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## JustRecipe

*Group Project for Large Scale and Multi-Strutured  
Databases*

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# Contents

<b>1</b>	<b>Dataset</b>	<b>3</b>
<b>2</b>	<b>Design</b>	<b>4</b>
2.1	Introduction To The Application . . . . .	4
2.2	Requirements . . . . .	4
2.2.1	Main Actors . . . . .	4
2.2.2	Functional Requirements . . . . .	5
2.2.3	Non-Functional Requirements . . . . .	6
2.2.4	Actors and Use Cases . . . . .	6
2.3	UML Class Diagram . . . . .	6
2.4	Data Model . . . . .	8
2.4.1	DocumentDB . . . . .	8
2.4.2	GraphDB . . . . .	8
2.5	Distributed Database Design . . . . .	8
2.5.1	Replicas . . . . .	8
2.5.2	Sharding . . . . .	8
2.6	Software Architecture . . . . .	8
<b>3</b>	<b>Implementation and Test</b>	<b>9</b>
3.1	Main Modules . . . . .	9
3.2	Main Packages and Classes . . . . .	9
3.3	Most Relevant Queries . . . . .	9
3.3.1	MongoDB . . . . .	9
3.3.2	Neo4J . . . . .	9
3.4	Unit Test . . . . .	9
3.5	Tests and Statistical Analysis . . . . .	9
<b>4</b>	<b>User Manual</b>	<b>10</b>

# Introduction

# Chapter 1

## Dataset

In this first chapter of this document we will talk about searching for the initial dataset.

As specified in the project documentation, the dataset had to be at least 50MB large, and this quantity could not be generated directly within the application. So we did an initial search, finding two datasets, which were generated by their authors by performing the scraping on the sites *www.FoodNetwork.com* and *www.Epicurios.com*. The second dataset was more complete (more nutritional values), so it was used as the main dataset. The other dataset was used to complement the other, reaching a total of 67.8 MB, with 45349 recipes.

To correctly extract the data present in the two datasets we wrote a program in Java, called *RecipeReader*, thanks to which we adapted the two different formats and removed the duplicates (recipes with the same title that were present in both datasets). To implement this program we used the GSON library and the Jackson library.

The variety property is ensured by using two different sources. The velocity / variability properties are ensured because comments and recipes are eliminated and added inside the application, indeed this data may lose importance after a certain time interval since new data quickly arrives.

# Chapter 2

## Design

### 2.1 Introduction To The Application

The topic of cuisine is extensively widespread in our society. In fact we can think at the success achieved by tv shows related to cooking in the last years and also at the fact that a lot of chefs are becoming superstars. Then there is another important factor: the coronavirus outbreak.

With the coronavirus outbreak a lot of people became cuisine lovers, in fact at the first moments of the pandemia several ingredients as flour and yeast were very hard to find, because people were confined in their home and so they had more free time.

But this topic is not a recente one. The first recipe book dates back to eighth century B.C. and it is the so-called *Eraclio* (by the name of the city in which he was found). Then also an important latin writer, Apicio, wrote one of the most important recipe books of the roman era: *De Re Coquinaria* which dates back to the first century B.C..

So the topic of cuisine is inherent to human nature, because the necessity of eating is a basic need. Furthermore, everyone has experimented the infamous question: “What will I eat this evening?”. JustRecipe has the aim of answer to this question, it has the aim of helping university student or workers to retrieve and to do fast and simple recipes.

So this application is basically a recipe book but it is also more than this.

JustRecipe is also a social network which allow people to enjoy, to ex-change ideas about cooking, to feel less lonely in this hard period.

### 2.2 Requirements

#### 2.2.1 Main Actors

The main actors of the application are four:

- Unregistered User  
He is the user which open the application for the first time, in order to access he must sign-up.
- User  
He is the normal user (the registered one).
- Moderator  
He is in charge of controlling the comments and eventually delete the ones which contain abuses.
- Administrator  
He is the most powerful actor, he can delete users and recipes and he is also in charge of elect moderators

Each actor can do all the features of the previous ones in the list.

## 2.2.2 Functional Requirements

### Features offered to the Unregistered User

- Registration

In order to access the application an user must sign-up. Otherwise he is not allowed to access and to use all the functionalities.

### Features offered to the Registered User

- Login/Logout

The only way to access the application, as we said previously, is to sign-up and login. At the end the user can logout and close the session.

- Search a recipe

It's possible to search a recipe searching for the title and for categories.

- Browse suggested recipes

The suggestions will be offered in a proper section, they are done considering the relationships between the user logged, the users followed by the user logged and so on so forth.

- Browse recipes of following users

In a proper section (i.e. the Homepage) the user can browse the recipes of the following user. Indeed he can see only a snapshot of the recipes. If he wants a more in-depth view, he can click on it and see the recipe page in which he is able to see all the recipe details.

- Add a recipe

The user can insert a new recipe.

- Edit own recipes

The user can edit the recipes previously added by himself.

- Comment recipes

Every user can make a comment about recipes

- Follow another user

The most important feature of each social network: the users can follow each others.

- Like a recipe

In order to evaluate a recipe each user can like its.

### Features offered to the Moderator

- Delete comments

The moderator is in charge of delete comments which contain racist abuse, crude terms and so on so forth.

### Features offered to the Administrator

- Delete users

The admin can delete the users which don't respect the application guidelines.

- Delete recipes

The admin can delete recipes not correctly inserted

- Elect moderators

In order to handle better the application, the admin can elect some users as moderators.

