الامتحانات النهائية للفصل الثاني
من العام الجامعي ٢٠١٩- ٢٠٢٠

المرحلة: اجازة	المادة: Metadata
السنة المنهجية: الثانية	المدة: ساعة ونصف
الاختصاص: علم البيانات	الأستاذ: د. نور عاصي

Exercise 1: Short-answer questions (10pts)

1. How to reveal the metadata information about a web page?
2. In which part of HTML the metadata is contained?
3. Why do we need to represent metadata using a standard?
4. Enumerate two metadata information that can be used by a search engine to return results to your search query.
5. Enumerate 2 metadata information that can be used by an online shop to recommend items that might interest you.

Exercise 2: Expressing Metadata in XML (30pts)

The objective of this exercise is to write the metadata information of an email in XML. An email consists of two parts: A header and a body. A header is made up of: one and only one sender, at least one recipient, possibly secondary recipients, possibly hidden recipients, a subject, possibly one or more attached files and the date and time at which the email is sent. If files are attached, information about the number of attached files their types (can be doc, pdf or txt) and their names are stored. A body is made up of message. The subject and body message can be empty. An email is identified by a uniqu id.

1. Design an XML document coding an email entitled "Assignment1_Solution" sent t your instructor with your gmail and Hotmail emails in copy. The message body is empt and the solutions of exercises 1 and 2 are attached as pdf documents.

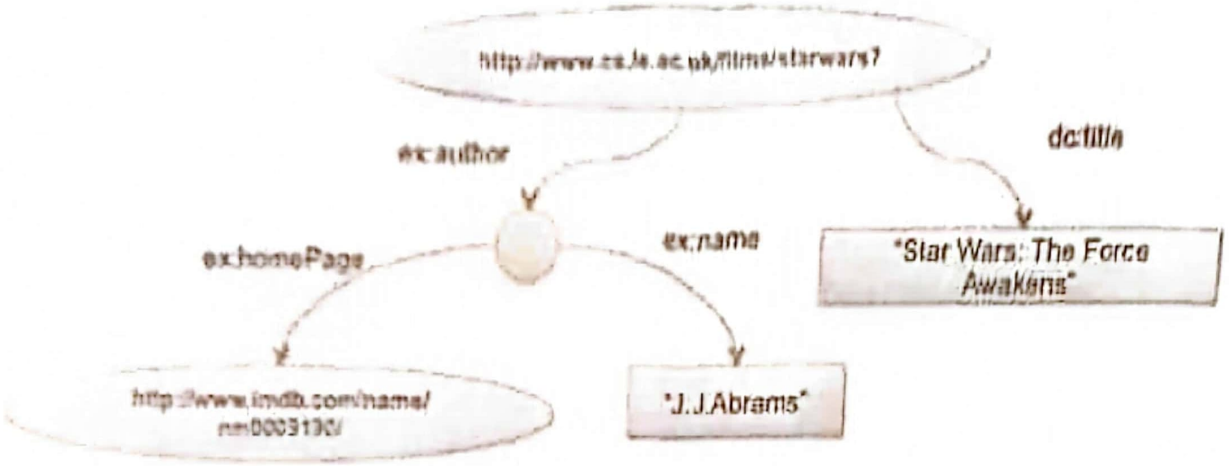
2. Write an XSD document such that your XML document in part 1) is valid and th requirements explained in the text description hold.

Exercise 3: Expressing Metadata in RDF (30pts)

1. Translate the following sentences into RDF Graphs (15pts)

a. Mary is John's wife.
b. John knows that Rome is the capital of Italy.
c. An article is comprised of an introduction, a main part, and a conclusion.
d. SPIEGEL is a German news magazine, whose headquarter is in Hamburg.

2. Consider the RDF graph below:



2.1. Explain in your own words the information contained in the graph (5pts)
2.2. Translate the graph into RDF/XML (10pts)

Exercise 4: Modeling Metadata (30pts)

You are asked to develop an RDF Schema for a library information system. In this system, libraries want to store information about their books, as well as who has lended them. The following information should be expressed:

- A library owns books
- Libraries have a name, an address, and a phone number fixed and mobile.
- Books have a title, an author, and an ISBN number.
- Persons have a name, an address, a phone number, and an e-mail address.
- Books can be borrowed by a person.

1. Model the information about the library as an RDFS graph (15pts)
2. Translate your RDFS graph to RDFS/XML (15pts)