Tutorial 4

Web Development Technologies

Reminders

- Everyone should have XAMPP installed for this tutorial and for part 3 of the first Assignment.
- Install the plugins for PHP given in the first tutorial.
- **Assignment 1 due date is the 29th of January for the three parts.**

Agenda

- HTTP
- HTML
- PHP
- JSON
- XML
- Class Exercise (registration/login page)

HTTP

- GET request vs POST request

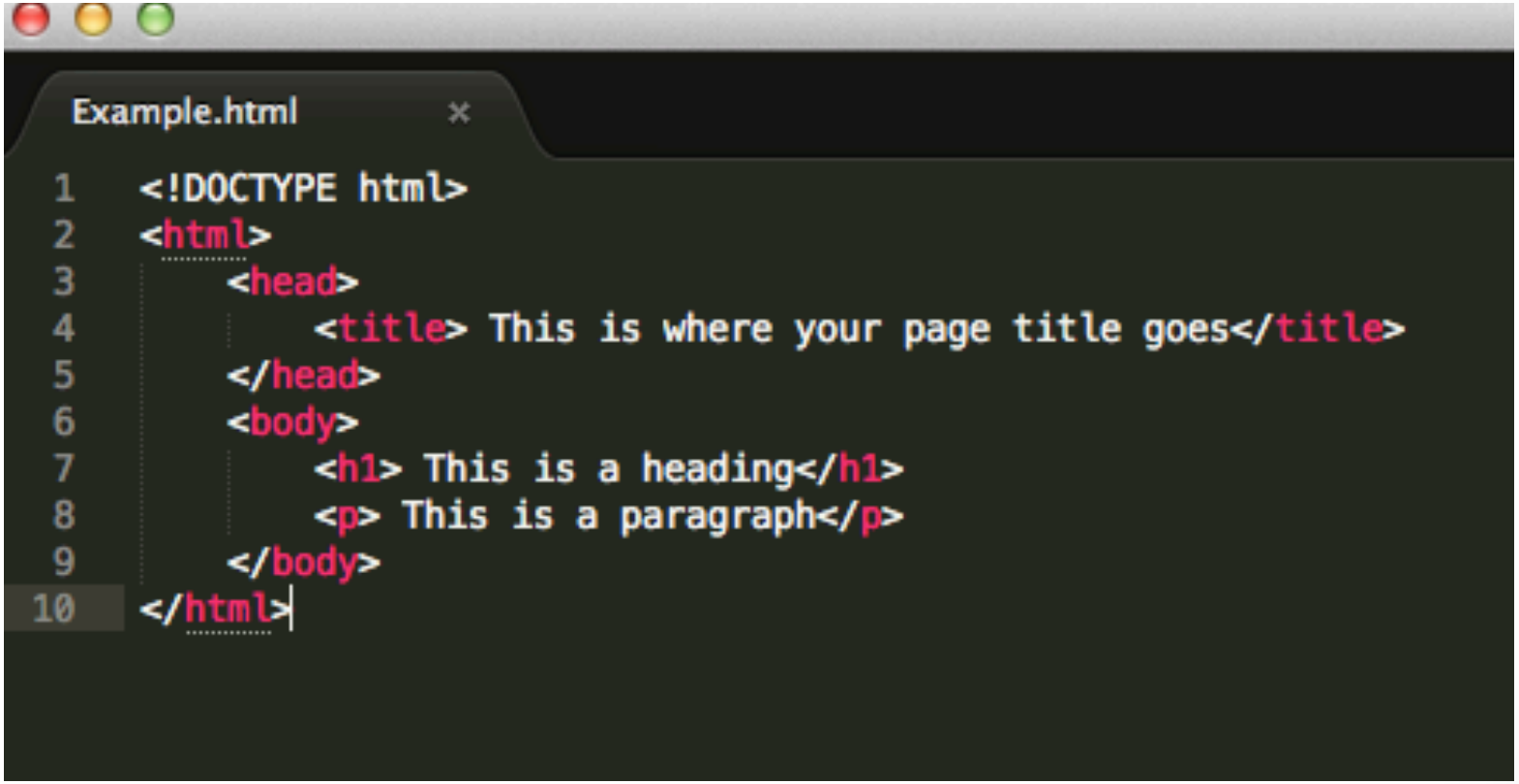
HTTP

- The Hypertext Transfer Protocol (HTTP) is designed to enable communications between clients and servers.
- HTTP works as a request-response protocol between a client and server.
- GET request appears in the query string (URL).
- POST request appears in the http message body.
- POST requests are never cached.
- POST requests do not remain in browser history.

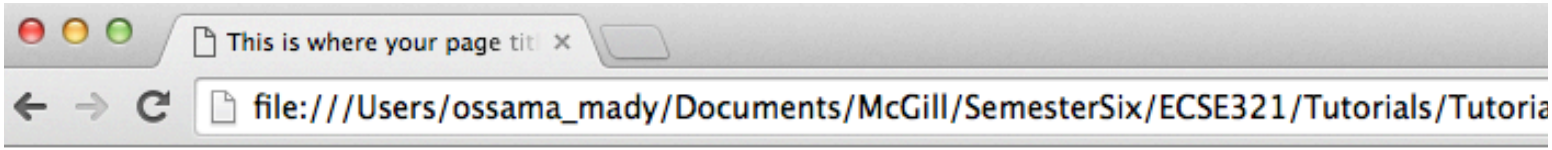
HTML

- HTML stands for Hyper Text Markup Languages, which is the most widely used language on the Web to develop web pages.
- HTML is a Markup Language which means you use it to simply “markup” a text document with tags that tells a Web browser how to structure it to display.
- HTML extension is .html

HTML


Example.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title> This is where your page title goes</title>
5 </head>
6 <body>
7 <h1> This is a heading</h1>
8 This is a paragraph
9 </body>
10 </html>

