

RAWDATA Assignment 4 – Web service and Data Layer

This assignment is in two parts. The first part is about creating a domain model and as data service. The data service is the layer that communicates with the database and provide an interface to the rest of the system. The data service also takes care of the transformation between the database model and the domain model. In the second part (Friday 20/10) a restful webservice is added in a layer on top of the data layer from part 1. Like the 3rd assignment test suites will be given to verify that your code has the necessary functionality, but the structure of your code and your design choices will play a bigger part in this assignment. We want clean code¹.

How and when to hand in

A one-two pages document defining the members of the group, the URL to a GitHub repository where the source code can be found, and a table (or a screen dump from your testing environment) showing the status of running all tests in the test suite attached to this assignment. Upload the document to Moodle “Assignment 4” no later than October 23 at 23.55.

Important

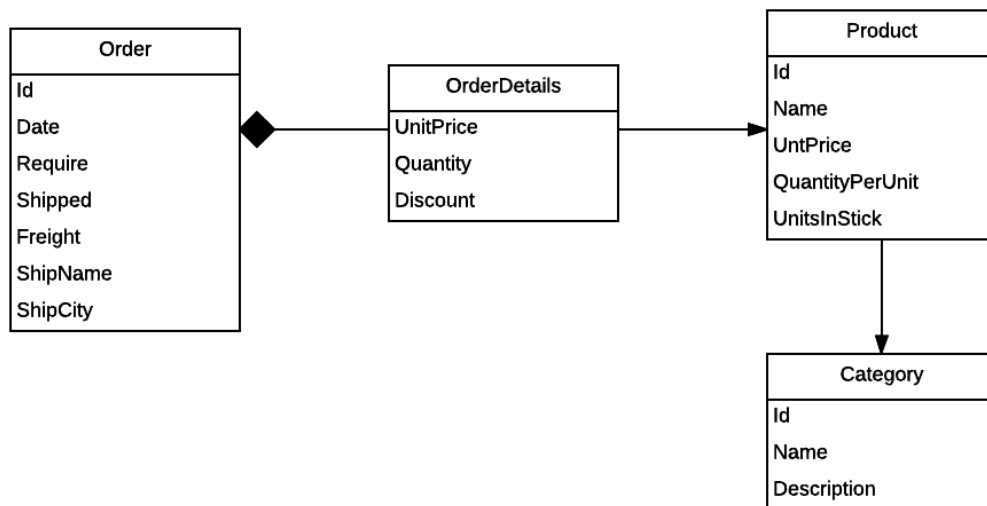
Hand in one submission from your group (from one of the members), but DO REMEMBER to write ALL NAMES of participants in your group in the top of the file.

Part I – The Data Layer

In this assignment the goal is to provide a restful webservice over a small testing database called Northwind, a database sample provided with earlier versions of Microsoft Sql Server. A diagram of the database can be found here <https://northwinddatabase.codeplex.com/>. The database used in this assignment can be downloaded from Moodle.

We will focus on the orders, orderdetails, products and categories tables from the Northwind database, and ignore all other tables. The data service uses the following domain model

¹ <https://blog.goyello.com/2013/01/21/top-9-principles-clean-code/>



when exposing data to the next layers. The mapping between the database model and the object-oriented model (the domain model) should be done by the Entity Framework Core (EF Core). EF Core is object-relational mapper that can help when moving data back and forth between the data service and the database, i.e. the object-oriented and relational models.

The following is a description of the requirements to the data service.

Order

1. Get a single order by ID
Return the complete order, i.e. all attributes of the order, the complete list of order details. Each order detail should include the product which must include the category.
2. Get order by shipping name
Return a list of orders with id, date, ship name and city.
3. List all orders
Return a list of orders with the same information as in 2.

Order Details

4. Get the details for a specific order ID
Return the order details with product name, unit price, quantity.
5. Get the details for a specific product ID
Return the complete list of details, with order date, unit price, quantity

Product

6. Get a single product by ID
Return the complete product with name, unit price, quantity, discount and category name.
7. Get a list of products that contains a substring
Search for products where the name matches the given substring. Return a list of product name and category name.

8. Get products by category ID

Return the list of products with the given category. Return the same information as in 8.

Category**9. Get all categories**

Return the list of categories with id, name and description.

10. Add new category

Add a new category to the system. The method takes name and description as arguments. The system must provide a new ID and return the newly created category.

11. Update category

Take as argument id, name and description and update name and description. If the category is found, update the category and return true, otherwise return false.

12. Delete category

Take id as argument. Return true if the category is deleted, otherwise return false.

The data service should be implemented as a library that can be referenced by other projects. You can see example on this in the test suite where a dummy data service project is included.