

2023-2024 Software Engineering Project

Kitbox company contacted us as part of its digitalization project. The company sells cabinets in kit form.

Composition of the order

Currently, to buy a cabinet, the customer has to go to the store. Based on the paper catalogue, the customer manually completes an order form and gives it to the seller.

Then the seller collects the parts from the cabinets.

A cabinet is made up of several lockers, the height of the locker can vary (see the possibilities in the catalogue). A maximum of 7 lockers can be assembled. The lockers are held together by 4 angle irons, which come in standard lengths, but can be cut to fit lockers of different heights. To find out the height of the angle irons, simply calculate the sum of the heights of the different lockers that make up the cabinet. To calculate the height of locker, take the height of the vertical battens and add 2x2cm (height of the crossbars).

Many mistakes are made: either the order is incorrect, for example the customer has put together lockers that are not compatible, or the storekeeper has made a mistake in the composition of the locker.

To solve this problem, the company asks you to create an application that will allow the customer or the seller to encode the order in the shop.

Please note that if all the parts are not available in stock, the customer must pay a deposit and come back to collect the order when it is available.

Customers must pay on receipt of parts, and will then receive an invoice.

Stock management

The company also wants to optimise its stock management based on the following constraints:

- Each part can be supplied by several suppliers.
- The minimal stock is based on the history of the parts sold.
- The supplier is chosen on the best price or, if the prices are identical, the best delivery time. A secretary regularly updates prices based on supplier catalogues.

Each locker is characterised by :

- dimensions (height, width, depth)
- its colour (identical for all panels in the same locker)
- the presence of doors whose colour can be different from that of the locker.

The angle irons can also be chosen from a range of colours (see catalogue).

Lockers can be built with or without doors. The dimensions of lockers with doors are limited (see door widths in the catalogue).

A locker is made up of (see drawings) :

- 4 vertical battens
- 2 front crossbars (with each 2 grooves for doors)
- 2 back crossbars (with each 1 groove for panel)
- 4 side crossbars (with each 1 groove for panel)
- 2 horizontal panels (fitted on the crossbars)
- 2 side panels (slid into the grooves in the vertical battens and crossbars)
- 1 back panel (slid into the vertical battens and crossbar grooves)
- 2 doors (in option) with 2 cup handles (not available for glass doors)

The company is also planning to add other elements, such as shelves and drawers, so plan the architecture of your application so that these elements can be added without having to modify what's already working!

As the parts can be used in different locker, we don't store the locker, just the parts.

Requirements

- The language is mandatory : CSharp
- The database must be Mysql or MariaDb
- All the code must be in English
- All user interfaces must be in English
- All documentation and diagrams must be in English
- The architecture must respect the SOLID principles so take care to :
 - The single responsibility
 - Open closed principle
 - No duplication code

Planning

For the end of the 1st semester:

- Activity diagrams for each process
- Use case diagram and fact sheets
- User stories and priorities
- Mockups of the user interfaces

Final report

The written report must contain all documentation needed to understand the project and to continue the development :

This report must contains **at least** :

- Activity diagrams for each process
- Use case diagram
- User stories
- Relationship entity diagram
- Class diagram and sequence diagrams
- User manual with screen captures and explanations

- Github link
- Gira link
- A conclusion with the achieves and not achieved goals

In a single PDF file submitted on claco by May 15 2024.

Oral presentation

The oral presentation must :

- Be in English
- Resume your report
- Present in live your application

The presentation is limited to 30 minutes followed by 15 minutes for the questions.

The speaking time should be equitable among group members.