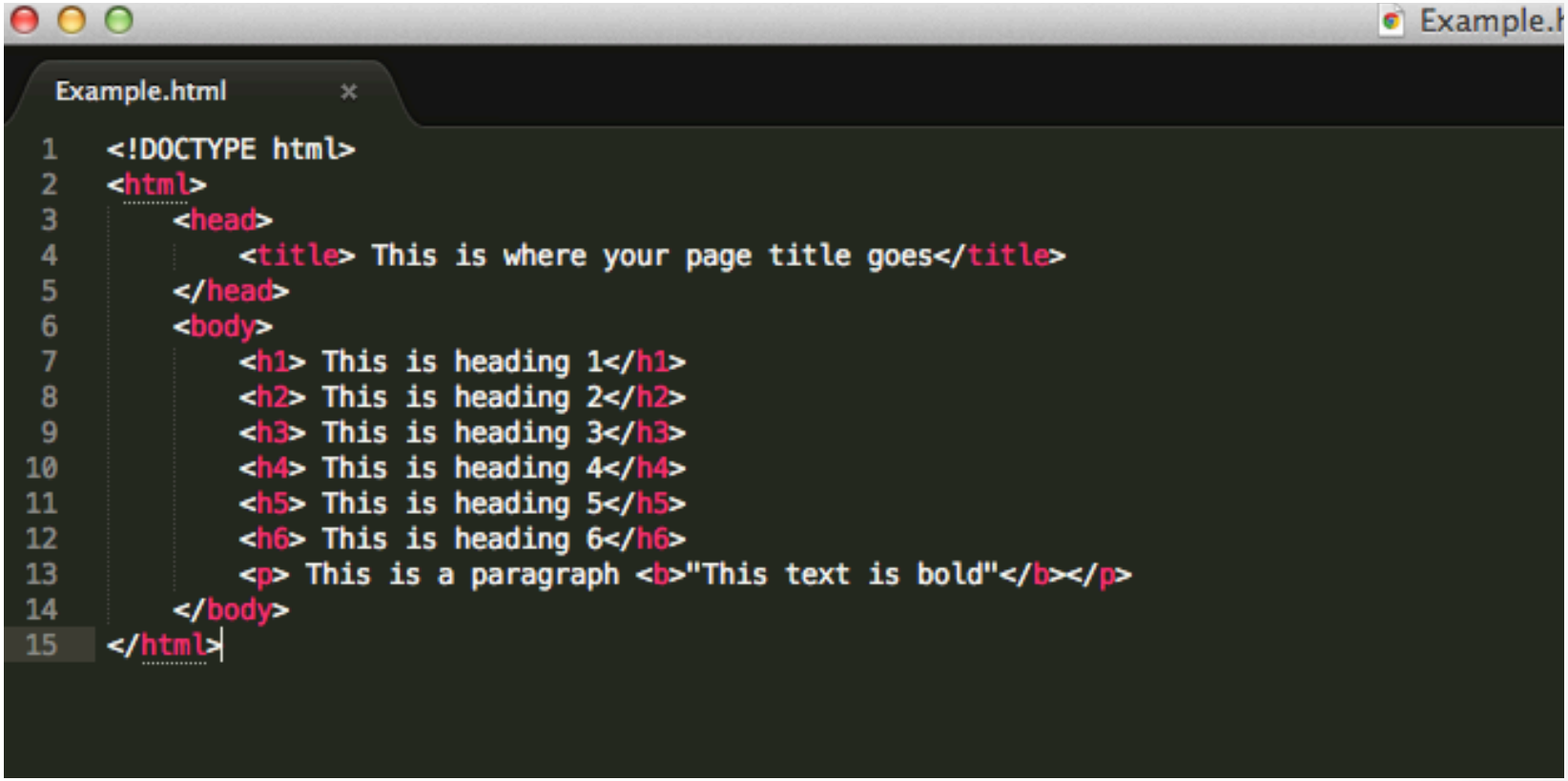
HTML



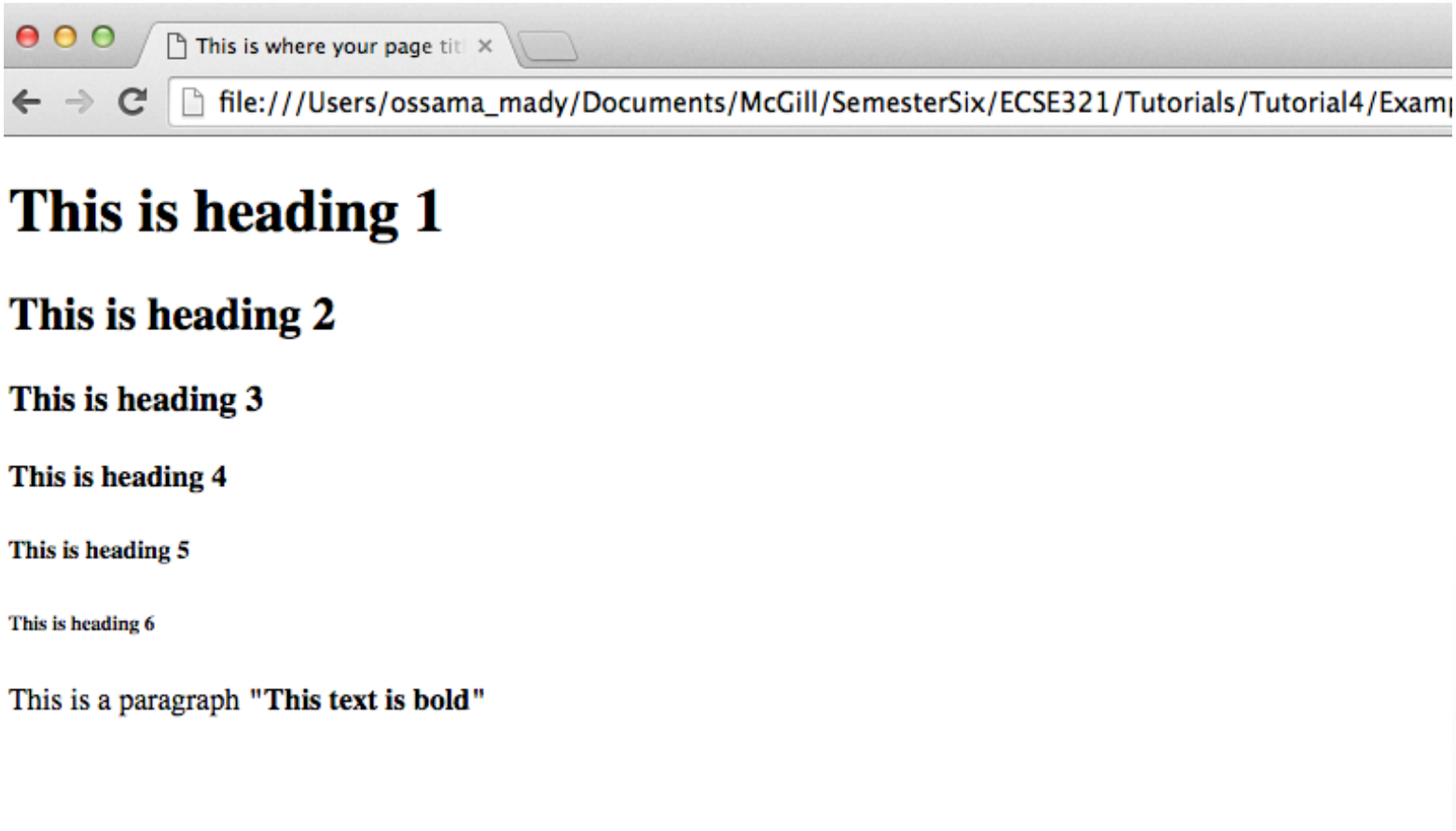
This is a heading

This is a paragraph

HTML


Example.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title> This is where your page title goes</title>
5 </head>
6 <body>
7 <h1> This is heading 1</h1>
8 <h2> This is heading 2</h2>
9 <h3> This is heading 3</h3>
10 <h4> This is heading 4</h4>
11 <h5> This is heading 5</h5>
12 <h6> This is heading 6</h6>
13 This is a paragraph "This text is bold"
14 </body>
15 </html>

HTML


This is where your page tit
file:///Users/ossama_mady/Documents/McGill/SemesterSix/ECSE321/Tutorials/Tutorial4/Exam
This is heading 1
This is heading 2
This is heading 3
This is heading 4
This is heading 5
This is heading 6
This is a paragraph "This text is bold"

