Exercise: Best Practices and Architecture

This document defines the **exercise assignments** for the ["Databases Advanced – EF Core" course @ Software University](#).

Best Practices and Architecture

1. Pet Store – Service Layer

You are owner of a pet store. Of course you are good at making deals, caring for pets, finding new clients and so on but you don't have time to do that because you have to do the boring administrative work. You have to know what pets and products you have. That means all of your pets, foods, toys, etc. You need to know the pet's gender, breed, age… Generally all info about the store.

You don't know how much the profits from your business are. You have to know when a pet has been sold, at what price, who is the buyer and so on. You are looking for a solution and you instantly remember you know how to work with databases and decide to create one for your needs.

You already have the models and the database. Your task now is to create the business logic of the application which follows all good practices.

PetStore.Services

Here you will hold your business logic. Feel free to implement whatever logic you can think of. There are some ideas from us below.

In order to sell anything, you first need to buy it from the distributors. It would be good if you create methods that lets you buy products – food, toys, decorations, etc.

It wouldn't be a store if you didn't sell those goods. Now implement a method that lets you sell each of the products you have. Keep track of anything you sell, also to whom you sell it, you might need this later.

It's time you extended your store. Now you also offer grooming service for pets. There can be different types of services you offer. For example it could be tail trimming, nail trimming, ear cleaning, clipping and even bathing! You can offer the whole set of services with a discount.

What would make clients keep buying things from your store? Client cards! Implement a new system for client cards. The more a client buys, the higher their discount is. You might need to change the methods for selling products.

You need to keep track of the sales you make and your profits (or loses). For this purpose you should implement 2 methods. Why two? Because you may want to have the report for just one month or for a whole year. The second one can reuse the first one. What would the report include? Well, many things. Let's start with extracting what percentage of the goods bought from each distributor are sold. This will help you track the market and what is trending. Then, you can check how much money is generated by selling goods, how much is spent on buying them and on employee salaries, if you have implemented models and logic for employment, what is the difference, does it meet your monthly/annual goal.

Those are the ideas from us. Feel free to implement the proposed methods the way you want them and/or implement new functionalities. There is no Judge that will limit you, use your imagination.