

Coláiste na hOllscoile, Corcaigh University College, Cork

CS2509 Mock Examination

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.

Background Information

All the questions in this paper concern the development of mySQL database-driven web-sites for a newspaper, called *The Clonakilty Eagle*. Its website is at <http://www.clonakiltyEagle.ie>. The paper's mySQL database is called `newsprint` and can be accessed with the username `editor` and the password `penAndInk`.

One of the tables in the database is called `articles` and has the following structure:

```
articleID int(11), title varchar(80), urlForFullText varchar(255),  
publicationYear int(4), publicationMonth int(2), publicationDay int(2)
```

Each article in this table has a unique ID number. Its entry specifies the title of the article and the URL of a file containing the full text of the article. The entry also contains the publication date of the article. If necessary, when writing the utilities specified in the questions below, you may assume that the `articleID` field in this table is set to auto-increment. Although the `articleID` field auto-increments, this does not mean that articles which were published more recently have higher `articleIDs`; this is because each company is still adding pre-computerization articles to the database, intermingling them with new articles. Thus the relative values of `articleIDs` simply reflect the order in which the articles were added to a database, not the order of publication date. This should be kept in mind if it is necessary, in any question below, to order articles by date of publication.

The database also contains a table called `journalists`, which has the following structure:

```
journalistID int(11), firstname varchar(20), surname varchar(40),  
urlForPhotograph varchar(255)
```

Each person in this table has a unique ID number. Each entry specifies the journalist's name and provides the URL of an image file which contains a photograph of the journalist. If necessary, when writing the utilities specified in the questions below, you may assume that the `journalistID` field in this table is set to auto-increment.

The two tables above are cross-linked by a table called `authorships`, which has the following structure:

```
articleID int(11), journalistID int(11)
```

Each entry in the `articles` table has at least one corresponding entry in this table, specifying an author for the article. However, some articles may have several authors; in such cases, there will be several entries for the article in this table, one for each of the journalists involved in writing the article.

Question 1 (30 percent):

The company wants an XML document which will contain the contents of all three tables described above.

The root element of the XML document should contain three child elements, one corresponding to each of the three tables. Illustrate the structure you would use for this XML document, by providing an example document which contains data about two articles and three journalists. The document should show that the first article was written by the one journalist and that the second article was written by the other two journalists.

In this XML file, include a link to an XSL stylesheet called `syndication.xsl`. You will specify the content of this stylesheet in your answer to Question 3 below but, in answering this question, you do not need to concern yourself about the nature of the stylesheet.

Question 2 (35 percent):

Write a program, called `generateXML.php`, which, in response to a HTTP request, will generate the XML document whose structure you illustrated in your answer to Question 1. Ensure that your program generates the correct `Content-Type` header for the type of document it generates.

Question 2 (35 percent):

Write the `syndication.xsl` stylesheet file which is referenced in the XML document you generated when answering Question 1.

This XSL stylesheet should generate a HTML table containing one row for each article and containing the following columns: article title, authorship and date of publication. The authorship field for each article should contain all the authors of the article.