University of London

Assessment Coversheet

Complete this coversheet and read the instructions below carefully.

Candidate Number:
EX3023

Degree Title:
Computer Science

Course/Module Title:
Databases and Advanced Data Techniques

Course/Module Code:
CM3010

Enter the numbers, and sub-sections, of the questions in the order in which you have attempted them:
2a, 2b, 2c, 2d, 2e, 2f, 2g, 2h, 2i
3a, 3b, 3c, 3d, 3e, 3f, 3g, 3h, 3i, 3j, 3k

Date: 7th March 2023

Instructions to Candidates

1. Complete this coversheet and begin typing your answers on the page below, or, submit the coversheet with your handwritten answers (where handwritten answers are permitted or required as part of your online timed assessment).
2. Clearly state the question number, and any sub-sections, at the beginning of each answer and also note them in the space provided above.
3. For typed answers, use a plain font such as Arial or Calibri and font size 11 or larger.
4. Where permission has been given in advance, handwritten answers (including diagrams or mathematical formulae) must be done on light coloured paper using blue or black ink.
5. Reference your diagrams in your typed answers. Label diagrams clearly.

The Examiners will attach great importance to legibility, accuracy and clarity of expression.

Begin your answers on this page

2a. XML

2b. Tree structure

2c. office and text

2d. Trees, Graphs and Relations. It will return the same result because the xpath expression will return all the text:p that are descendants of text:list .

2e. The code has defined a structure where the document must follow to be deemed as well form. Example: the document must have text:list and inside of text:list can have zero or more text:list-item which will determine it as a well formed document.

2f. The code has defined a structure where the document must follow and to be deemed as valid, it must have all the defined element in the document as defined in the schema. Example: There must be text:list-header in the document however, in the document we don't see text:list-header which means it is missing so this will deem the document as invalid.

2g. It is relevant to the starting tag of text:list element in the document.

2h. Any attributes that are not listed in the documentation for text:list will be invalid. An example of an element that is invalid will be table:align as this is not an attribute for text:list.

2i. It would depend on the use case of the data structure because the document must have the same exact structure. From the schema we can see that it only handles list, a document can have other elements such as text:p outside the list hence, it might not be very suitable for encoding word processing documents. The advantage of using relational model is that the relationship between tables is clearer which make it easier to query. The disadvantage of using relational model is that it is hard to make changes to the structure once it is in use. Another disadvantage of using relational model is that the performance may suffer if the structure of the relational model is complex as the query will take longer time due to joining of tables.

3a. rdf+xml
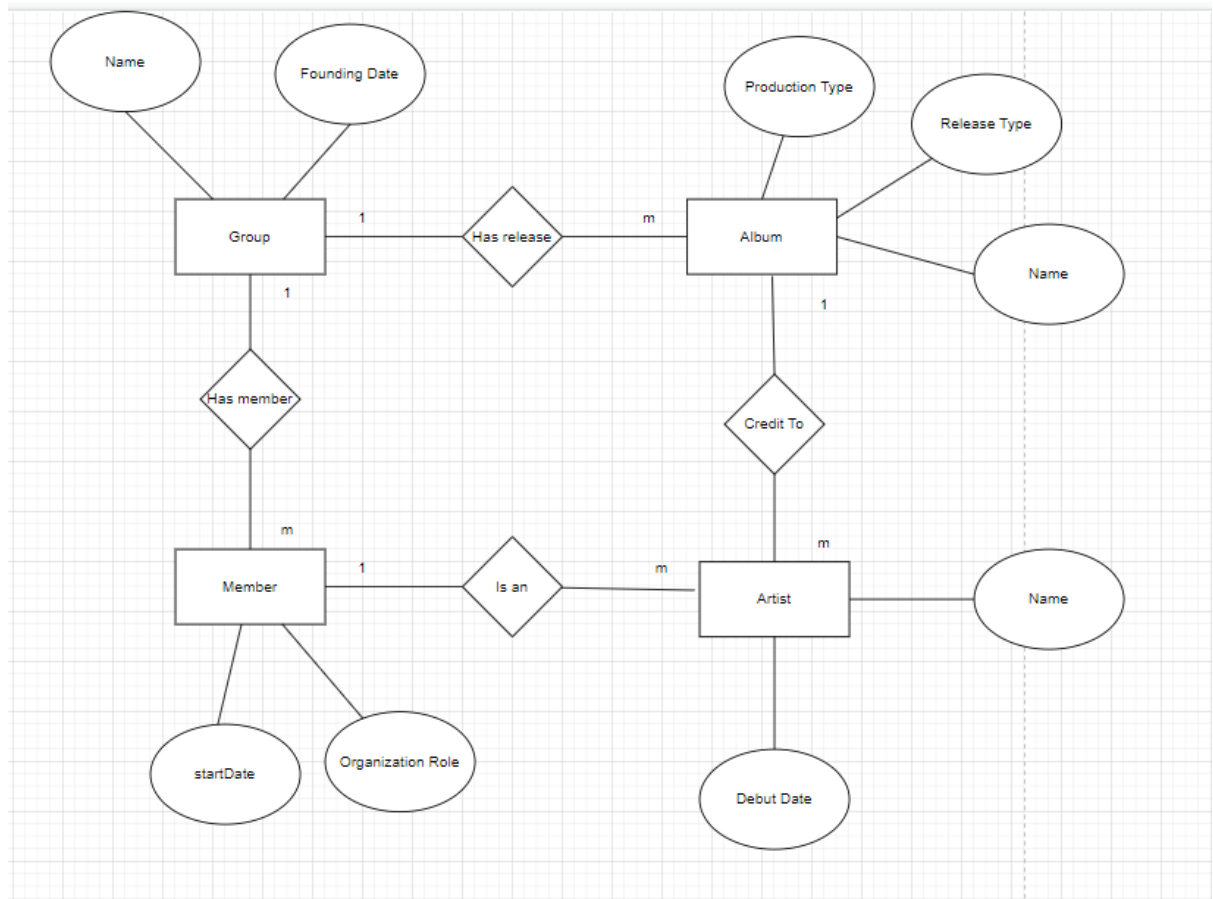
3b. https://schema.org/member

3c. 2

3d. In this context, the schema:member predicate retrieved the list of members, alongside with their startDate in the band and their OrganizationRole.

3e. schema:MusicGroup and schema:Person

3f. @prefix mba: https://musicbrainz.org/artist/

3g. The query will return the list of members name and the startDate.

3h.

3i. CREATE TABLE Artist (id int, name varchar(255), debutDate DATE ,PRIMARY KEY(id));
CREATE TABLE Album (id int, productionType varchar(255), releaseType varchar(255), name varchar(255), PRIMARY KEY(id));

3j. SELECT * FROM Artist WHERE debutDate < (SELECT foundingDate FROM Group WHERE Name="bts");

3k. The advantage of database dump it can be imported into the database easily which made sharing easier between different server. However, the disadvantage of it is that if there is a lot of data in the database which will result in bigger size for the database dump. The advantage of linked data is easier integration as you do not have to setup your own database and endpoint. The disadvantage of linked data is that it will require more time as linked data can be linked to multiple sources which will require more effort to search.

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