Back-office service determining the legality of alcoholic beverages Software Requirements Specification

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Innopolis 2019

Table of contents

1. Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of the Back-office service determining the legality of alcoholic beverages. It will explain the purpose and features of the service, the interfaces of the service, what the service will do, the constraints under which it must operate and how the service will react to external stimuli. This document is intended for both the stakeholders and the developers of the service.

1.2 Scope

The Back-office service determining the legality of alcoholic beverages is a system containing several parts, namely:

- some client application for its users (console Java application)
- a back-office (own implementation), which serves the client application
- the own service, which interacts with an external data provider

Since I have a problem with coordination of access to data and code for me. So existing development team have no rules to give me any information about all system. Therefore, I can't interact with the existing development team and have to create own **client application** and the **backend server** to emulate the real environment and then test my service.
Some client provides a user interface for the system's users.
A **back-office server** provides a RESTful application programming interface to the web application, and possibly to other client applications in the future, so that these client applications will be able to perform necessary changes in the system, on behalf of their users. The server will work in the internal network of the shop like a real back-office server.
The **own service** will interact with the Federal service for alcohol market regulation.

1.3 Definitions, Acronyms, and Abbreviations

Term	**Definition**
cash register	a cash desk system working with money
cashier	a person who interacts with the cash register
manager	a person who controls the work of store employees
customer	a person who visits the store to buy goods
store devices	POS (Point Of Sale) terminal, mobile, etc

Abbreviation	**Definition**
HQ	Corporate headquarter

FR	Functional Requirement

1.4 References

1.4.1 Use cases
1.4.1.1 “UML 2000 - The Unified Modeling Language: Advancing the Standard” - https://www.springer.com/de/book/9783540411338

1.4.2 Information about the chain store software system
1.4.2.1 SAP POS by GK - https://sapland.ru/kb/materials-of-events/1-8-serazhim-dmitry-sap-pdf.pdf
1.4.2.2 Maximum flexibility for optimized customer engagement GK/Retail OmniPOS - https://www.eurocis.com/vis-content/event-eurocis2018/exh-eurocis2018.2553249/EuroCIS-2018-GK-Software-SE-Paper-eurocis2018.2553249-xzdbxSxBR0mra8oU11hGdA.pdf
1.4.2.3 Решение для магазинов на платформе GK Retail - http://sapvod.edgesuite.net/rusapforummoscow/2015/pdfs/8-X5%20retail%20group%20-%20GK%20.pdf

2. Overall Description

This section describes the factors which will affect the requirements and gives an overview on the whole system. Firstly, the system will be explained in sense of product perspective, giving an understanding of the reasons to split the system to distinct parts. Then this section will give a summary of the functionality of the system, describe general characteristic of the users, general constraints, which are the things that limit developer's and architect's options for designing and developing the systems. In the end of this section assumptions and dependencies will be described.

2.1 Product perspective

This project is intended to be a part of the whole Back-office system for a chain store. The main focus of this project will be on developing a service, which can interact with the existing system. The service will provide the ability to determine the legality of alcoholic beverages for different devices: POS (Point Of Sale) terminal, mobile, web portal, etc. Therefore the development team will focus on the software for store employees which interacts with these devices as the main actors and targeting the service design for them. The service should provide actual information about alcoholic beverages to exclude the probability of buying contrafact alcohol by customers of the store.

The main benefits of using the separated checking service of backoffice server instead of direct connection with the Federal service for alcohol market regulation:

- There is no need for the store employees' devices to go to the external network, which increases security
- It is easier to update the code on the server than in the application if there are changes to the API of this external resource.
- The store employees' devices can interact with the Federal service using different connection protocols (provided by backoffice) instead of using restricted external service's API

2.1.1 System interfaces

The service will provide a Java programming interface to the Back-office server, in my case to my backend server.

2.1.2 User interfaces

The console Java application.

The user interface shall present its information to the user in the Russian language.

2.1.3 Hardware interfaces

Since the system runs on a higher level of abstraction (i.e. Application level), it does not define any new hardware interfaces, apart from those which the root operating system interacts with.