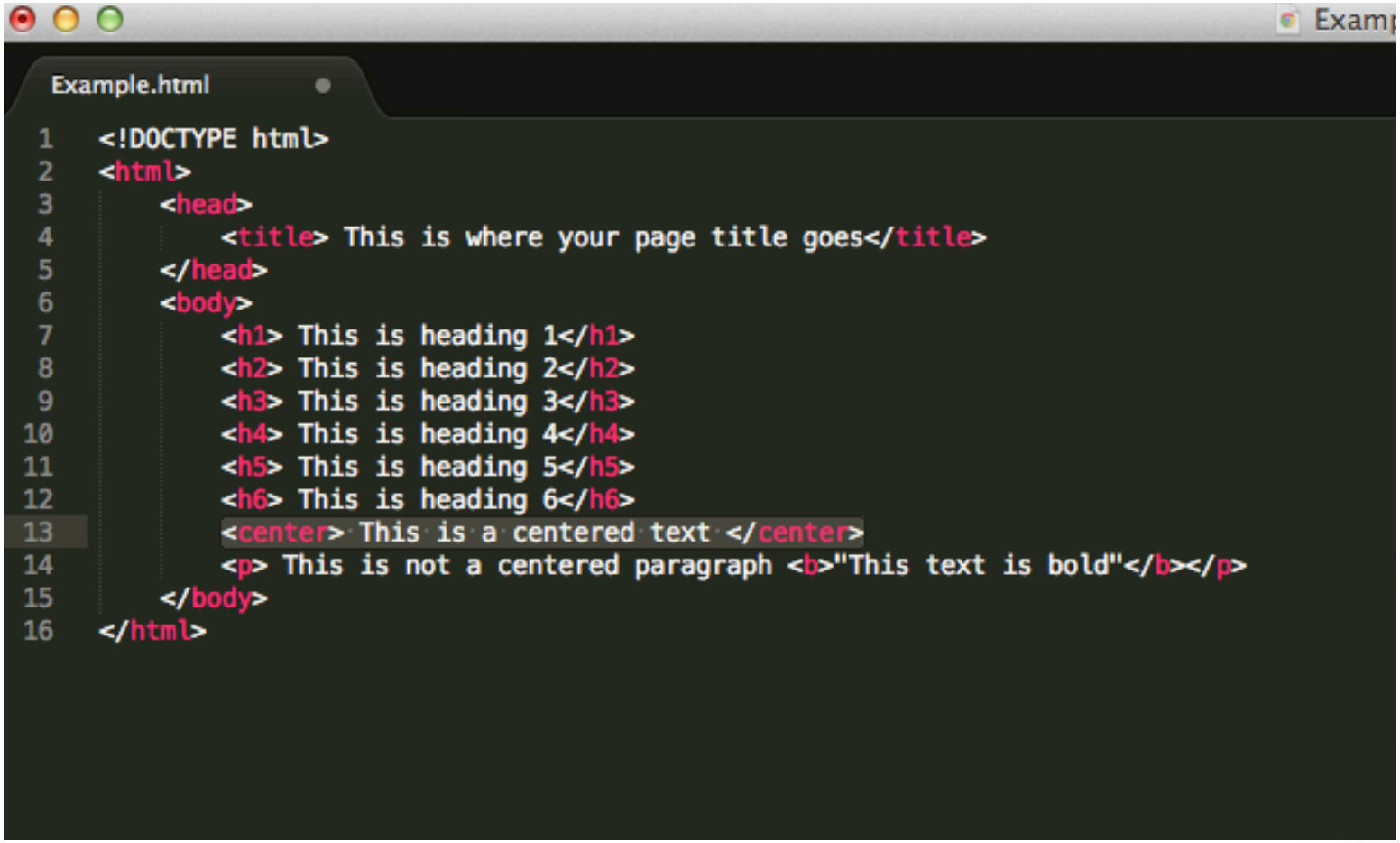
HTML

- HTML is a collection of tags
- Tags can be categorized into two types of tags

1. Tags with attributes and text in between
   <TagName attr1="Value" attr2="Value"> Text </TagName>
2. Tags with attributes only
   <TagName attr1="Value"/>

- The text has to be contained within the opening and the closing tags of the corresponding element.

HTML


Example.html
1 <!DOCTYPE html>
2 <html>
3 <head>
4 <title> This is where your page title goes</title>
5 </head>
6 <body>
7 <h1> This is heading 1</h1>
8 <h2> This is heading 2</h2>
9 <h3> This is heading 3</h3>
10 <h4> This is heading 4</h4>
11 <h5> This is heading 5</h5>
12 <h6> This is heading 6</h6>
13 This is a centered text
14 This is not a centered paragraph "This text is bold"
15 </body>
16 </html>

