

Web Languages and Technologies

Faculdade de Engenharia da Universidade do Porto
12th January 2017

Duration: 2h / With Consultation

Name: _____

Number: _____

1. Consider the following HTML code:

```
1 <div class="widget">
2   <ul id="todo">
3     <li>Buy Bread</li>
4     <li>Learn Guitar</li>
5     <li class="important">Pay Bills</li>
6     <li class="postponed">Wash Car</li>
7   </ul>
8 </div>
```

And the following CSS code:

```
1 li:first-child {color: blue}           /* R1 */
2 div li {color: red}                    /* R2 */
3 div.widget ul#todo {color: cyan}       /* R3 */
4
5 div > ul#todo .important {color: green} /* R4 */
6 ul li.postponed {color: inherit}       /* R5 */
7 li + li + li {color: magenta}         /* R6 */
```

1½ val.

(a) Calculate the specificity of each one of the rules (e.g. 0,2,2,1):

R1	R2	R3	R4	R5	R6

1 val.

(b) Taking into consideration only the rules **R1 to R3**, indicate the color of each of the texts in the page:

Buy Bread	Learn Guitar	Pay Bills	Wash Car

1 val.

(c) Taking into consideration **all** the rules, indicate the color of each of the texts in the page:

Buy Bread	Learn Guitar	Pay Bills	Wash Car

2. Consider the following *string*:

Washing the washing machine while watching the washing machine washing washing

For each one of the regular expressions shown below, underline the **first** match:

1/2 val.

(a) `/wa.*ing/`

Washing the washing machine while watching the washing machine washing washing

1/2 val.

(b) `/[a-z]{3}\b/`

Washing the washing machine while watching the washing machine washing washing

1/2 val.

(c) `/(ing).*?\1/`

Washing the washing machine while watching the washing machine washing washing

1/2 val.

(d) `/^.{3}/`

Washing the washing machine while watching the washing machine washing washing

1/2 val.

(e) `/(sh|ch)(?!ing)/`

Washing the washing machine while watching the washing machine washing washing

1/2 val.

(f) `/(.+?).*?\1/`

Washing the washing machine while watching the washing machine washing washing

3. Consider the following HTML code excerpt:

```
1 <div id="products">
2   <ul>
3     <li>Apple: <span class="qty">3</span> <a href="#">+</a></li>
4     <li>Banana: <span class="qty">5</span> <a href="#">+</a></li>
5     <li>Pear: <span class="qty">6</span> <a href="#">+</a></li>
6   </ul>
7   <a href="#" class="buy">Buy</a>
8   <p class="total">0</a>
9 </div>
```

Also consider that the complete page can have other *a*, *ul* and *li* elements. Write the *jQuery* code needed so that:

1 val.

(a) When the *link* at the end of each list item is clicked, the quantity of that item is incremented by one.

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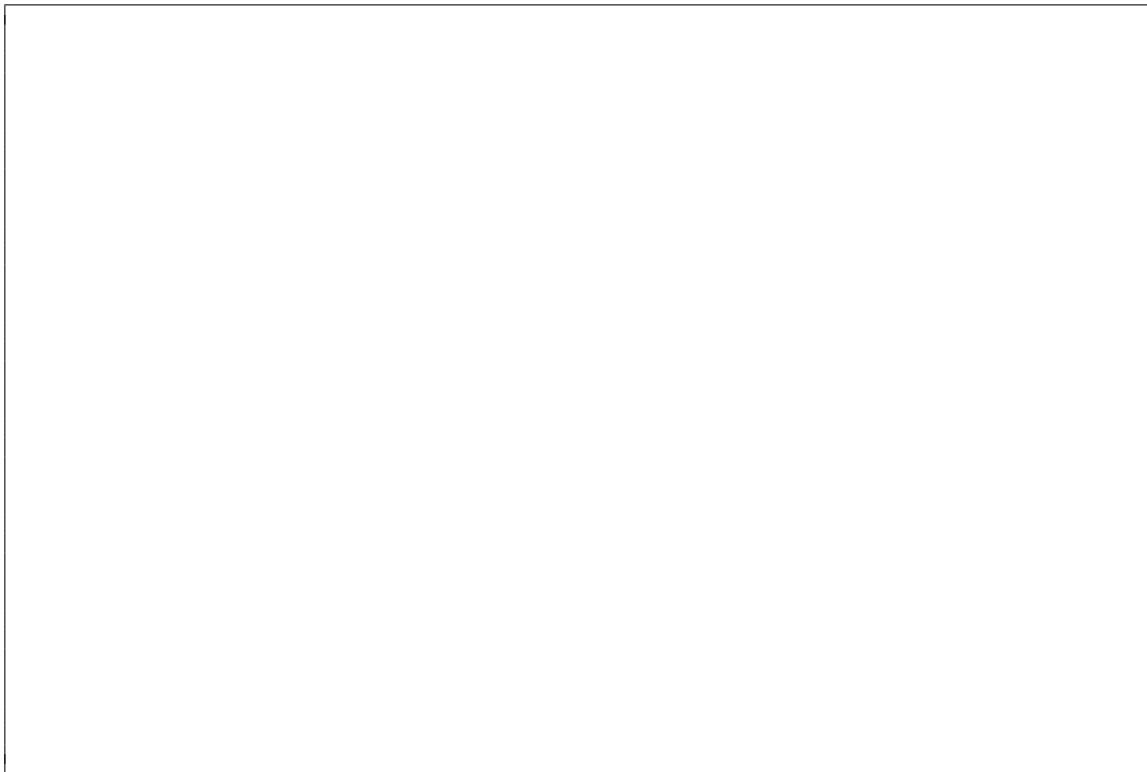
2 val.

- (b) When the *link* having a class *buy* is clicked, an array called *products*, containing a list of all products and their quantities, should be sent in an *Ajax POST* request to the address *calculatetotal.php*.

When the result of that request is received, the text of the paragraph *total* should be replaced by the received result (or by *not enough stock* if the received result is less than 0).

Example of the array to be sent:

```
[{"name": "Apple", "qty": 3}, {"name": "Banana", "qty": 5}, {"name": "Pear", "qty": 6}]
```



(Continues on the other side...)

4. Consider the following XML document:

```
1 <authors>
2   <author country="Spain" name="Miguel de Cervantes">
3     <book year="1605" type="Novel">Don Quixote</book>
4   </author>
5   <author country="England" name="William Shakespeare">
6     <book year="1599" type="Tragedy">Hamlet</book>
7     <book year="1606" type="Tragedy">Macbeth</book>
8   </author>
9   <author country="Russia" name="Leo Tolstoy">
10    <book year="1865" type="Novel">War and Peace</book>
11  </author>
12  <author country="Portugal" name="Jose Saramago">
13    <book year="1995" type="Novel">Ensaio sobre a Cegueira</book>
14    <book year="1997" type="Novel">Todos os Nomes</book>
15  </author>
16 </authors>
```

Consider that the context node is the document root. Write the XPath expressions that select the following elements:

$\frac{1}{2}$ val.

(a) The name of all authors.

$\frac{1}{2}$ val.

(b) The title of all books with type *Novel*.

$\frac{1}{2}$ val.

(c) The name of all authors that wrote more than one book.

1 val.

(d) The country of origin of the author that wrote *Ensaio sobre a Cegueira*.