IN2013 Object-Oriented Analysis and Design 2024/25 Coursework Assignment 1 (Analysis)

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1. Functional Requirement:
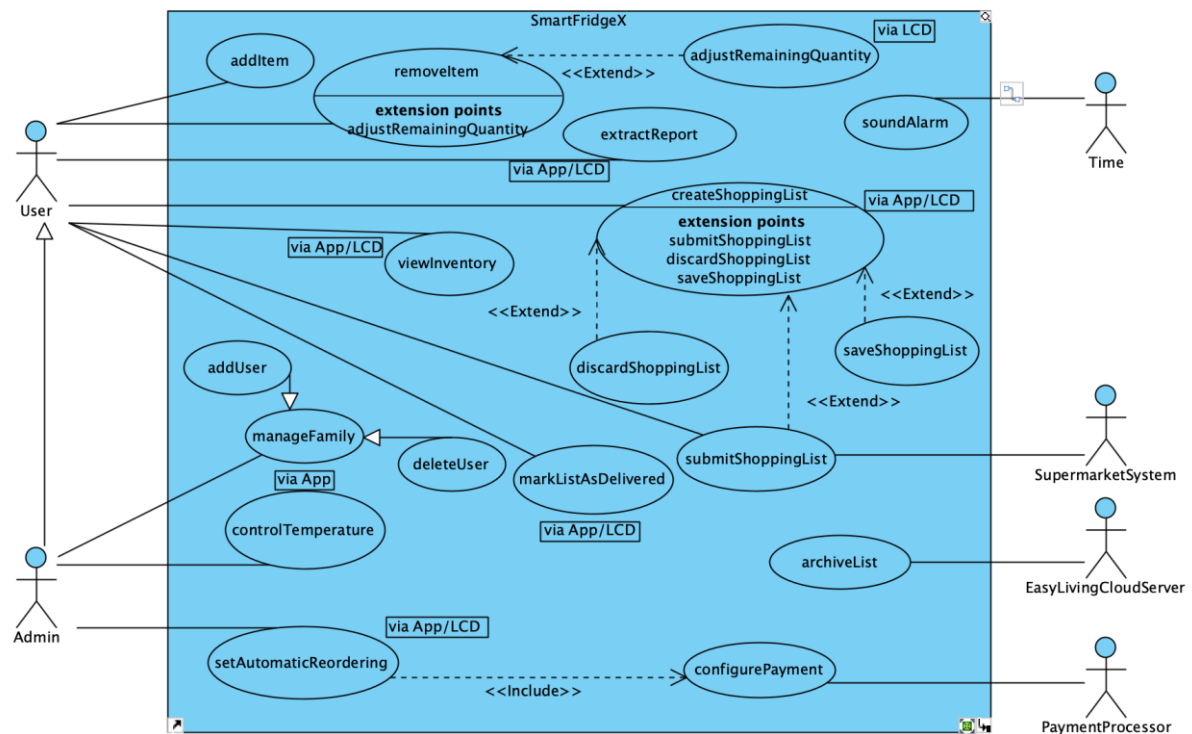
Requirement ID: 1	Requirement Type: FR	Event/Use Case #1 (controlTemperature)
Description: The system shall automatically adjust the airflow to maintain the desired internal fridge temperature and keep it constant in response to changes in external temperature.		
Rationale: SFXfridge is a software system that maintains optimal internal temperatures to preserve the freshness and quality of stored food items, thus preventing spoilage.		
Source: Smart Fridges Ltd. initial statement of requirements		
Fit Criteria: A test to confirm that the SFXfridge maintains a stable internal temperature within an acceptable range under various outside temperature conditions should be passed successfully. Temperate adjustments should be made automatically without user intervention.		
Customer Satisfaction: 5	**Customer Dissatisfaction: 5**	
Priority: Essential	**Conflicts:** None	
Supporting Material: None		Volere
History: A new requirement		Source: Atlantic Systems Guild

Non-functional Requirement:

