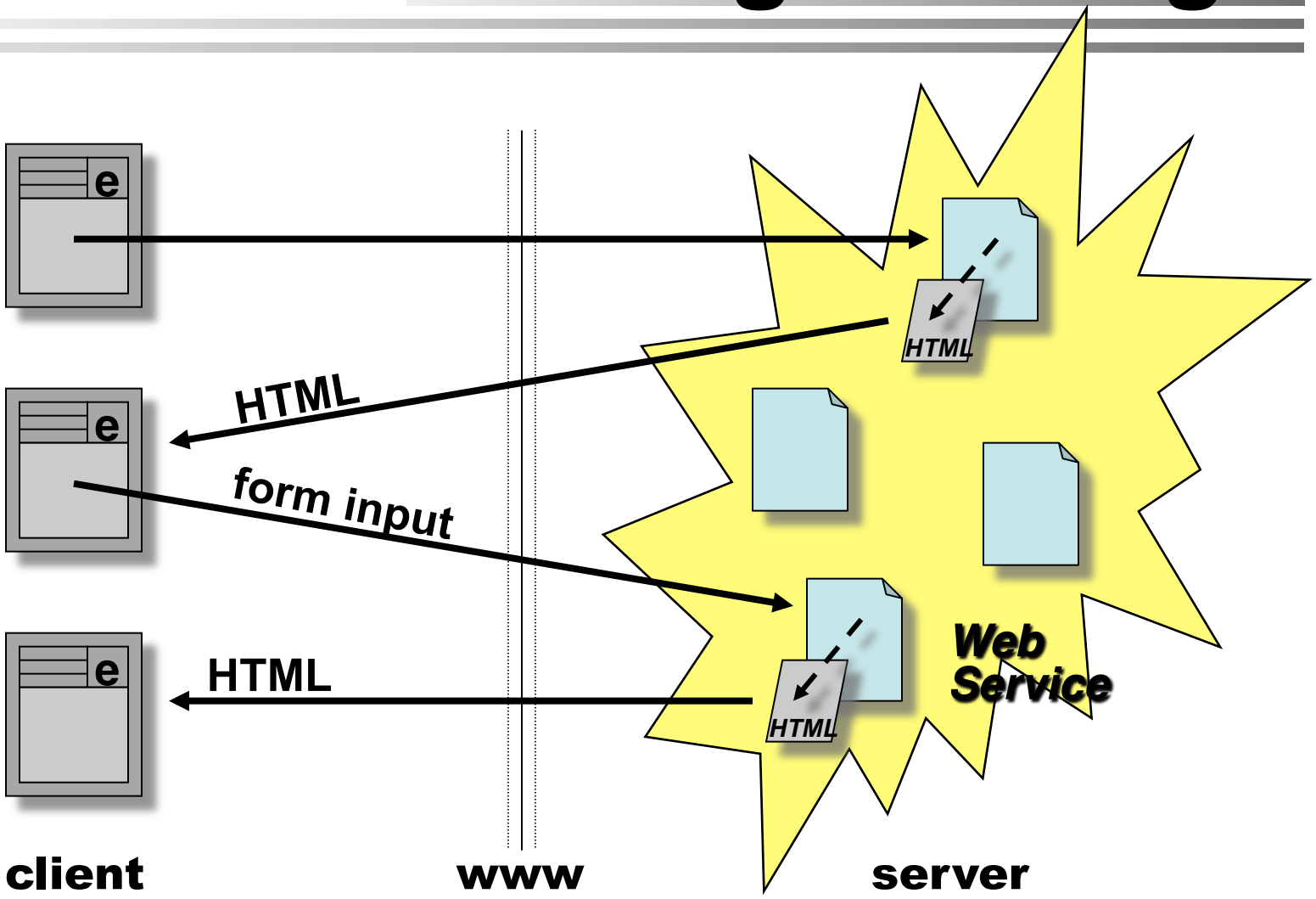
PHP

- **PHP:** Hypertext Preprocessor
- **Made for web service programming !!!**

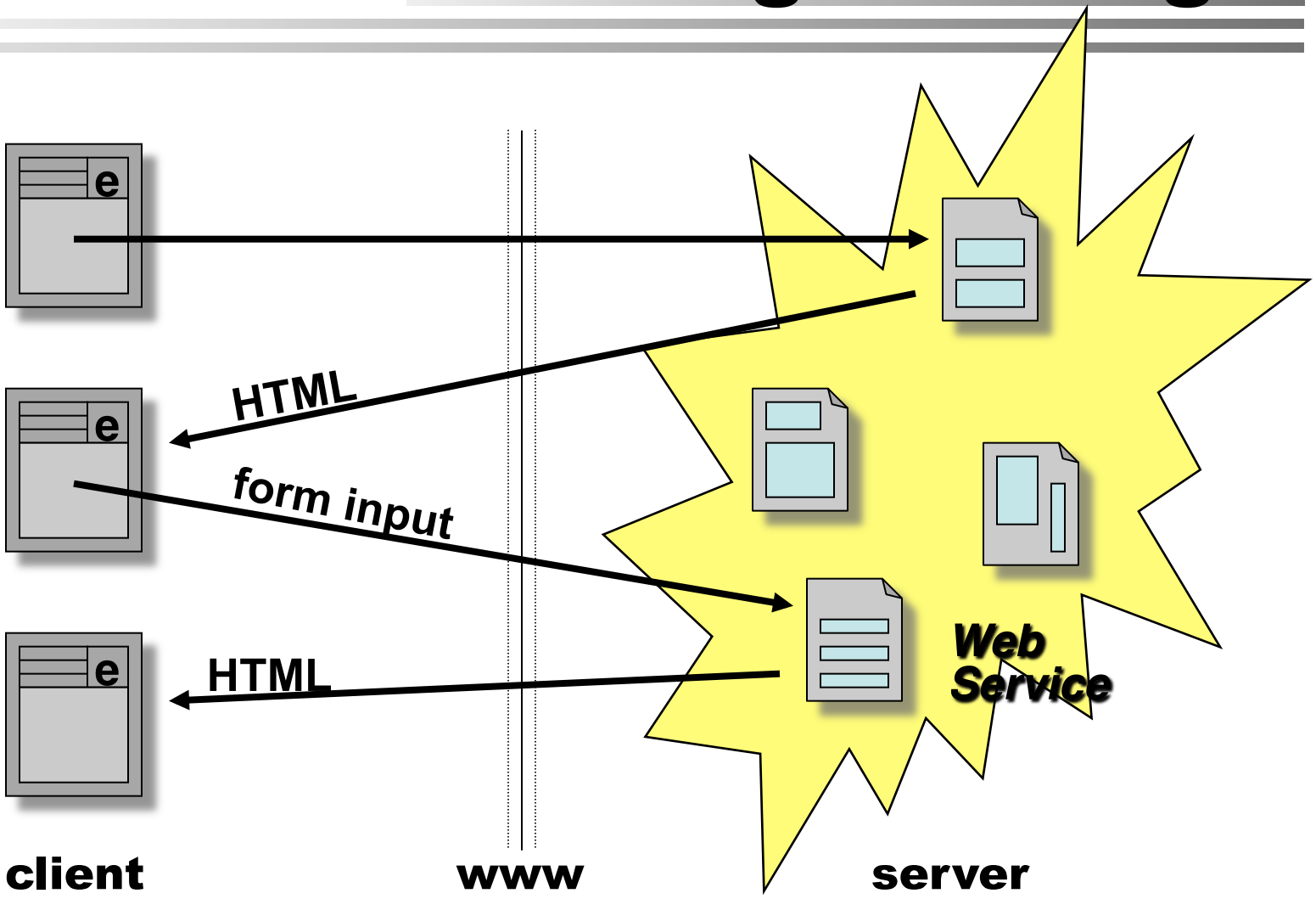
- It is a “scripting language”
  (used in Facebook, Wikipedia, Wordpress, …)

- Other scripting languages:
  - ASP (Microsoft)
  - Javascript
  - Actionscript (Flash)