HTML

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

This is a centered text

This is not a centered paragraph **"This text is bold"**

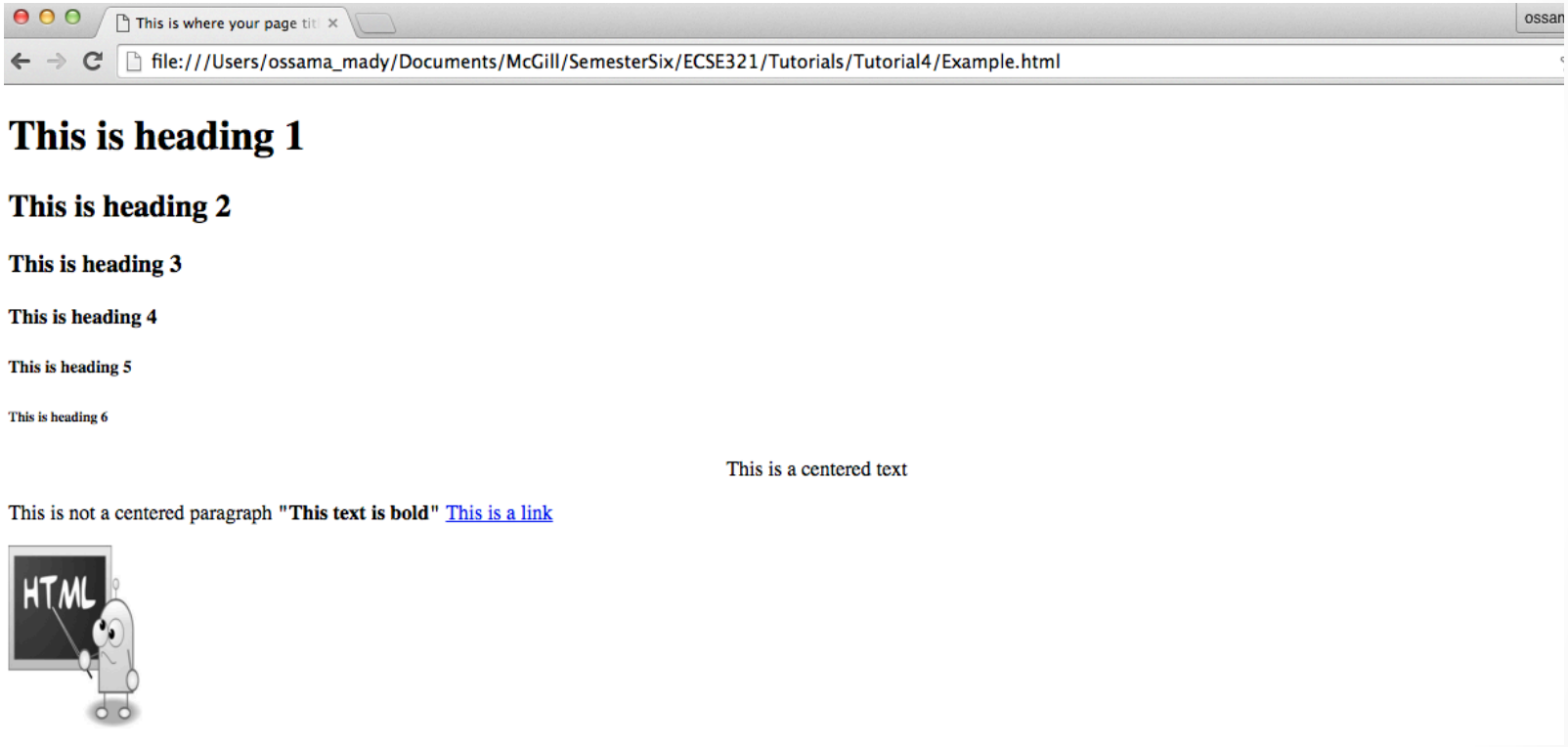
HTML

example.html

example.html

```
1  <!DOCTYPE HTML>
2  <html>
3      <head>
4          <title> This is where your page tile goes </title>
5      </head>
6      <body>
7          <h1> This is heading 1 <h1>
8          <h2> This is heading 2 <h2>
9          <h3> This is heading 3 <h3>
10         <h4> This is heading 4 <h4>
11         <h5> This is heading 5 <h5>
12         <h6> This is heading 6 <h6>
13         <center> This is a centered text </center>
14         <p> This is not a centered paragraph <b> This text is bold </b>
15         <a href="www.google.com"> This is a link </a>
16         </p>
17         <img src="https://familysearch.org/learn/wiki/en/images/0/04/HTML.jpg" width="200" height="200"/>
18     </body>
19 </html>
```

HTML

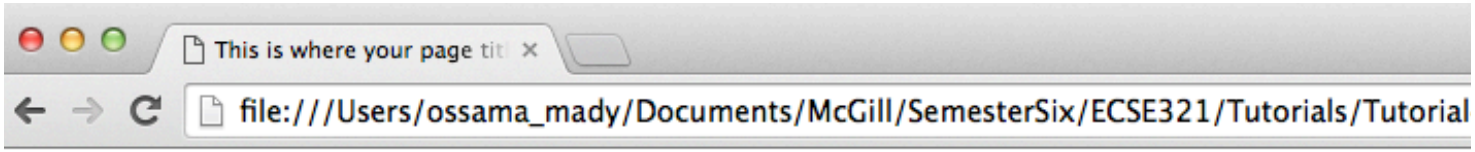

This is where your page tit
file:///Users/ossama_mady/Documents/McGill/SemesterSix/ECSE321/Tutorials/Tutorial4/Example.html
This is heading 1
This is heading 2
This is heading 3
This is heading 4
This is heading 5
This is heading 6
This is a centered text
This is not a centered paragraph "This text is bold" This is a link
HTML

HTML

Example.html

```
<!DOCTYPE html>
<html>
    <head>
        <title> This is where your page title goes</title>
    </head>
    <body>
        <pre>
            This is a preformatted text.
            I can format the text here.

            Two breaks.


            Three breaks.
        </pre>
        <p>
            This is not a preformatted text.
            I can format the text here.

            Two breaks.


            Three breaks.
        </p>

    </body>
</html>
```

