**OLLSCOIL NA hÉireann, CORCAIGH**
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# CS2509 XML and the Extended Enterprise

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**Instructions to candidates:**

1. Time available: 1.5 hours
2. Read the complete paper before answering any question.
3. For a perfect score (100%) on this paper, **answer all** questions.

## PLEASE DO NOT TURN THIS PAGE UNTIL INSTRUCTED TO DO SO

## PLEASE ENSURE THAT YOU HAVE THE CORRECT EXAM PAPER

## Background Information

All the questions in this paper concern the development of a mySQL database-driven web-site for a company called *weSellMusic,* which is located at `http://www.weSellMusic.ie`. The database is called `bodhran` and can be accessed with the username `fiddle` and the password `spoons`.

Here is information about some of the tables in the database.

A table `songs` has the following structure:

```
songID int(11), title varchar(80), composerlD int(11), lyricistlD int(11)
```

Each entry in this table specifies the title of a song and also points to entries, in a table called `people` (see below), for the person who composed the music for the song and the person who wrote the lyrics (or words) for the song.

A table called `recordings` has the following structure:

```
recordingID int(11), songlD int(11), singerlD int(11)
```

Each entry in this table refers to an entry, in the `songs` table, for the song that is featured in the recording and, in the `people` table, for the person singing the song.

A table called `people` has the following structure:

```
personID int(11), firstname varchar(20), surname varchar(40),
profession varchar (8), photo varchar(255)
```

The table structure assumes that each person has a profession, which is specified by one of the words `singer`, `composer` or `lyricist`. Each entry specifies the person's name and profession; it also provides the URL of an image file which contains a photograph of the person.

A table called `discs`, which has the following structure, contains some information about compact discs:

```
discID int(11), title varchar(40), photoOnCoverOfDisc varchar(255)
```

Each compact disc contains several recordings. Information about which recordings are on which discs is stored in a table called `contains`, which has the following structure:

```
discID int(11), recordinglD int(11)
```

**Question 1 (20 percent):**

The company wants to generate an XML document which will contain the information in all the tables described above.

The root element of the XML document should contain five child elements, one corresponding to each of the tables. These child elements should have structures which correspond to the table structures given above.

Provide a DTD specification for this type of XML document.

**Question 2 (40 percent):**

Write an XSL stylesheet file which could be referenced by an XML document that conforms to the DTD you generated when answering Question 1.

This XSL stylesheet should generate a HTML table containing one row for each singer in the XML document and containing the following two columns: name of singer; and the number of recordings (s)he has made. In this HTML table, the singers should be sorted alphabetically by surname and firstname.

**Question 3 (40 percent):**

Write an XSL stylesheet file which could be referenced by the XML document that conforms to the DTD you generated when answering Question 1.

This XSL stylesheet should generate a HTML table containing one row for each song in the XML document and containing the following columns: song title, name of composer, name of lyricist, number of recordings of the song that have been made. In this HTML table, the songs should be sorted alphabetically by title.