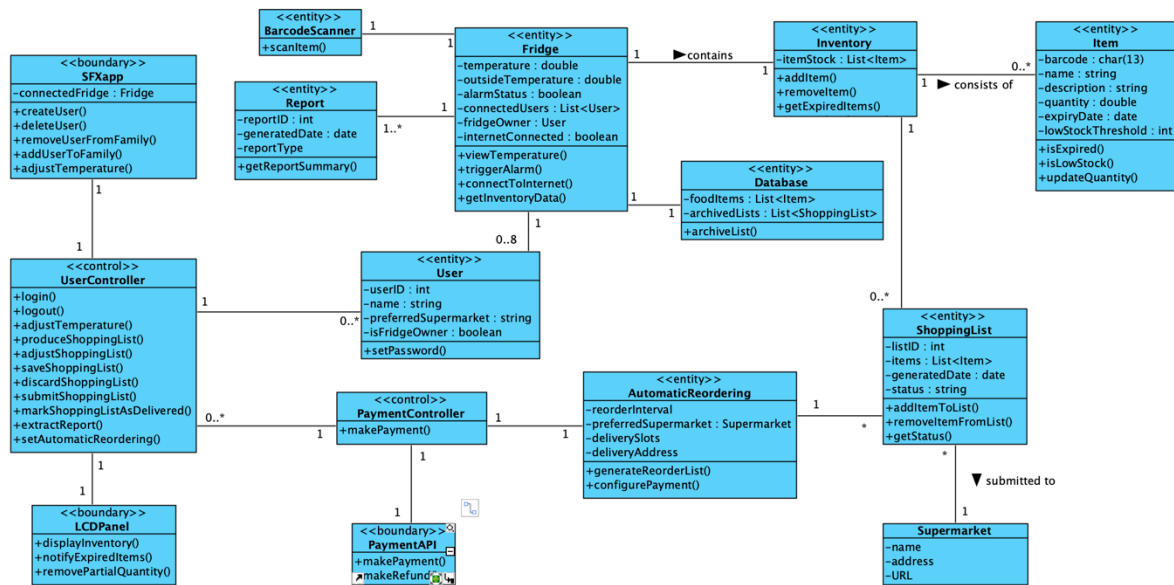| Requirement ID: 2	Requirement Type: NFR (availability)	Event/Use Case N/A
Description: The system shall be accessible to users 24/7, with minimal downtime for maintenance, not exceeding 5 minutes per day.		
Rationale: The SFXfridge system is intended to be accessible to users at all times, allowing them to monitor and manage food inventory without interruption.		
Source: Product team requirements and user accessibility expectations.		

Fit Criteria: A monitoring tool should confirm that the system experiences no more than 5 minutes of downtime per day on average.	
Customer Satisfaction: 4	**Customer Dissatisfaction: 5**
Priority: Essential	**Conflicts:** May conflict with maintenance needs that require system shutdown**.**
Supporting Material: Availability standards for smart home devices.	Volere Source: Atlantic Systems Guild
History: A new requirement	

2.

3.

a)

b)

Note: Nouns are in green, verbs are in blue

The SFXfridge can use the inventory to determine when stocks of some items are getting low and produce a *shopping list* to be sent to the user's favourite internet supermarket. Such lists are produced *on demand* by the user – either via LCD touch screen or from the mobile app and are assigned a *unique ID* by SFXfridge. The user can review and adjust the shopping list (using the LCD screen or the mobile app) and decide whether to send the shopping list to a supermarket (using the online ordering system of the chosen supermarket). If the user decides to submit the shopping list to a supermarket, SFXfridge marks the list as "submitted". The user may also decide to save it for future use. A shopping list can be discarded at any time unless it has already been submitted to a supermarket. A shopping list which has not been submitted for more than 30 days will be automatically discarded by the system.

SFXfridge: a problem domain class

use: ignored

inventory: a problem domain class

determine: ignored

stocks: attribute in Inventory

items: a problem domain class

are getting low: condition for stock levels, is an attribute in Inventory

produce: operation in SFXapp

shopping list: a problem domain class

sent: named association <submitted to> between ShoppingList and Supermarket

user: a problem domain class, also refers to primary actors of the system

internet supermarket: a problem domain class

lists: refers to shopping list (same role)

produced on demand: operation in SFXapp

LCD touch screen: a boundary class

mobile app: a boundary class

assigned: ignored

unique ID: attribute in ShoppingList

review and adjust: operation in SFXapp

decide whether to send: same as "decides to submit"

supermarket: refers to internet supermarket (same role)

online ordering system: boundary class used by supermarket system

decides to submit: named association <submitted to> between ShoppingList and Supermarket

marks:

may also decide to save: operation in SFXapp

future use: ignored

can be discarded: operation in SFXapp

time: ignored

submitted: attribute in ShoppingList (status)

days: operation done by system which affects the "status" attribute in ShoppingList

automatically discarded: operation in ShoppingList

system: ignored