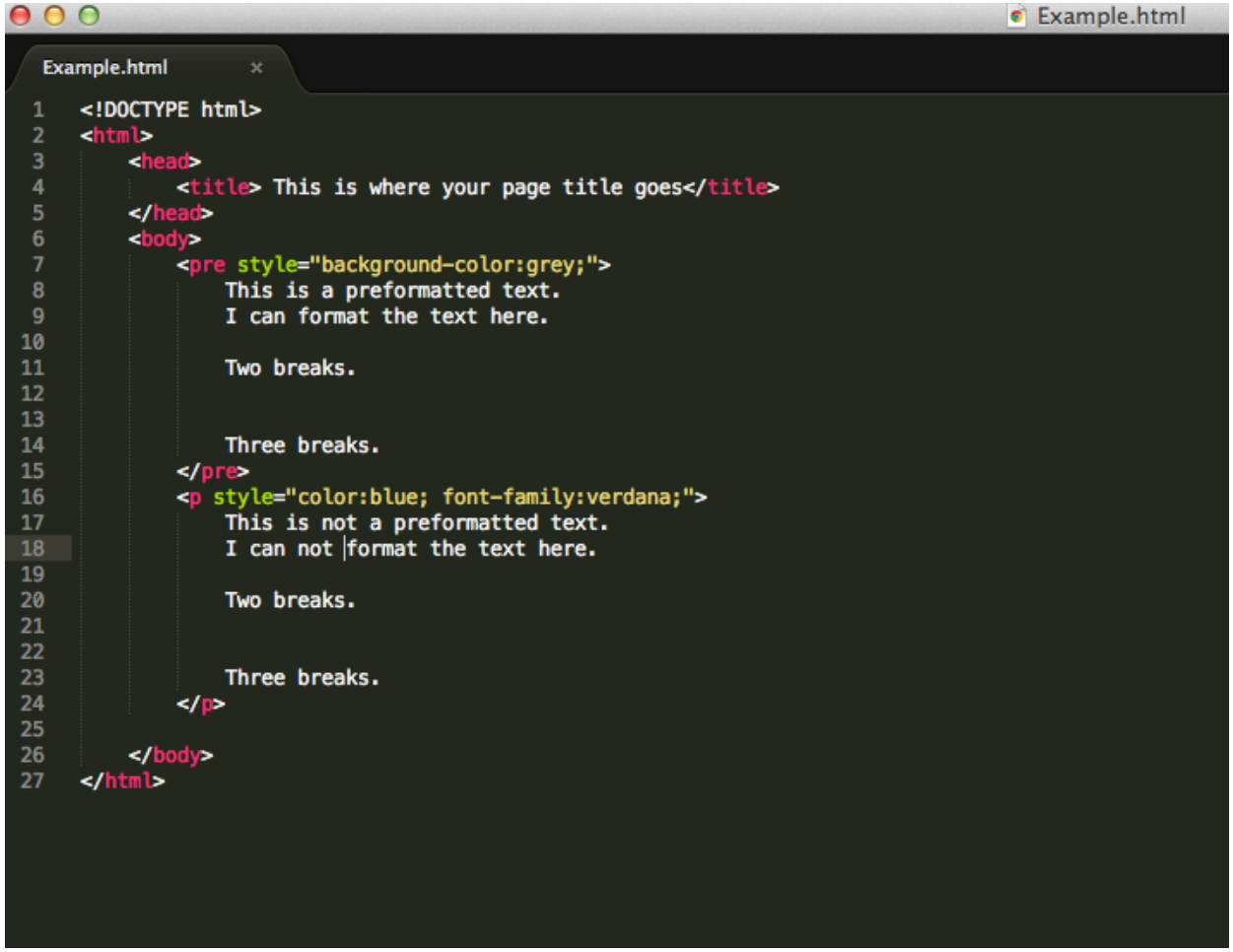
HTML



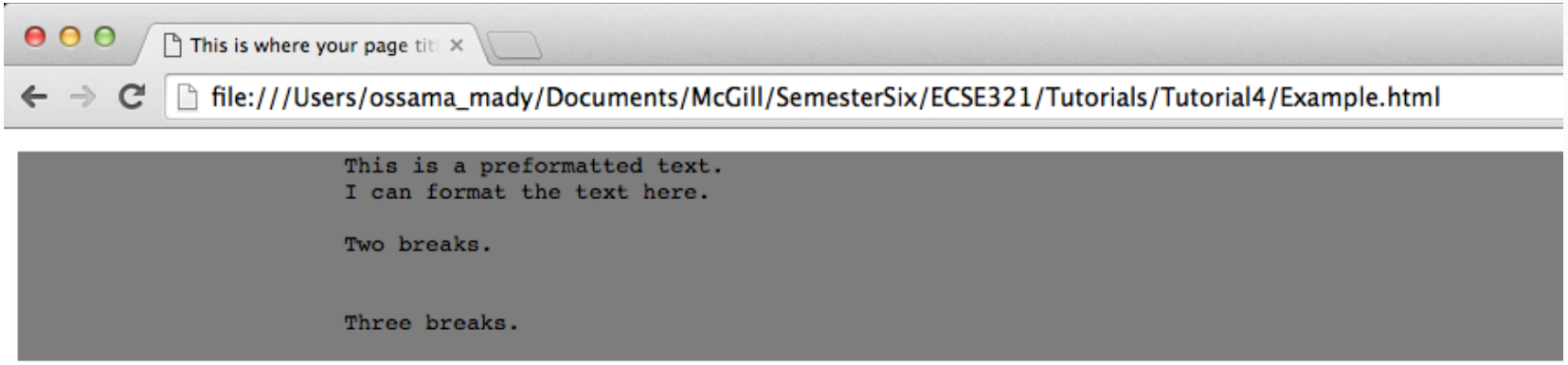

```
This is a preformatted text.
I can format the text here.

Two breaks.


Three breaks.
```

This is not a preformatted text. I can not format the text here. Two breaks. Three breaks.

HTML (adding some styles)



HTML (adding some styles)



HTML

Example.html

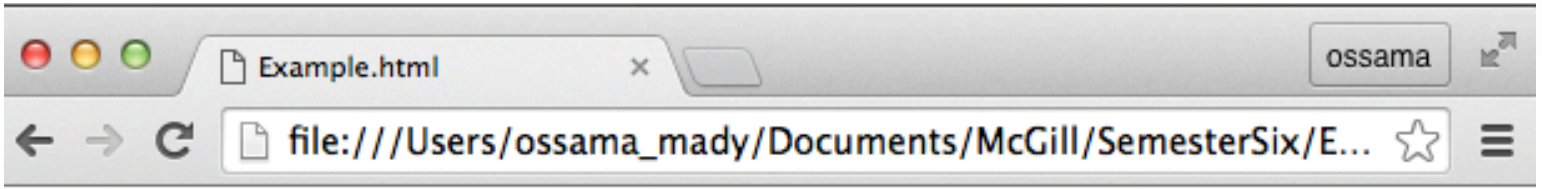
```
<!DOCTYPE html>
<!--This where your comments go-->
<html>
<head>
<style>
table, th, td {
    border: 1px solid black;
    border-collapse: collapse;
}
th, td {
    padding: 5px;
    text-align: left;
}
table#t01 {
    width: 100%;
    background-color: #f1f1c1;
}
</style>
</head>
<body>

<table style="width:100%">
  <tr>
    <th>First Name</th>
    <th>Last Name</th>
    <th>Points</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
```

Example.html

```
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
    <td>Doe</td>
    <td>80</td>
  </tr>
</table>

<br>

<table id="t01">
  <tr>
    <th>First Name</th>
    <th>Last Name</th>
    <th>Points</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
    <td>Doe</td>
    <td>80</td>
  </tr>
</table>

</body>
```

From www.w3schools.com

HTML



First Name	Last Name	Points
Jill	Smith	50
Eve	Jackson	94
John	Doe	80

First Name	Last Name	Points
Jill	Smith	50
Eve	Jackson	94
John	Doe	80

HTML FORMS

Example.html

```
<!DOCTYPE html>
<html>
    <head>
        <title> This is where your page title goes</title>
    </head>
    <body>
        <h1> A form example </h1>
        <form action="action_page.php">
          <fieldset>
            <legend>Personal information:</legend>
            First name:<br>
            <input type="text" name="firstname" value="Your First Name..."><br>
            Last name:<br>
            <input type="text" name="lastname" value="Your Last Name..."><br><br>
            Gender: <br>
             <input type="radio" name="gender" value="male" checked> Male<br>
             <input type="radio" name="gender" value="female"> Female<br><br>
            <input type="submit" value="Submit">
          </fieldset>
        </form>
    </body>
</html>
```

HTML FORMS


This is where your page tit
ossama
file:///Users/ossama_mady/Documents/McGill/Semest...
A form example
Personal information:
First name:
Your First Name...
Last name:
Your Last Name...
Gender:
Male
Female
Submit

