

SOA and WebServices 2017

Assignment 1



Instructions:

This assignment forms part of your final marks for this course.

This assignment must be submitted by email to barry.corish@gmail.com before 18:00 on 2018-11-01. Late assignments will be penalised.

Your submission must be entirely your own work.

You must submit two files as attachments to the email: an XSD file and an XML file. Both files must validate cleanly (no errors or warnings) and the XML must validate against the XSD.

You must name the files: `<student_name>_assignment1.xml` and `<student_name>_assignment1.xsd`, where `<student_name>` is replaced by your full first and second names, separated with an underscore symbol, e.g. "barry_corish".

Notes:

Feel free to discuss this assignment with each other, but your submission must be entirely your own work.

There is no single correct answer to this assignment. There are several valid ways to model the specification. However, please read the Scenario carefully - the more aspects of the problem you identify and address the more marks you will score.

You can use any tools you like to produce these files.

The Eclipse JEE program we used for Practicals 01 through 04 is suitable, but anything that produces a valid XSD and XML is fine.

To export the files out of Eclipse (if that's what you're using):

1. Locate the first file in the Project Explorer window.
2. Right-click the file and select "Export"
3. In the "Export"|"Select" window, open the "General" folder, and select "File System".
4. In the "Export"|"File System" windows, select the files to be exported, and the location, then click "Finish"

If you are using a Virtual Box environment, you'll have to get the files out of the Virtual Machine.

- Don't leave it too late to make sure that you can get do this! Try it well in advance of the deadline.
- Generally, the easiest way to do this is to sign on to a Web Mail service (Yahoo Mail, Gmail etc.) using the browser inside the Virtual Machine, and send the files as attachments to an email from there.

Problem:

Milkman Ltd. operates a daily home delivery service for dairy products.

Each weekday, they deliver dairy products to their customers – no deliveries are made on Saturday or Sunday.

They operate from a number of depots - one in each of the following Counties: Dublin, Kildare and Wicklow, Cork, Limerick and Waterford. Milkman Ltd. will only deliver to customers who live in one of those counties.

Customers currently place orders by either:

- Completing a paper form, and posting or faxing it to the head office in Cork.
- By ringing Milkman's Call Centre - the Phone Operator then completes the same paper form on their behalf

This is labour intensive (handling and data entry of several hundred paper forms per day), and prone to errors.

Common errors include:

- Incomplete forms.
- Orders that don't contain any items to be delivered (!)
- Customers trying to order products that Milkman do not stock.

To address this Milkman Ltd. are building a new IT system.

The intention is to provide customers with the facility to add, edit and delete orders over the telephone, via a web site, and via a Mobile App.

They will build three "front end" systems:

- an external Web Site for customers.
- an internal Web Site for use by their telephone customer service agents.
- a Mobile App which the users can download to their phones or tablet devices.

Although each of the three programs will look different, they will each operate by calling the same set of "back end" Web Services.

One of the data structures that will be handled through these web services is the "Delivery Order".

This must represent all of the variable data that is on current paper form, and include features to address as many of Milkman's other requirements and problems as possible,

What you have to do:

1. You must follow the specification below to produce an XML Schema Definition File (.xsd) for a "Delivery Order"
2. You must then make an XML file (.xml) based on that XML Schema Definition. You must populate it with valid sample data, so that we can show the Developers an example of what a completed "Delivery Order" .xml will look like. The populated XML file must validate against the XSD file.

The full list of products that can be ordered is as follows:

1. Regular Milk - 1 litre carton.
2. Low Fat Milk - 1 litre carton.
3. Strawberry Yoghurt - 100ml pot
4. Raspberry Yoghurt - 100ml pot
5. Cream - 125ml carton.
6. Cream - 250ml carton.

If the customer wants different sets of items delivered on different days of the week, e.g.

- Monday and Friday : 1 litre of Regular Milk and 2 Yoghurts
- Wednesday : 1 litre of Regular Milk only
- Tuesday and Thursday : Nothing

...then they must do this by completing two orders, one for Monday and Friday, and a second, separate order for Wednesday.

There's only room on the paper form for a limited number of items, but Milkman require that the customer can add as many ordered item as they wish on the new system.

There are some checks that need to be carried out on the customer's details:

- The first and second name each contain at least 2 alpha characters (letters)
- Address line 1 & 2 each contain at least 4 characters (Address line 3 may be blank).
- The County field in the address is one of the Counties in which Milkman has a depot.

Milkman Ltd. expect to expand shortly, adding new Depots in more Counties to service Customers who live in those Counties. They want it to be as easy as possible to add an additional County to the system, and would prefer to have to add it in only one place.

A sample of the current form used to place orders is below:

Milkman Ltd. Customer Order Form

Dear Customer,

Please complete this form fully, and either:

- Post it to: *Milkman Ltd Head Office, 10 South Douglas Road, Cork, Co. Cork*
- Or fax to : 023-12345

Or you can call us at: 023-12346

Thank you for your business!

Depot (please tick ONE only):

Dublin ☐

Cork ☐

Kildare ☐

Limerick ☐

Waterford ☐

Wicklow ☐

Customer Details

First name

Surname

Address Line 1

Address Line 2

Address Line 3

County

Items to be delivered (please include at least one item!)

Quantity	Item Descriptions

Days these items should be delivered (please tick all that apply)

Monday ☐

Tuesday ☐

Wednesday ☐

Thursday ☐

Friday ☐

OFFICE USE ONLY

Date Order Received:

Order Number:

Order Received by

Fax

☐

Telephone

☐

Post

☐