Traditional Web Programming

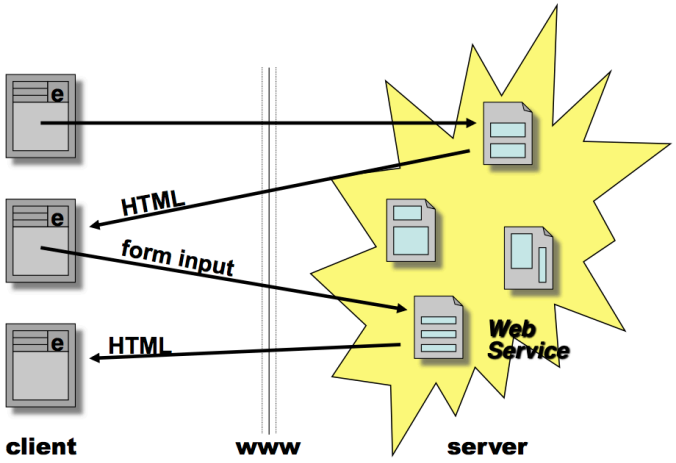


PHP Web Service Programming

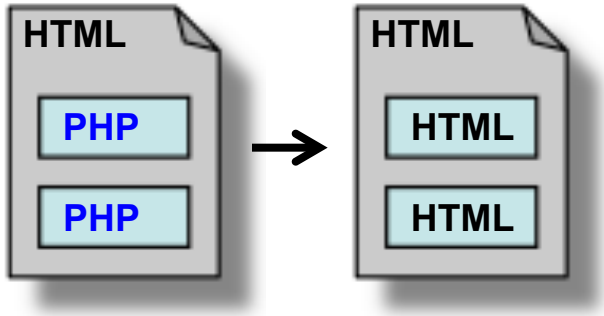


PHP

- PHP is a programming language made specifically for **web service programming**
- PHP code runs on the server (i.e., not on your computer)



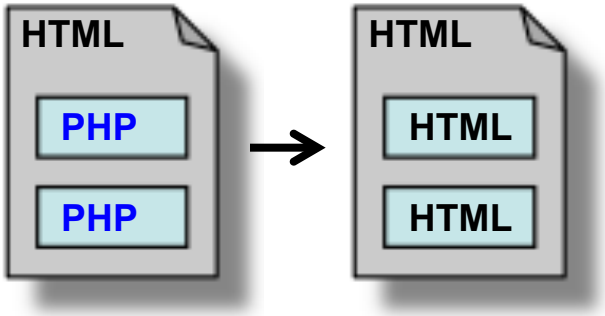
- Programming model of PHP:
  - HTML with special **PHP tags** (`<?php ... ?>`) that are evaluated and generate (dynamic) HTML



PHP Example: Hello World!

```
<html>
    <body>
        <?php
            echo "Hello World!" ;
        ?>
    </body>
</html>
```

Hello World!



- PHP code is written in **<?php ... ?>** tags inside regular HTML
- Each PHP command ends with ";" (semicolon)
- "echo" is a command that prints the argument (in this case it will print "Hello World!")

PHP Example: Hello World!

```
<html>
    <body>
        <?php
            echo "<h1>Hello World!</h1>" ;
            echo "<p/>" ;
            echo "This is <b>bold</b> and <i>italic</i>" ;
        ?>
    </body>
</html>
```

Hello World!

This is **bold** and *italic*

- We can make HTML tags (e.g., <h1>…</h1>, …, …)
- We can write multiple lines

PHP Example: Hello World!

```
<html>
   <body>
      <?php
         echo "<h1>Hello World!</h1>" ;
         echo "<p/>" ;
         echo "This is <b>bold</b> and <i>italic</i>" ;
      ?>
   </body>
</html>
```

=

```
<html>
   <body>
      <?php echo "<h1>Hello World!</h1>" ; ?>
      <p/>
      <?php echo "This is <b>bold</b> and <i>italic</i>" ; ?>
    </body>
</html>
```

Hello World!

This is **bold** and *italic*

PHP Example: Variables

```
<html>
    <body>
        <?php
            $year = 2012 ;
            echo "The year is:" ;
            echo $year ;
        ?>
    </body>
</html>
```

The year is: 2012

=

```
<html>
    <body>
        <?php $year = 2012 ; ?>
        The year is:
        <?php echo $year ; ?>
    </body>
</html>
```

The year is: 2012

PHP Example: Variables

```
<html>
    <body>
        <?php
            $year = 2012 ;
            echo "Next year is:" ;
            echo ($year + 1) ;
        ?>
    </body>
</html>
```

Next year is: 2013

- We can make **calculations:** `($year + 1)`

PHP Example: Today's date

```
<html>
    <body>
        Today is:
        <?php
            $today = date("d-m-Y") ;
            echo $today ;
        ?>
    </body>
</html>
```