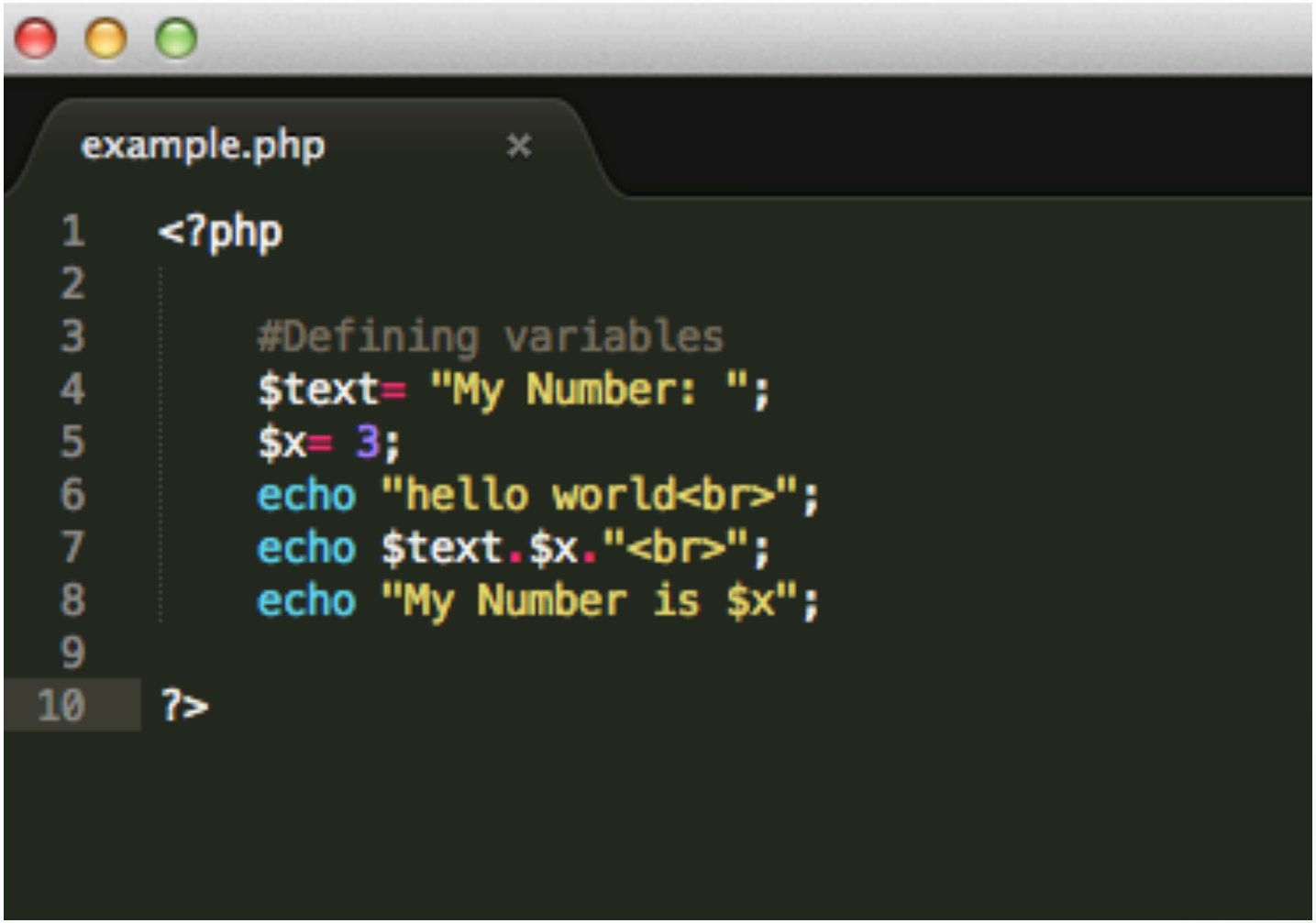
HTML FORMS

- Text Fields
  ```
  <input name="email" type="text" />
  ```
- Password Fields
  ```
  <input name="password" type="password" />
  ```
- Hidden Fields
  ```
  <input name="id" value="123" />
  ```
- Checkboxes
  ```
  <input checked="checked" name="remember" type="checkbox" />
  ```
- Radio Buttons
  ```
  <input name="gender" type="radio" value="F" />
  <input name="gender" type="radio" value="M" />
  ```
- Drop-Down Menus
  ```
  <select name="state">
    <option value=""></option>
    <option value="MA"></option>
    <option value="NY"></option>
  </select>
  ```
- Text Areas
  ```
  <textarea name="comments"></textarea>
  ```

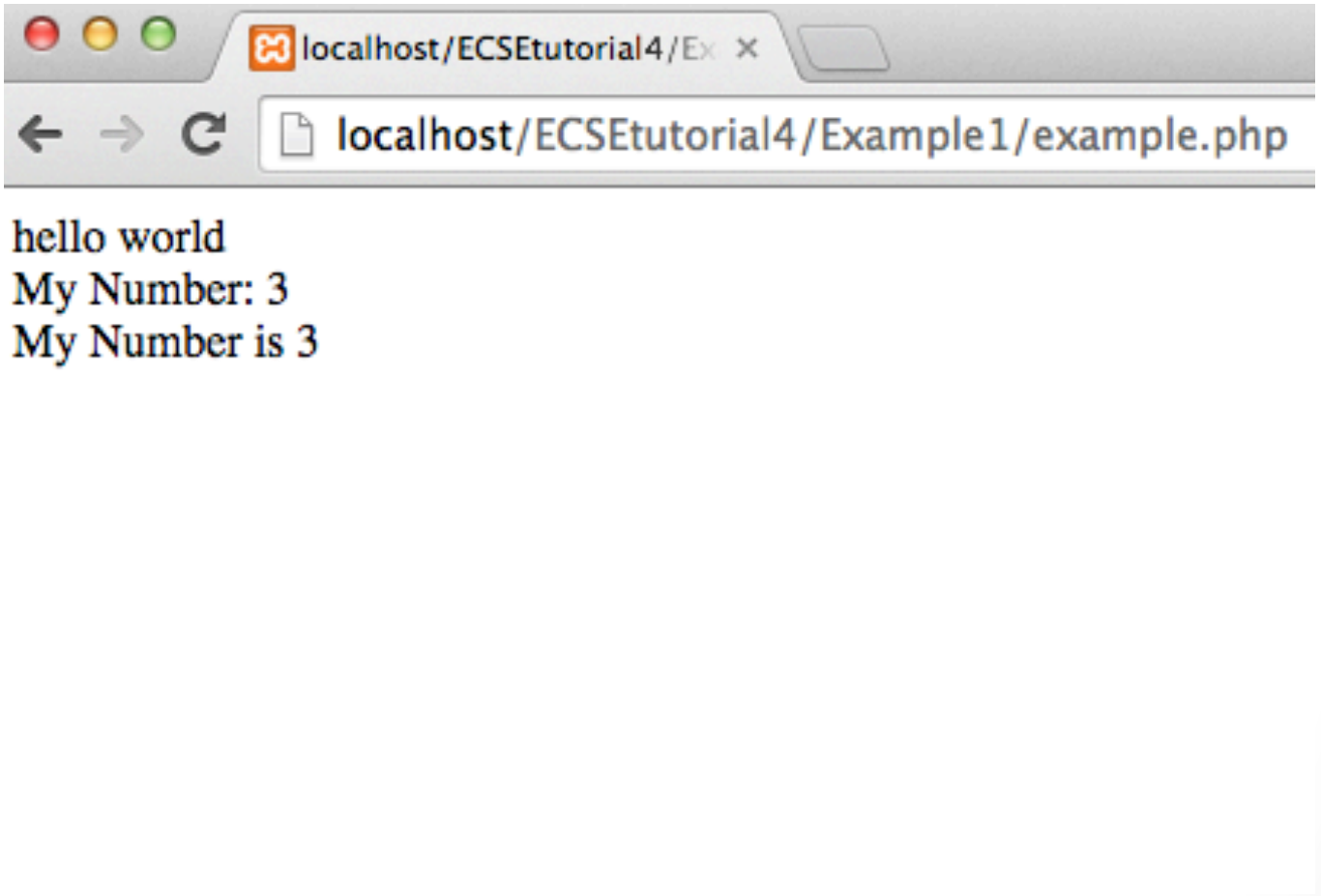
PHP

- The PHP HyperText Preprocessor is a programming language that allows web developers to create dynamic content that interacts with databases.
- PHP is a loosely typed language, which means it automatically converts the datatype of the variable depending on it's value. You don't specify the data value beforehand like in C, Java..etc
- Any file that contains php code should be stored with the extension .php

PHP


example.php
<?php
#Defining variables
$text= "My Number: ";
$x= 3;
echo "hello world
";
echo $text.$x."
";
echo "My Number is $x";
?>

PHP


localhost/ECSEtutorial4/Ex
localhost/ECSEtutorial4/Example1/example.php
hello world
My Number: 3
My Number is 3

PHP

exam

example.php

```php
<?php

    #Defining constant variables

    define("GREETING", "Welcome to ECSE321 Tutorial 4<br>");
    echo GREETING;
    $t = date("H"); //gets the current hour
    if ($t < "20") {
        echo "Have a good day!";
    }
    else{
        echo "Have a good night";
    }

    # Loops are the same like Java or C

    $x = 1;

    while($x <= 5) {
        echo "The number is: $x <br>";
        $x++;
    }

    #arrays and for loops

    $colors = array("red", "green", "blue", "yellow");
    $colors[6]= "grey";
    foreach ($colors as $value) {
        echo "$value <br>";
    }

    //adding an element to the array
    for ($x = 0; $x < count($colors); $x++) {
    echo "$colors[$x] <br>";
    }
```

PHP

example.php

```php
# associative arrays, like a dictionary

$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");
echo "Peter is " . $age['Peter'] . " years old. <br>";

$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");

foreach($age as $x => $x_value) {
    echo "Key=" . $x . ", Value=" . $x_value;
    echo "<br>";
}

#defining functions with arguments

function familyName($fname) {
    echo "$fname Refsnes.<br>";
}

familyName("Jani");
familyName("Hege");
familyName("Stale");
familyName("Kai Jim");
familyName("Borge");

#defining functions with arguments that hold a default value

function setHeight($minheight = 50) {
    echo "The height is : $minheight <br>";
}

setHeight(350);
setHeight(); // will use the default value of 50
setHeight(135);
setHeight(80);
?>
```

