Project title

ProjDat 2015

Delrapport 1

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Contents

1 Problem definition

How many people are in the office?

Use iBeacons to determine the amount of people currently in the office. Aggregate the data to apply machine learning and data visualization. Using iBeacons we would like to make an app that registers whenever the user enters or leaves our office. We would like to aggregate that data to use for cool data visualization and applying machine learning to the data to obtain knowledge about the general usage patterns of the office. This could e.g. be used to adjust the heating, automatically lock the doors and turn off the lights when the last person leaves, predict when we need to order more or less lunch, or simply to check whether a certain person is currently at the office. [1]

The above text, is the original description of one of the many projects made available to us from the company Shape A/S.

On March the 12th, we had a meeting with Søren Ulrikkeholm (Responsible for student contact), where we talked about the different projects and realistic acceptance criteria, taken our limited experience into account. We settled on the before mentioned project, because it was deemed the most appropriate for our level of skill, as well as, being the one in which Shape A/S had the most interest.

Søren explained, that the companies biggest interest is learning how to use the iBeacons with Android, where aggregation of data and machine learning are secondary objectives. We have agreed on splitting the project into two development phases.

Therefore, our primary focus is to develop an app for Android that registers individuals entering and leaving an office space. This will be our focus in the first development phase.

Our second development phase, consists of integrating the application with a back-end database, with the aim to aggregate the data and obtain knowledge about general usage patterns in the office, through data visualization and machine learning. However, we will not be using effort in integrating the database with machine learning, since it is not within our abilities.

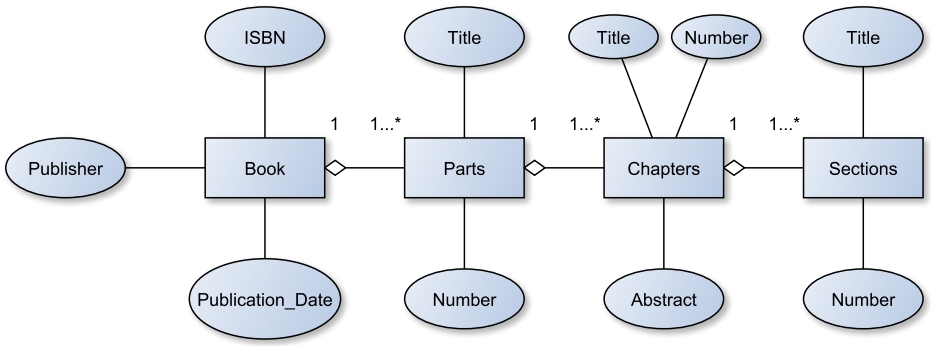
So to sum it up, our primary objective will be to deliver an Android app, that is capable of registering data with the help of iBeacons. Our secondary objective, will be to integrate this app with a back-end database.

2 Initial Software Project Management Plan

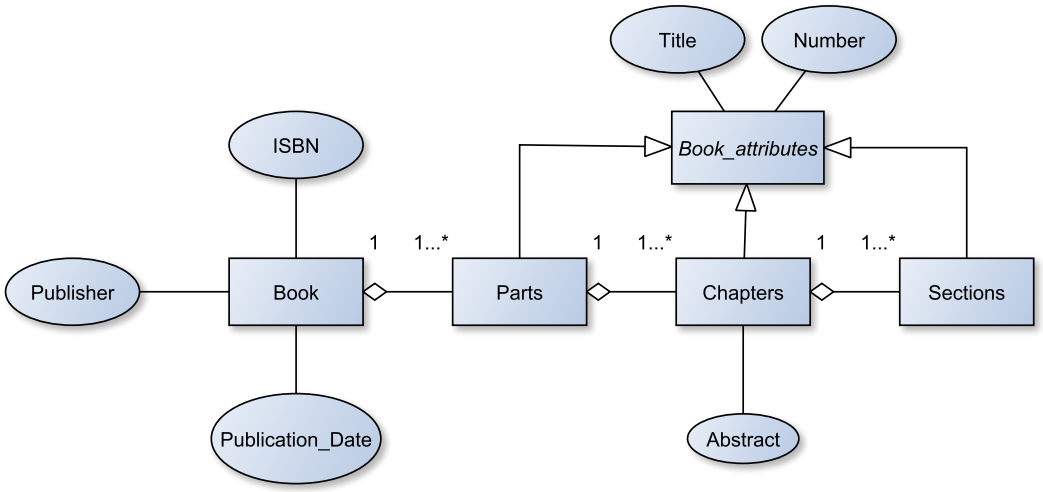
3 Exercises

1-8.
In the following description, explain when the term account is used as an application domain concept and when as a solution domain concept:
"...managing bank accounts for mobile costumers." - It is used as an application domain concept, saying what it is supposed to do. "...provide access to the accounts when the..." - It is used the same way as before. "One proposal is that accounts are made available on the mobile computer..." - Here it is used as a solution domain concept, as it is a possible solution to be evaluated. "...the accounts show the amounts from the last connected session." - It is used in connection with the previous use.

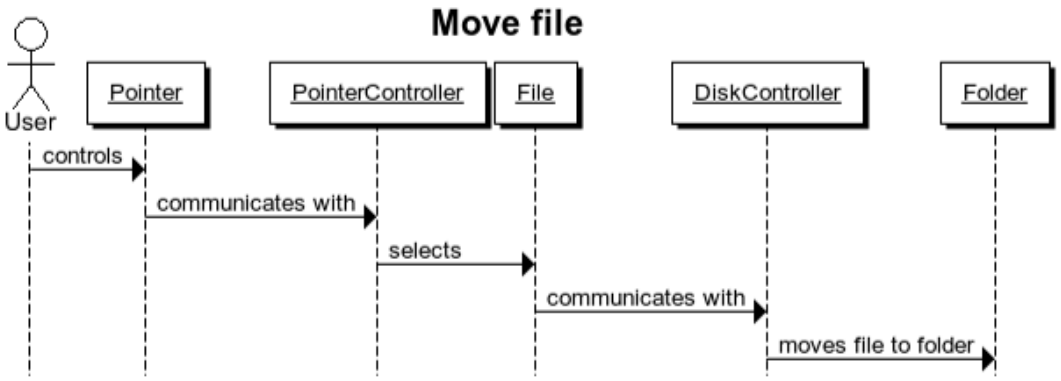
2-6, 2-7, 2-9.
Draw a class diagram representing a book. Add multiplicity to the class diagram you produced in Exercise 2-6. Extend the class diagram to include attributes.



2-10.
Add an abstract class and an inheritance relationship to factor out these two attributes into the abstract class



5-3.
Arrange the objects listed in Exercises 5-1 and 5-2 horizontally on a sequence diagram.



References

[1] www.shape.dk/projects