XML in Technical Communication

Cork Institute of Technology
Department of Computer Science

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SOFT9020

1 Project 1

1.1 Scenario

A travel agency company has more than 100 branches across the country. Each branch runs a number of tours during the year. Tours can be different depends on the season and they need to have at least 3 customers to run.

Every so often, the head quarter of the company may ask all the branches to report their activities as a document and submit it to the head quarter.

As the company has more then 100 branches, the head quarter requires all the branches to make their reports using a particular predefined format. In order to have an standard and unified format for all documents, the head quarter requires branches to use XML technology with a predefined schema language to have all the documents in a similar fashion.

1.2 Requirements

You are required to create an schema language (DTD) to satisfy the following requirements for an **agency_report**:

1.2.1 Part 1

agency_report has a name, date, city, address, body and website.

date has two attributes called *day* and *month*, the year of the report is provided as the content of date.

body has 4 or 5 or 6 or 7 employee, 3 or more tour and a finance_report.

Each **employee** has a name, age and a salary and two attributes called *title* and *staff_id*. The value of *title*, by default, is officer unless the author decides to assign a different value which can be either manager, clerk, secretary or tour_leader only. The *staff_id* should have a unique value.

salary has two attributes called *mode* and *currency*. The value of *currency* must be always Euro and the value of *mode* can be either weekly or monthly only.

A **tour** has a destination, one or two leader, a price, and a date and three attributes called *type*, *mode_transport* and *tour_name*.

The **destination** has a country and a city.

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Each **leader** has a name and an attribute called *leader_id* which has to match one of the employees' *staff_id*.

date has two attributes called *day* and *month*, the year of the report is provided as the content of date.

type as an attribute can be either domestic or international only. *mode_transport* as another attribute can be either bus, cruise, air or train only. *tour_name* as the other attribute can only get a unique value.

A **finance_report** has one or more combinations of: (a fullYear or a fullSeason).

A **fullYear** has zero or more combinations of: (a trip or a ticket_only), and an income. Note: income is not part of the combination.

A **fullSeason** has zero or more combinations of: (a trip or a ticket_only), and an income. It also has an optional attribute called *seasonName*. Note: income is not part of the combination.

A **trip** has 3 or more customer and has an attribute called *trip_name* that has to match one of the tours' *tour_name*.

Each **customer** has a name, age and an optional attribute called *gender* if author uses this attribute the value can be either Female or Male only.

1.2.2 Part 2

There is a set of sentences that are used quite often when branches are authoring a report. Please add Entity in your schema document for each of these sentences so that the Entity reference may be used instead. You can choose any name for each of the entities.
List of the sentences:

1. The total number of sold tour packages from our office has shown
2. *www.myTravelAgency.org*[1]
3. To whom it may concerns
4. Your sincerely: Cork branch.

1.2.3 Part 3

Create two XML documents that are validated against your schema document. For each of these XML documents create an XSLT transformation in order to measure the correctness of the created XML documents.

[1]This can be used as the content of *website* element

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1. **Document 1**: A travel agency branch has 6 employees with four tours. The first and third tours have 1 leader each and the second and forth tours have 2 leaders each. Their finance_report includes one full year and three full seasons. The full year has 2 trips each trip 4 customers. The first full season has 1 trip with 3 customers all female with one ticket_only, the second full season has 2 trips each trip 4 customers and the third full season (winter), has 2 trips each trip 5 customers and two ticket_only. Please use one of the entity references you have created in your DTD.

    - XSLT: Create a table with two columns, the first column shows all the trip names for only full seasons and the second column shows the number of customers for each of those trips.

2. **Document 2**: A travel agency branch has 4 employees with five tours. The first three trips have 1 leader each, and the forth and fifth trips have 2 leaders each. Their finance_report includes two full years and one full season, (Spring). The first full year has 1 trip with 4 customers and 1 ticket_only, the second full year has 2 trips, each trip with 3 customers. The full season has 3 trips, each trip 4 customers. Please use one of the entity references you have created in your DTD.

    - XSLT: Create a table with two columns, the first column shows the tour names and the second column shows the number of leaders for that tour.

Note: Optional attributes do not have to be used in creating an XML document unless a particular value is provided in the scenario e.g., winter.

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1.3 Rubric

1. **DTD elements: 30%**

    - **Excellent** 100%: The student has successfully represented the scenario with the required XML elements. The student has successfully demonstrated proper uses of sequences and used appropriate frequency indicators. The DTD is very well organised and it is clear, structured and easy to understand. The ordering of elements in DTD follows the ordering of elements in the scenario.
    - **Good** 50%: The student has partially represented the scenario with the required XML elements. Some of the XML are incorrectly represented or structured. The validation of XML may contain errors. The student has partially demonstrated use of sequences and used appropriate frequency indicators.
    - **Poor** 0%: The student has not successfully represented the problem statement with the required elements, sequences, frequency, or content specification.

2. **DTD Attributes: 30%**

    - **Excellent** 100%: The student has implemented the attributes as specified in the scenario. They have created tokensied attributes and entities and implemented default values where required.
    - **Good** 50%: Attributes have partially been implemented. The student may not have created or implemented tokensied attributes, entities and default values.
    - **Poor** 0%: The students made no attempt of demonstrating attributes in the DTD or corresponding XML that is generated.

3. **XML document and their associated XSLT**: 28%

    - **Excellent** 100%: Both documents perfectly conform the schema language (DTD) and their XSLT show accurate result.
    - **Good** 50%: Documents fully conform the schema language but XSLT documents do not generate accurate data.
    - **Poor** 0%: Documents are full of errors.

4. **Reusability where possible**: 12%

    - **Excellent** 100%: The student has successfully reused XML elements and minimised the amount of DTD writtent.

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- **Good** 50%: The student partially reused XML elements.
- **Poor** 0%: The student has made no attempt of reuse in the DTD specification.

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