PHP (Working With HTML)

Example.html | example.php

```
1  <html>
2      <body>
3      Welcome <?php echo $_GET["firstname"]."  ".$_GET["lastname"]; ?> to ECSE321 tutorial 4<br>
4      </body>
5  </html>
6
7  <!-- or you can use this -->
8  <?
9      echo "<html>
10             <body>
11                 Welcome ". $_GET["firstname"]." ".$_GET["lastname"]." to ECSE321 tutorial 4
12             </body>
13         </html>"
14 ?>
15
```

PHP (form validation)

- How to Validate your input fields ?
- Form Validation Example, can be found on

https://github.com/shabbir-hussain/ecse321tutW16

Under Tutorial4files/example5

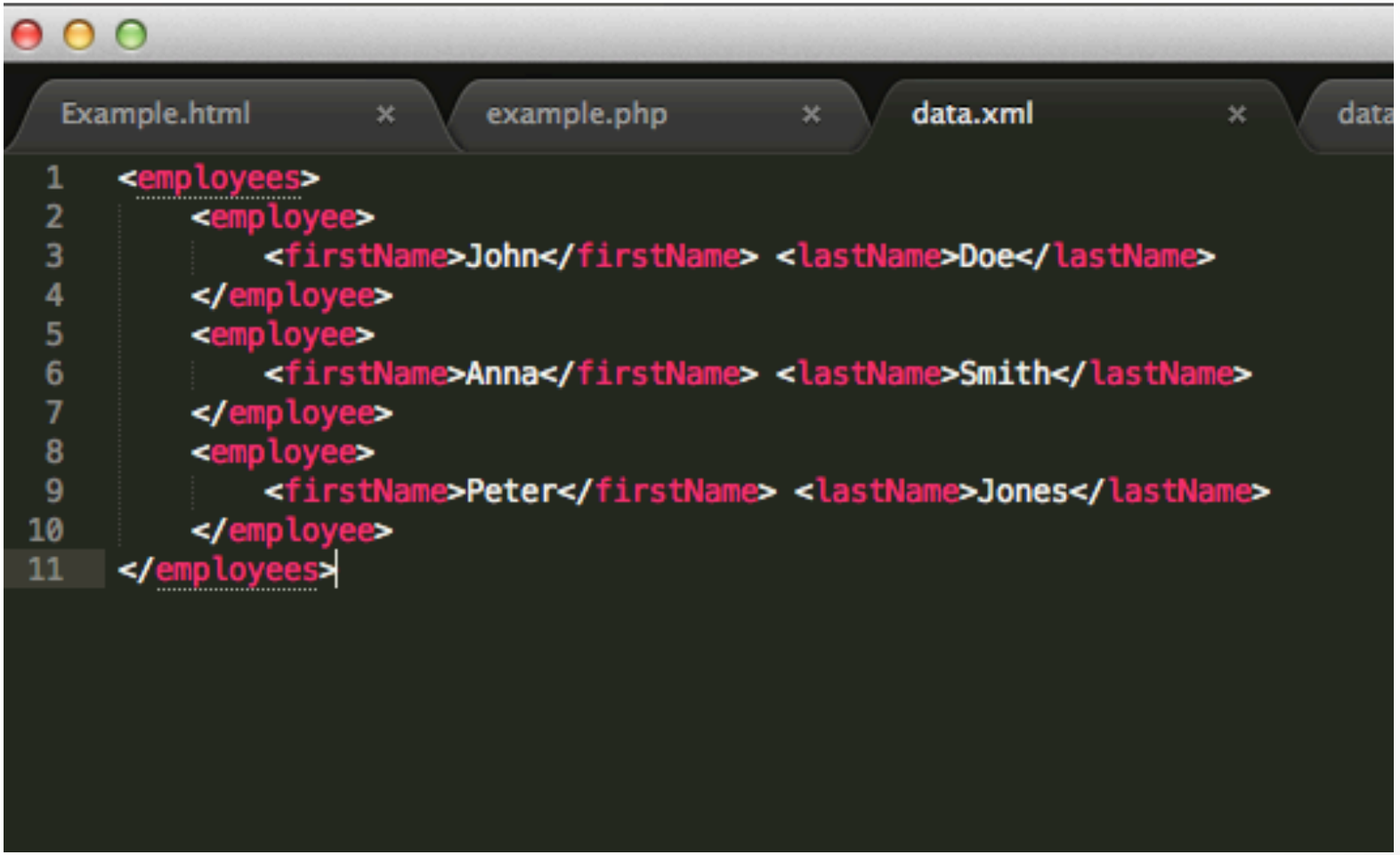
JSON and XML

- XML and JSON are used to exchange and store data for later use.
- They just carry the data in a specified form, they DO NOT present it like HTML does.
- JSON files extension is .json
- XML files extension is .xml

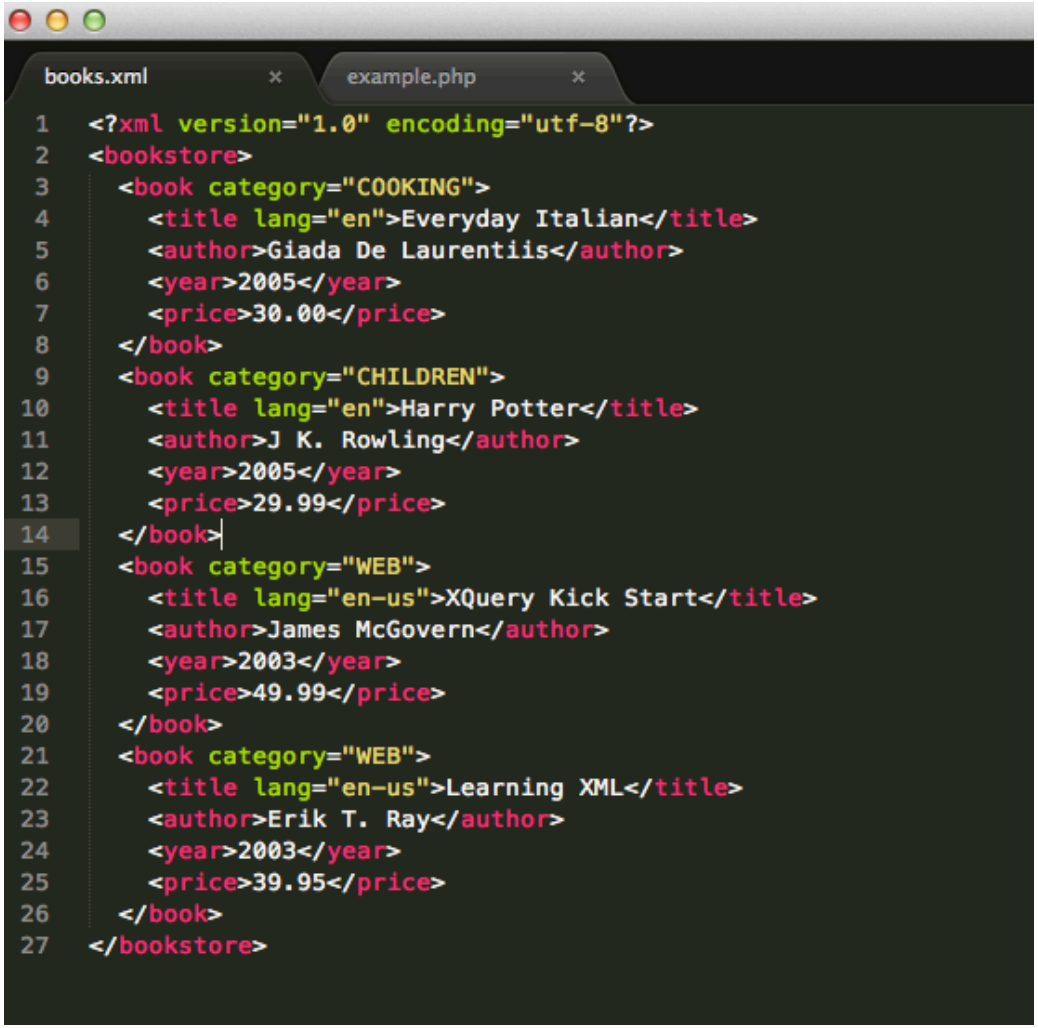
JSON


Example.html
example.php
data.xml
data.jso
1 {"employees":[
2 {"firstName":"John", "lastName":"Doe"},
3 {"firstName":"Anna", "lastName":"Smith"},
4 {"firstName":"Peter", "lastName":"Jones"}
5]}