### 2.2.3 Non-Functional Requirements

### 2.2.4 Actors and Use Cases

The use case diagram of the application is described in the figure 2.1



Figure 2.1: Use Case Diagram

*Scrivere perchè pallini colorati ecc....*

## 2.3 UML Class Diagram

*Scrivere intro*

*Scrivere come abbiamo risolto le generalizzazioni (aggiunto di role:int)*

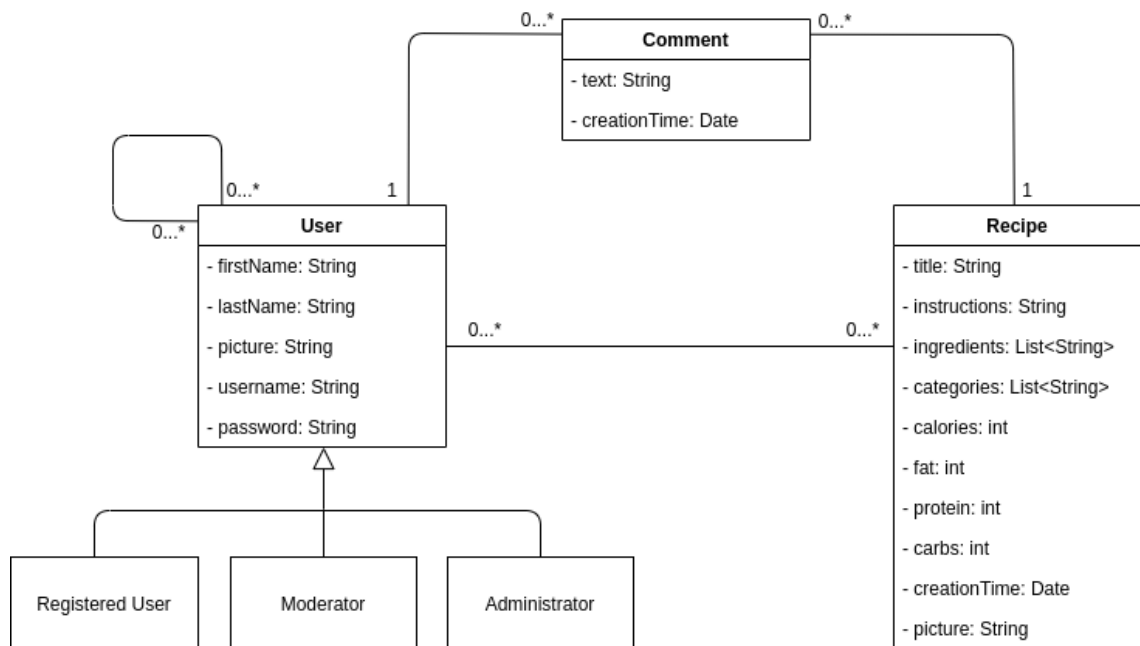


Figure 2.2: UML Analysis Classes Diagram with generalization unsolved

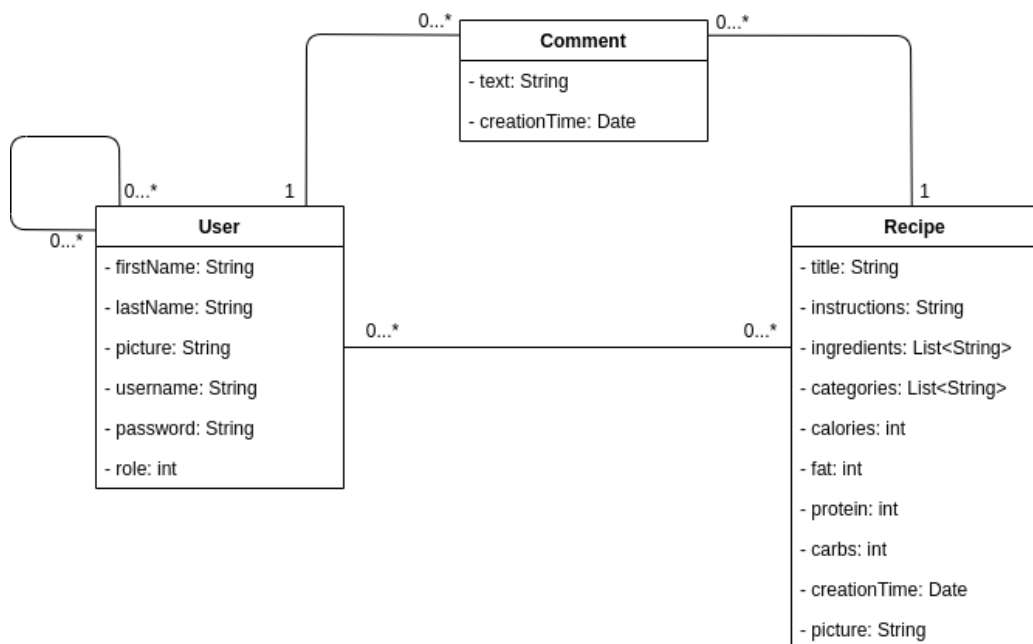


Figure 2.3: UML Analysis Classes Diagram



## **2.4 Data Model**

### **2.4.1 DocumentDB**

### **2.4.2 GraphDB**

## **2.5 Distributed Database Design**

### **2.5.1 Replicas**

### **2.5.2 Sharding**

## **2.6 Software Architecture**

## Chapter 3

# Implementation and Test

### 3.1 Main Modules

### 3.2 Main Packages and Classes

### 3.3 Most Relevant Queries

#### 3.3.1 MongoDB

#### 3.3.2 Neo4J

### 3.4 Unit Test

### 3.5 Tests and Statistical Analysis

## Chapter 4

# User Manual