Project 3 - TPC-C with XML: XPath

INSTRUCTIONS

1. This project is an individual project.
2. Submit a modified text file "`xpath.txt`" with your answer to the folder "`Submissions: XPath`" in Luminus "`Files > Projects > TPC-C with XML` by **Friday 26 March 2021, 18:30**.
3. There is no late submission.

The Transaction Processing Performance Council (TPC) proposes the TPC-C benchmark [1] to measure the performance of online transaction processing systems. In the TPC-C business model, a wholesale parts (items) supplier operates out of a number of warehouses. TPC-C simulates a complete environment where a population of terminal operators executes transactions against a database. The benchmark is centred around the principal activities (transactions) of an order-entry environment. These transactions include entering and delivering orders, checking the status of orders, and updating and monitoring the level of stock at the warehouses.

We consider a simplified version of the TPC-C database. The simplified schema consists of the three tables `item`, `warehouse`, and `stock` that has been converted into an XML file called `TPCC.xml`.

Download the following file from Luminus "`Luminus Files > Projects > TPC-C with XML > Code`.

`TPCC.xml`,

`xpath.txt`.

The document's root element is `warehouses`. Each warehouse record is represented by an element `warehouse` that is a sub-element of `warehouses`. There might be no warehouse. Each `warehouse` element consists of a sequence of four sub-elements: `id`, `name`, `address`, and `items` corresponding to the five attributes of the warehouse record. The address element consists of three sub-elements `street`, `city` and `country`. The `items` element contains one sub-element `item` for each of the items stocked in the warehouse. There might be no item in the warehouse. Each `item` element consists of a sequence of five sub-elements: `id`, `im_id`, `name`, `price`, and `qty`. The first four sub-elements correspond to the four attributes of the item record and the `qty` element represents the quantity of that item stocked in the warehouse.

Your answers to the questions should be general enough to work for other similar documents (namely other documents following the same design logic).

[1] The TPC Benchmark™C (TPC-C). `www.tpc.org/tpcc`. Visited on 06 January 2021

Translate the following queries into XPath.

Your answers to the questions should prefer an XPath query with the full syntax to the one using the shorthand syntax. Your answers to the questions should prefer an XPath query with a complete path to the one with a more concise path.

Modify the text file "`xpath.txt`" by writing XPath query in the space indicated.

1. (2 points) Find the items that are available in warehouses in Singapore in quantity larger than 975. The result should return several "`<item>`" elements.

2. (2 points) Find the total quantity of items called "Sunscreen" available in Indonesia. The result should return a number.

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