MODELLING OFFERS FROM SUPERMARKET SCENARIO

Tecnologías para el desarrollo de sistemas ubicuos, Master NTI, Universidad de Murcia, 2018/2019

Delivered in a corresponding task in the Aula Virtual

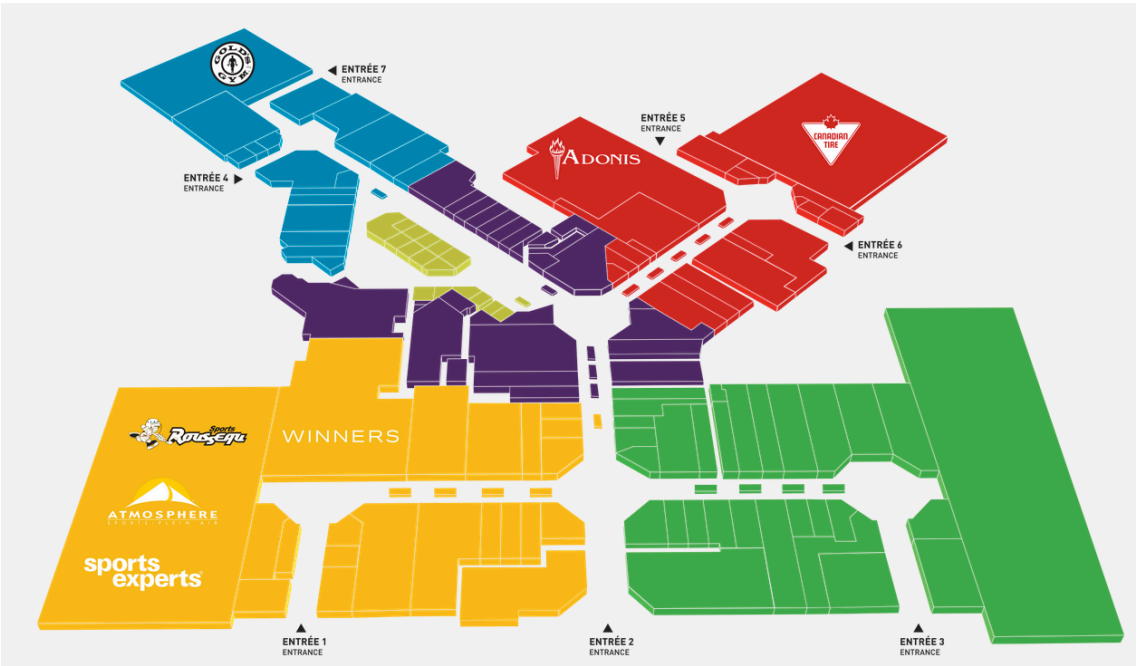
1. Introduction

The tasks consist in the development of a fidelity App for a nation-wide Supermarket chain. So there will be an exchange of messages between the App and user, but also between the App and supermarket. And we require that the App to be designed on the basis of using RabbitMQ as the communication middleware. The App must run in Android and the whole project will be compound of the Android App and a simple stand-alone server, corresponding to the supermarket, developed in Java.

The physical imagined scenario is that of a mall in which the customer (the App user) enters and freely moves through it going from one place to another. As the user evolves through the mall, we suppose he/she engages with the App and interacts with it constantly by receiving adds of interest and notifications. One may also consider the option of defining the profile, as a means to enable a **personalized** message filter process.

Clearly, **location awareness** may be an important property to consider when developing the App. Suggested ways in which location may be used:

- As a way of attracting the user to an area that he/she probably will not visit otherwise (e.g. a teenager won't go to the baby area),
- As a way of keeping the user in an area or
- As a means to make the user wander around the mall as much as possible so as to maximize the probability of buying new goods.



The map above may well be an example of 5 different areas (by the 5 different colors) along which you may distribute groceries, meat, cleaning products, bread & breakfast and fishmonger.

2. Basic requirements to fulfill

As the core software to develop, the pupil should

- create the Android app using AndroidStudio. The Customer app has, as a minimal interface:
  - a list of checkboxes for collecting the customer preferences according to some categories of products. The customer chooses those categories for receiving offers and by clicking a button the subscriptions are carried out. Thus, it subscribes for listening offers delivered in a Supermarket according to any products of the selected categories.
  - When these offers are received, they are shown in a list of messages which is part of the Customer app GUI.
  - Note that the user can get into the mall, get out and go to an existing location within the mall. The GUI should allow to simulate what the user does by button clicks. The simplest way is offering a panel of buttons for possible actions, e.g. if the user clicks the “Groceries” button, he arrives to that area. Basic actions must include: (1) getting into the mall, (2) getting out of the mall, (3) groceries, (4) meat, (5) cleaning products, (6) bread & breakfast and (7) fishmonger

- Considering the supermarket side, staff application, you should develop a Java client application for sending the offers of the products. These offers will contain the routingkey following this format: offers.*.*.

- The design of RabbitMQ topics should accommodate what is mention in the introductory section about preferences and offers accordingly.

For the development of these application students will use the rabbitmq libraries (4.2.2) for connecting to a rabbitmq broker. There is an available broker with the following connection:

IP Broker: 155.54.204.46 (with DNS diana.inf.um.es)
Port: 5672
Username: master
Password: master

3. Material to deliver in task

For fulfilling these tasks students should deliver the following:

- The full (both Android and stand alone Java software) code
- The use of the proper interfaces using Android recommendations on how to create resources using xml files for GUI, strings and others elements.

- An user manual and guide on how to use the application and explaining results based on small run examples.
- A report indicating the important parts of the applications relating to the supermarket scenario and relating to the theoretical aspects of the subject.

The work will be evaluated on the basis of the following criteria:

- Mostly and foremost, design decisions taken when designing the application in terms of the aspect related to the subject (i.e. location awareness, personalization services, user engagement)
- The richness of details in the final solution provided (the basic requirements of section 2 will assure the student a B based score, however being creative and adding more functionality to the system, always keeping in line with the contents of the subject will be considered as positive for the final mark.
- An interesting topic to consider, in a free manner, is obtrusiveness, i.e. possible ways to refine the App and lower down the level of distraction generated by it.

The deadline for submitting the software, documentation of the software and report, all in a single bundle is 8th of January 2019 through a task that will be created for such purpose by the teacher.

Juan A. Botía
juanbot@um.es