

Web Languages and Technologies

Faculdade de Engenharia da Universidade do Porto
26th 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 #todo li { color : magenta }           /* R1 */
2 div.widget ul#todo { color : green }    /* R2 */
3 #todo li:first-child { color : cyan }   /* R3 */
4
5 #todo li:nth-child(2) ~ li { color : red } /* R4 */
6 #todo li ~ li { color : blue }          /* R5 */
7 li + li + li { color : purple }         /* 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:

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

(a) `/w.*[a-z]/`

Washing the washing machine while watching the washing machine washing washing

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

(b) `/a[~s]/`

Washing the washing machine while watching the washing machine washing washing

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

(c) `/([a-z]{3}).*?\1/`

Washing the washing machine while watching the washing machine washing washing

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

(d) `/^.*?$/`

Washing the washing machine while watching the washing machine washing washing

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

(e) `/((?!the)washing/`

Washing the washing machine while watching the washing machine washing washing

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

(f) `/(?:w)(a).*\1/`

Washing the washing machine while watching the washing machine washing washing

3. Consider the following HTML code excerpt:

```
1 <div id="photos">
2   </li>
3   <ul>
4     <li></li>
5     <li></li>
6     <li></li>
7   </ul>
8   <a href="#" class="load">Load More</a>
9 </div>
```

Also consider that the complete page can have other *a*, *ul*, *li* and *img* elements, and that the list of images is dynamic. Write the *jQuery* code needed so that:

1 val.

(a) When the user *clicks* an image in the list, the *src* of the image with class *large* becomes the *src* of the clicked image but starting with *large/*.

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2 val.

- (b) When the *link* with class *load* is *clicked*, an *Ajax* GET request is made to *getrandomimages.php*.

When the result of that request is received, new images should be added to the list of images with the addresses received. The result will always be a JSON array with the format illustrated in the following example:

```
["horse.png", "cow.png", "pig.png"]
```



(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 title of all books.

/authors/author/book/text()

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

(b) The title of all books written after 1900.

/authors/author/book[@year>1900]/text()

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

(c) The years in which books were written by English authors.

/authors/author[@country="England"]/book/@year

1 val.

(d) The name of all authors that wrote *novels*.

/authors/author[book[@type="Novel"]]/@name
/authors/author/book[@type="Novel"]/../@name
//book[@type="Novel"]/parent::author/@name