

# Web Languages and Technologies

Faculdade de Engenharia da Universidade do Porto  
30th January 2015

Duration: 2h / With Consultation

Name: \_\_\_\_\_

Number: \_\_\_\_\_

1. Consider the following HTML code:

```
1 <div id="selection">
2   <p><a href="">Two Lists</a></p>
3   <ul>
4     <li class="selected">First</li>
5     <li>Second</li>
6   </ul>
7   <ol class="other">
8     <li>Third</li>
9   </ol>
10 </div>
```

And the following CSS code:

```
1 .selected {color: blue;}           /*R1*/
2 li + li {color: green;}           /*R2*/
3 #selection .other li {color: yellow;} /*R3*/
4
5 ul :first-child {color: magenta;} /*R4*/
6 #selection p {color: red;}         /*R5*/
7 #selection li:first-child {color: cyan;} /*R6*/
```

1½ val.

(a) Calculate the specificity of each one of the rules:

R1	R2	R3	R4	R5	R6

1 val.

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

Two Lists	1st First	2nd Second	Third

1 val.

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

Two Lists	First	Second	Third

2. Consider the following *string*: The thirty-three thieves thought that they thrilled the throne throughout Thursday.

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

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

(a) `/led.+ro/`

The thirty-three thieves thought that they thrilled the throne throughout Thursday.

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

(b) `/[thir]+[^e]/`

The thirty-three thieves thought that they thrilled the throne throughout Thursday.

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

(c) `/(\w{3}.\+\\1)/`

The thirty-three thieves thought that they thrilled the throne throughout Thursday.

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

(d) `/ll.*e\b/`

The thirty-three thieves thought that they thrilled the throne throughout Thursday.

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

(e) `/(h|r|t){3}/`

The thirty-three thieves thought that they thrilled the throne throughout Thursday.

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

(f) `/(?!h)o(?:=u)/`

The thirty-three thieves thought that they thrilled the throne throughout Thursday.

3. Consider the following HTML code excerpt:

```
1 <script>
2 var secret = Math.floor((Math.random() * 100) + 1); // generates random number
3 var tries = 0;
4 </script>
5 <input name="username" type="text" placeholder="username">
6 <input name="guess" type="text">
7 <input id="guess" type="button" value="Guess">
```

Also consider that the complete page can have other *input* elements. Write the *jQuery* code needed so that:

1 val.

- (a) When the *guess* button is pressed, if the value in the input named *guess* is lower than the variable *secret*, a dialog with the sentence "go up" should be shown, if it is higher, the sentence should read "go down" and if they are the same, a function named *correct* should be called. The *tries* variable should be increased by one in any of the cases.

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2 val.

- (b) Create the function named *correct*, that was mentioned in the previous question, so that it shows a dialog with the sentence "correct" and also makes an *Ajax* call to a *save\_score.php* script. The username (input with name *username*) and the number of tries (variable *tries*) should also be sent to that script. Inform the user if the script was called successfully or not.

(Continues on the other side...)

2½ val.

4. Create a well-formed and valid XML document according to the following XSD:

```
1 <?xml version="1.1"?>
2 <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
3   <xs:element name="student">
4     <xs:complexType>
5       <xs:choice>
6         <xs:element name="name" type="xs:string"/>
7         <xs:element name="nickname" type="xs:string"/>
8       </xs:choice>
9       <xs:attribute name="code" type="scode"/>
10    </xs:complexType>
11  </xs:element>
12  <xs:element name="students">
13    <xs:complexType>
14      <xs:sequence>
15        <xs:element ref="student" minOccurs="2" maxOccurs="unbounded"/>
16      </xs:sequence>
17      <xs:attribute name="count" type="xs:integer"/>
18    </xs:complexType>
19  </xs:element>
20  <xs:simpleType name="scode">
21    <xs:restriction base="xs:string">
22      <xs:pattern value="\d{5}[A-Z]{2}"/>
23    </xs:restriction>
24  </xs:simpleType>
25 </xs:schema>
```