2.1.4 Software interfaces

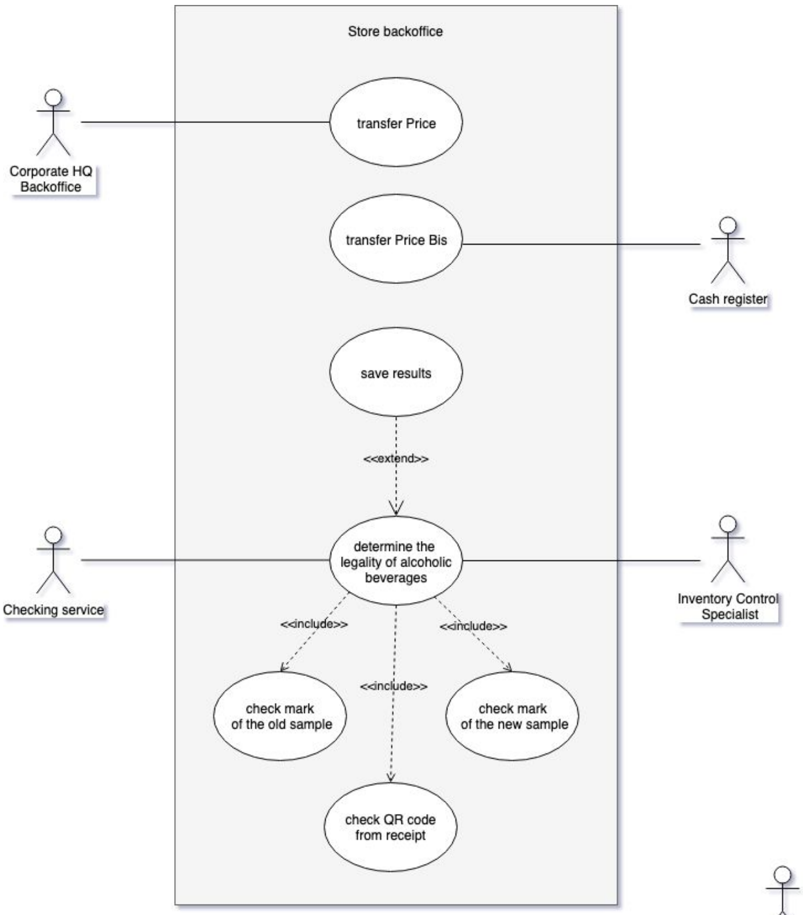
The service will communicate with the Federal service for alcohol market regulation via RESTful requests/responses. This external service provides corresponding internal APIs. My service processes received responses in a JSON format and return needful information to back-office server.
The back-office will use this service by simple Java method calls.

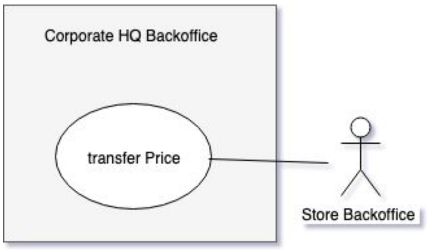
2.1.5 Communication interfaces

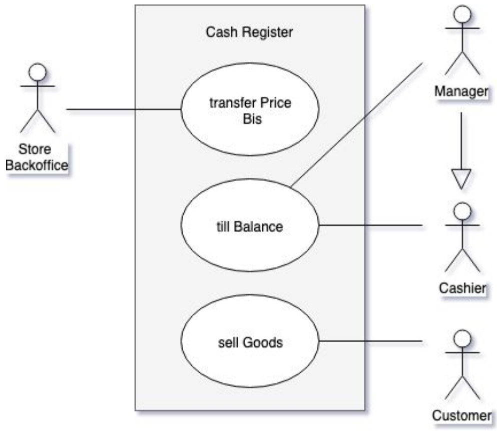
For communicating inside the service HTTP network protocol are used.
Different user's devices can communicate with back-office with different protocols.

