Assignment 1: XML and Related

Consider the following information about Hotels in Paris:

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Stars</th>
<th>Facilities</th>
<th>Address</th>
<th>Distance from center (KM)</th>
<th>Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Les Jardins du Marais</td>
<td>3</td>
<td>Internet</td>
<td>74 rue Amelot, Paris, 75011</td>
<td>2</td>
<td>True</td>
</tr>
<tr>
<td>2</td>
<td>Golden Tulip Little Palace</td>
<td>4</td>
<td>Internet, Gym, Parking, Restaurant</td>
<td>4 rue Salomon De Caus, Paris, 75003</td>
<td>0.1</td>
<td>False</td>
</tr>
<tr>
<td>3</td>
<td>Tilsitt Etoile</td>
<td>2</td>
<td>Restaurant</td>
<td>23 rue Brey, Paris, 75017</td>
<td>3</td>
<td>False</td>
</tr>
<tr>
<td>4</td>
<td>Hotel Saint Charles</td>
<td>3</td>
<td>Parking</td>
<td>6 rue de l’Esperance, Paris, 75013</td>
<td>1</td>
<td>True</td>
</tr>
</tbody>
</table>

**Exercise 1 – HTML and XML (20 points)**

Encode the hotel table in
(1) an HTML document
(2) a well-formed XML document

**Exercise 2 – DTD (20 points)**

(1) Create an internal DTD for the XML document above, write the whole XML document
(2) Create an external DTD for the XML document above, write the whole XML document by linking the external DTD to the XML document

**Exercise 3 – XML Schema (20 points)**

Create an XML Schema for the above XML document, write the valid instance xml file according to this XML Schema

For Exercise 2 and 3, please consider the following facts:
- Stars is ranging from 1 to 5
- Facilities can have at least one or more of the followings: Internet, Gym, Parking, Restaurant, Pick-up;
- Distance can be empty or have one value
- Available can be either true or false.
Exercise 4 – XPath/XQuery (20 points)

For the above XML document, Please write the following queries in XPath or XQuery:

1. Select all the elements in the document
2. Select all the hotels
3. Select the facilities of the first before last hotel of the document
4. Select the ID of the hotel “Tilsitt Etoile”
5. Select all the hotels for which the distance from center is given
6. Select the name, address and stars of the last 3 hotels
7. Select the name and ID of the hotels with a rating higher or equal than 3
8. Select the name of the hotels that have in a range of 1.5 KM from the center
9. Select all the hotel names

Exercise 5 – XSLT (20 points)

Taking the XML document you generated for Exercise 1, provide XSLT style sheets that:

1. One XLST style sheet which generates a HTML document listing the information on a tabular form.
2. One XLST style sheet which generates a HTML document listing the same information on a tabular form with entries sorted by name.
3. One XLST style sheet which generates a HTML document listing the same information not on a tabular form with the names and IDs displayed in bold

References: