

Software Architecture Design Project Donut on Demand Titouan Le Mao - Cédric Le Mercier

Requirements

Introduction

Donut TC™ is a leader in Thailand in the manufacture of handmade donuts. Our donuts are made with the best flours and fillings. Donut TC™ is for its customers the assurance of a gourmet experience throughout the country, with donuts of extreme freshness.

But what could be more infuriating than to go to a store to buy something, and then have to leave empty-handed due to a lack of stock?

We want to set up an innovative service for our customers, at the crossroads of the e-Shop and the drive-in. This service, called "Donuts on Demand » (DoD), will allow customers to make their selection from our range of donuts, place their order and specify the date and time they will pick them up.

Ordering on Donuts on Demand ensures that you always get your favorite cookie recipe, right out of the oven, on time. No more queues in the store, no more unpleasant surprises such as chocolate being out of stock. Donuts always fresh, available in less than two hours and recovered while still hot for even more gourmet family moments.

Specifications

It is possible for anyone to create an order, choose their recovery store and appointment date and then pay the amount due by credit card. An order consists of a set of "donuts" and the desired quantity, among the pre-existing recipes for which the establishment is famous (for example, the "Sooo Chocolate", the "Dark Temptation", the "Krispy Kreme", ...).

The "Donuts on Demand" service must also allow customers to select from the range of ingredients to create their personalized donuts, place the order and specify the date and time when they will pick them up, just like for pre-existing recipes.

Each donut recipe is defined by its type of dough, an optional flavor, up to three toppings, a type of mix, and finally a type of cooking.

- Dough: Plain, Chocolate,...
- Flavour: Vanilla, Cinnamon, Chili,...
- Topping: White chocolate, Milk chocolate, M&M's™, Reese's buttercup, Strawberry,...
- Mix: Mixed or Topped;
- Cooking: Crunchy or Chewy.

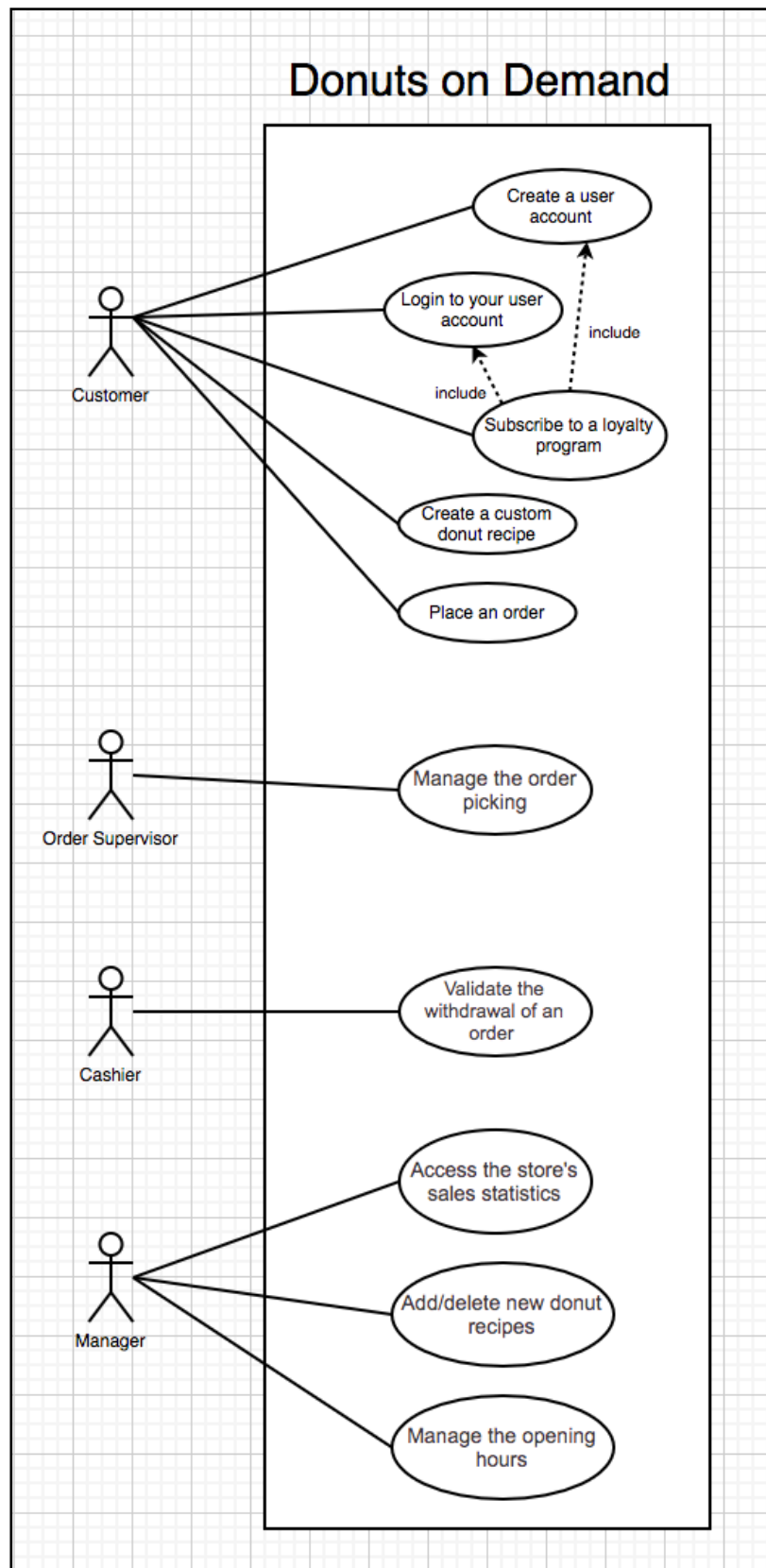
Customers must present the order form (each recipe has a given price) obtained from the system to retrieve their order in the store. A new recipe can be added at any time, and some recipes may disappear because of lack of buyers.

By creating a user account on DoD, it is possible to join the "Loyalty program", which offers after 30 donuts ordered a 10% discount on the next order.

Store managers can define their opening hours. The system should allow the display of statistics on CoD usage (recovery time). The store must verify that it is able to ensure an order, even a personalized one.

Stakeholders

In order to present the different stakeholders of our application, we have defined a diagram of use cases.



Project timeline

Here is a forecast of the realization of the user stories we defined for our project and cut in 4 sprints of 2 weeks. We also defined for each user story, their priority (thanks to the MoSCoW method) as well as their difficulty of realization (using a tee shirt sizing technic) S is equivalent to SMALL, M is MEDIUM and L is LARGE, which means that the user story is consistent and quite difficult to realize.

Sprint 1 (26/02/2021 —> 11/03/2021)

- Customers of our application can create an account. *MUST / S*
- Customers of our application can connect to their personal space according to their role. *MUST / M*
- Customers can subscribe to a loyalty program. *COULD / S*

Sprint 2 (12/03/2021 —> 25/03/2021)

- Customers can place an order for donuts based on those available in the store. *MUST / L*

Sprint 3 (26/03/2021 —> 08/04/2021)

- Order picker can manage the order picking and indicate which ones are ready. *MUST / M*
- Cashier can validate the withdrawal of an order when a customer picks it up at the store. *MUST / S*

Sprint 4 (09/04/2021 —> 23/04/2021)

- Manager can add/delete new donut recipes. *SHOULD / S*
- Manager can manage the opening hours of the store. *SHOULD / S*
- Manager can access the store's sales statistics. *COULD / M*
- Customers can create and order their own personal donuts recipe. *COULD / M*

Risk and mitigation plan

The main risk of our project is our experience in programming with Spring boot. We have very little experience with this framework and it will be a big challenge to develop the project to the end.

We also focus on the security of our system so that each actor can only access the information they need.

Initial architecture

We made a first class diagram of our application. It will be able to evolve and change during the project.