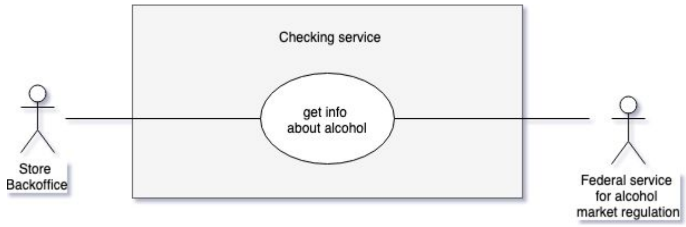
2.2 Product Functions

The features of all store system with the checking alcohol service is illustrated in use case diagrams below. Some functionality is provided only for understanding of the all system: "sell Goods" (i.e. the Cashier computes price to be paid by the Customer and then proceed with the payment), "till Balance" (i.e. the Cashier and the Manager check the content of the cash drawer) and "transfer Price" (i.e. new price lists are transferred from the Corporate HQ to all Cash Registers with the collaboration of the Store Backoffice).


Store backoffice
Corporate HQ Backoffice
transfer Price
transfer Price Bis
Cash register
save results
<<extend>>
Checking service
determine the legality of alcoholic beverages
Inventory Control Specialist
<<include>>
<<include>>
<<include>>
check mark of the old sample
check mark of the new sample
check QR code from receipt







2.2.1 Check mark of the old sample

The store devices can check the validity of the mark of the old sample. The request will have 2 query params, for example:
DataMatrix=138-103986107210051217708233106797
PDF417=22N000004RI5YQJHNO20DFU80117008017210S6U4L3CK1DFD8O12GSS1Z50RTG1M2Q4

2.2.2 Check mark of the new sample

The store devices can check the validity of the mark of the new sample. The request will have 1 query params, for example:
pdf417=136400037195391018001XA2MEGIQRBYNVB3WMYZ33IBJ24P4RF5LSATQOJQIRX7WITDWPBUTHQDIP4QP4WJVLNSOBBGAYS5MWRLQERQ4A4W24XE2M7UH725A7X5TUXTJOZUSV6NIUZSREQWDB4DRY

2.2.3 Check QR code from the receipt

The store devices can check the validity of alcohol from a customer’s receipt. The request will have 1 query params, for example:
qr=t%3D20170216T133600%26s%3D780.00%26fn%3D9999078900001327%26i%3D91%26fp%3D1697013557%26n%3D1

2.3 User characteristics

There are one type of users that interact with the back-office service checking alcohol via different store devices - Inventory Control Specialist. He scan every alcohol and determine the legality of alcoholic beverages.

2.4 Constraints

2.4.1 Technical constraints

Technical constraints are determined by existing store hardware and its capabilities and availability of the Federal service for alcohol market regulation. These constraints affect support system’s architectural design.

1. **Availability.** The service shall be available at least 99% of the time during a year when the Federal service is available.
2. **Security — access to external network.** The service have access to external network so it should check safety of network responses.
3. **Maintainability — easy to change external API.** The service has provide a single file with all API method signatures to get ability change it.

2.4.2 Business constraints

Business constraints are determined by time limits and intentions, as well as development team composition and technical capabilities.

1. **Coordination of access to data and code for me.** So existing development team have no rules to give me any information. Therefore, I can't interact with existing development team and get real information about existing system.
2. **Time constraints.** The project is to be done in one semester, in 2 deliveries, each with the interval of half of semester.
3. **Financial constraints.** The project has no additional budget assigned to it during the development, hence external services to be used (if any) should have a free pricing plan for development needs.

2.5 Assumptions and dependencies

2.5.1 Connectivity

It is assumed that all users have a reliable enough connection to the backoffice while they are working with checking alcohol service.

3. Specific requirements

3.1 External interfaces

At this point, the system is not required to provide any external interfaces, apart from those described in section 2.1

3.2 Functional requirements

3.2.1 Director of a store

MUS-01	**Control the store**
Description	As a Director I want my employers can determine the legality of alcoholic beverages via special store devices
Acceptance criteria	***Given*: I have responsibility under the store** ***When* : I control the store** ***Then* : If there is a problem with some alcohol then store employers know about it so that customers did not discover that.**

3.2.2 Inventory Control Specialist

CUS-01	**Check the validity**
Description	As Inventory Control Specialist I want check the validity of the mark of the old/new sample and QR code from the receipt
Acceptance criteria	***Given*: I signed** ***When* : I scan an alcohol** ***Then* : I get information about alcohol**

3.3 Performance requirements

3.3.1 Parallel use

The system shall support simultaneous connections with at least 1000 users at a time.