Today is: 07-09-2012

- We can output ***dynamic*** information!
- date("…") is a **built-in function** that returns today's date according to some format "…"

(http://php.net/manual/en/function.date.php)

Agenda

- 1) HTML FORMS
- 2) PHP (intro)
- 3) HTML VALIDATION
- 4) ASSIGNMENT

HTML Document Structure

- HTML Document Structure (refresh):

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
          "http://www.w3.org/TR/html4/strict.dtd">
<html>
   <head>
      <title>Hello!</title>
   </head>
   <body>
      <p>hello world!
   </body>
</html>
```

(http://validator.w3.org/)

XHTML Document Structure

- XHTML Document Structure (refresh):

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
   <head>
      <title>Hello</title>
   </head>
   <body>
      <p>Hello World!</p>
   </body>
</html>
```

(http://validator.w3.org/)

XHTML (Common Mistakes)

- Elements must be properly **nested**:
  - (not ~~~~)
- Attributes values in single or double **quotes**:
  - <a href="xyz" /> or <a href='xyz' /> (not <a href=~~xyz~~ />)
- Always **lower case** element names:
  - <html> (not <~~HTML~~>)
- All elements must be **closed**:
  - … or (not: ~~ …~~)
  -

Validation of (X)HTML

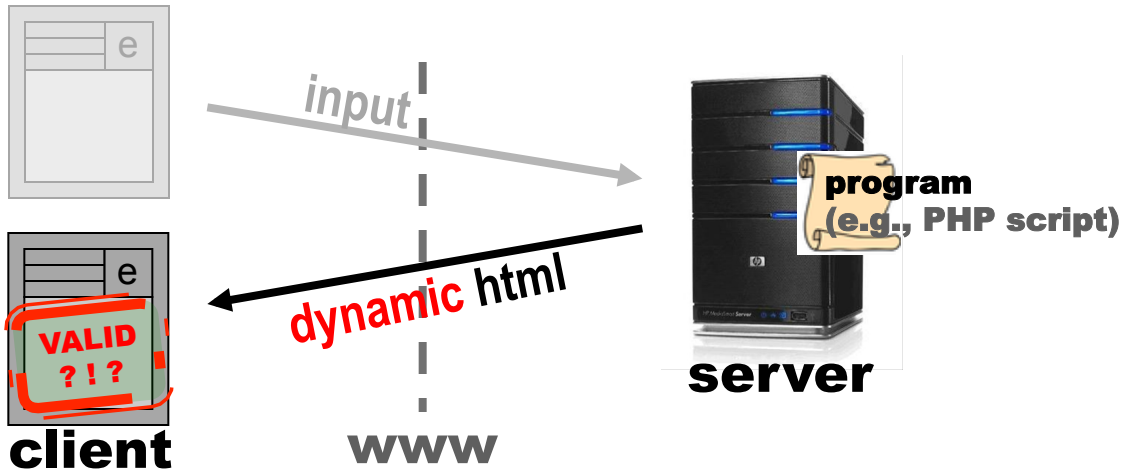
- **Static Validation:**

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
          "http://www.w3.org/TR/html4/strict.dtd">
<html>
   <head>
      <title>Hello!</title>
   </head>
   <body>
      <p>hello world!
   </body>
</html>
```

Validate:

W3C HTML 4.01

- **Dynamic Validation:**



Agenda

- 1) HTML FORMS
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How to submit assignments

- We have created a special folder on ITU server:
  - **http://www.itu.dk/stud/e2012/DSDS/**
- You need to upload your files to your folder:
  - **W:/e2011/DSDS/*username*** (W-drive); or
  - **/import/stud/www/e2012/DSDS/*username*** (SFTP/SSH)
- You need to create a folder for each assignment **A1**, **A2**, etc. and put your final solution there:
  - **/import/stud/www/e2012/*username*/A1/**
  - (do not use your personal public_html folder)

FileZilla (FTP Client)

- FileZilla (FTP Client):
  - http://filezilla-project.org/
- Connect using your ITU username+password
- Hand-in folder:

  `/import/stud/www/e2012/DSDS/username/A1/`

  `http://www.itu.dk/stud/e2012/DSDS/username/A1/`

Any questions?