

Exercise
Business Informatics 2 (PWIN)
Winter Term 2023/24

Exercise V:
Markup Languages & Unified Modeling
Language

Fachbereich
Wirtschaftswissenschaften

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Markup Languages

Exercise 1: Well-formed XML Documents

- What is meant by “well-formed XML document”?
- Indicate which of the following XML documents are well-formed? Mark the mistakes and correct them.

<pre><?xml version="1.0"?> <User id="194"> <Pseudonym> Jenny23 </Pseudonym> <Mobile_Operator> t-mobile </Mobile_Operator> <Registration> 03.02.2020 </Registration> <Lastlogin> 29.04.2020 </Lastlogin> </User></pre>	<pre><?xml version="1.0"?> <User id=203> <Pseudonym> Joe1976 </Pseudonym> <Mobile_Operator> vodafone </Mobile_Operator> <Registration> 06.02.2020 <Lastlogin> 31.04.2020 </User></pre>
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<pre> <?xml version="1.0"?> <Date> <Places> An der Hauptwache 7 </Place> <Time> 25.03.2020, 21:15- 0:15 </Time> <Meeting_Point> Starbucks <People> Gina </Meeting_Point> </People> <People> Jimmy </People> <Activitiy> Drinking Cocktails </Activitiy> <Comment> Spend Gina 2 Caipis </Comment> </pre>	<pre> <?xml version="1.0"?> <Date> <Place> Theodor-W.-Andorno- Platz 5 </Place> <Time> 25.03.2020, 16:15- 19:15 </Time> <Meeting_Point> Sturm und Drang </Meeting_Point> <People> Joe1976 </People> <People> Jenny23 </People> <Activitiy> Drinking Beer </Activitiy> <Comment> Joe1976 wears sun glasses! </Comment> </Date> </pre>
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c) Explain why the following XML document is not well-formed. Correct the syntax error.

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<?xml version="1.0"?>
<User id="203">
  <Sex>
    Male
  </Sex>
  <Age>
    21
  </Age>
</User>
<User id="194">
  <Sex>
    Female
  </Sex>
  <Age>
    23
  </Age>
</User>

```

- d) Create an XML document representing your two favorite dating locations. Use at least two different tags for describing the locations and at least one attribute.

Exercise 2: Document Type Definition (DTD)

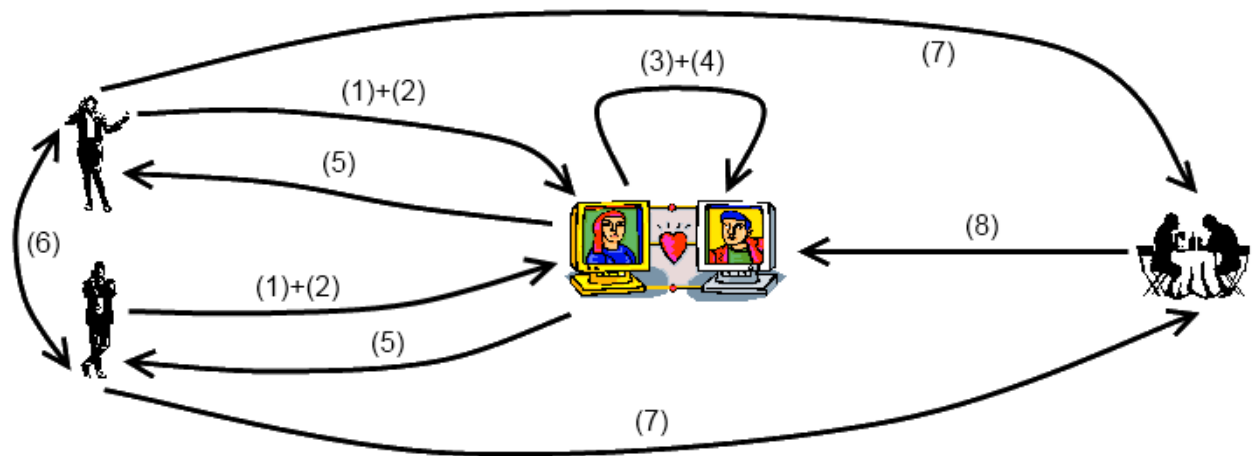
- a) Create a DTD for the XML document from exercise 1 b).
 b) Validate and correct the following XML document against the corresponding DTD document. Assume the given DTD is correct.

<pre> <Student> <Name>Guenther M</Name> <Address> <Street>Cluestreet <ZipCode>63743</ZipCode> </Address> <City>Berlin</City> <Age>23</Age> <Gender>male</male> <Course>Scientific Work</Course> <Course>Economics</Course> <Event>Networking</Event> </Student> </pre>	<pre> <!DOCTYPE Student [<!ELEMENT Student (Name, Ad- dress, Age, Gender, Course*, Subject*)> <!ELEMENT Name (#PCDATA)> <!ELEMENT Address (Street, ZipCode, City)> <!ELEMENT Street (#PCDATA)> <!ELEMENT ZipCode (#PCDATA)> <!ELEMENT City (#PCDATA)> <!ELEMENT Age (#PCDATA)> <!ELEMENT Gender (#PCDATA)> <!ELEMENT Course (#PCDATA)> <!ELEMENT Subject (#PCDATA)>]> </pre>
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Unified Modeling Language

Exercise 3: UML

- a) What are the differences between use case and activity diagrams?
 b) Develop a use case diagram and an activity diagram for the InstaMatch[®] service based on the Figure 1 below:



- (1) Users register at InstaMatch[®]. Thereby, they receive their pseudonyms and submit their personal profile information. Subsequently, InstaMatch[®] attempts to certify the profile attributes of the users.
- (2) In order to start searching for a date, users have to activate the InstaMatch[®] app on their mobile device.
- (3) InstaMatch[®] attempts to find other InstaMatch[®] users in close proximity who are also currently looking for a date.
- (4) InstaMatch[®] matches the personal profiles of all users in close proximity with each other.
- (5) If there is a match, InstaMatch[®] informs the corresponding users by presenting them with a list of matching pseudonyms.
- (6) InstaMatch[®] enables matching users to communicate with each other using text messages, chat or voice.
- (7) If users want to arrange a meeting, InstaMatch[®] suggests a list of appropriate meeting points based on the personal interests of the corresponding users as well as their current geographic location. Then, InstaMatch[®] navigates the users to their meeting point.
- (8) After the date, the users can rate their date on the InstaMatch[®] app. This rating is used to improve their next date matching process.