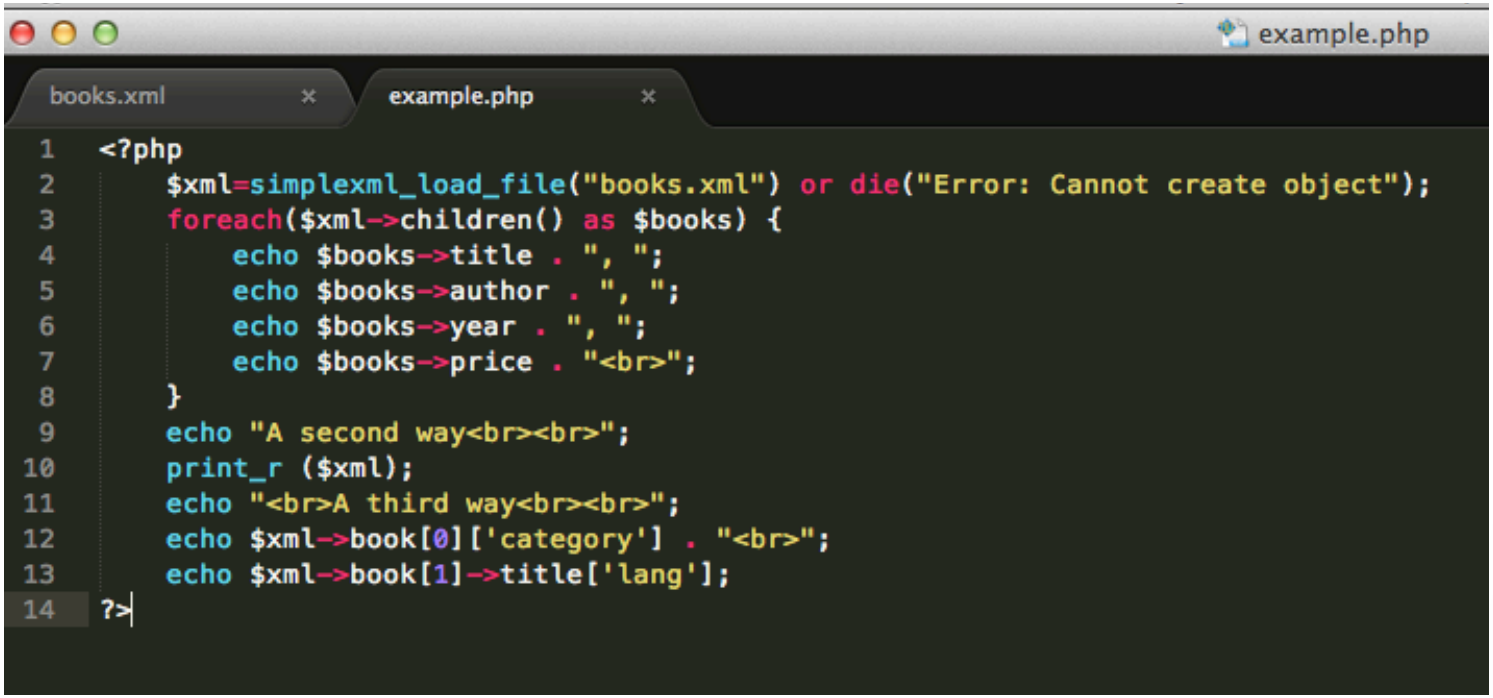
XML


Example.html
example.php
data.xml
data
1 <employees>
2 <employee>
3 <firstName>John</firstName> <lastName>Doe</lastName>
4 </employee>
5 <employee>
6 <firstName>Anna</firstName> <lastName>Smith</lastName>
7 </employee>
8 <employee>
9 <firstName>Peter</firstName> <lastName>Jones</lastName>
10 </employee>
11 </employees>

PHP with XML


books.xml
example.php
<?xml version="1.0" encoding="utf-8"?>
<bookstore>
<book category="COOKING">
<title lang="en">Everyday Italian</title>
<author>Giada De Laurentiis</author>
<year>2005</year>
<price>30.00</price>
</book>
<book category="CHILDREN">
<title lang="en">Harry Potter</title>
<author>J K. Rowling</author>
<year>2005</year>
<price>29.99</price>
</book>
<book category="WEB">
<title lang="en-us">XQuery Kick Start</title>
<author>James McGovern</author>
<year>2003</year>
<price>49.99</price>
</book>
<book category="WEB">
<title lang="en-us">Learning XML</title>
<author>Erik T. Ray</author>
<year>2003</year>
<price>39.95</price>
</book>
</bookstore>

PHP with XML


example.php
books.xml
example.php
<?php
$xml=simplexml_load_file("books.xml") or die("Error: Cannot create object");
foreach($xml->children() as $books) {
echo $books->title . ", ";
echo $books->author . ", ";
echo $books->year . ", ";
echo $books->price . "
";
}
echo "A second way

";
print_r ($xml);
echo "
A third way

";
echo $xml->book[0]['category'] . "
";
echo $xml->book[1]->title['lang'];
?>

PHP with XML

Everyday Italian, Giada De Laurentiis, 2005, 30.00
Harry Potter, J K. Rowling, 2005, 29.99
XQuery Kick Start, James McGovern, 2003, 49.99
Learning XML, Erik T. Ray, 2003, 39.95
A second way

SimpleXMLElement Object ([book] => Array ([0] => SimpleXMLElement Object ([@attributes] => Array ([category] => COOKING) [title] => Everyday Italian [author] => Giada De Laurentiis [year] => 2005 [price] => 30.00) [1] => SimpleXMLElement Object ([@attributes] => Array ([category] => CHILDREN) [title] => Harry Potter [author] => J K. Rowling [year] => 2005 [price] => 29.99) [2] => SimpleXMLElement Object ([@attributes] => Array ([category] => WEB) [title] => XQuery Kick Start [author] => James McGovern [year] => 2003 [price] => 49.99) [3] => SimpleXMLElement Object ([@attributes] => Array ([category] => WEB) [title] => Learning XML [author] => Erik T. Ray [year] => 2003 [price] => 39.95)))
A third way

COOKING
en

Pair Programming EXERCISE

- Create a registration page which takes the user's first name, last name, email and password. (to be stored in xml file)
- Create a login page which takes the user's email and password, and matches them with the data stored in the xml file. If no match was found, an error message should be given to the user.