University of Buea

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Genie Informatique

**CEF 440: INTERNET AND MOBILE PROGRAMMING**

# Database Design and Implementation of ReUseEats


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# TABLE OF CONTENTS

## Table of Contents

# INTRODUCTION

Database design refers to the organization of data according to a database model and the designer determines what data must be stored and how the data elements interrelate. with this information, data from our users will be fitted to our database model. Firebase will be used for our ReUseEats project due to its ability to sync data between users in real time and a cloud hosted database.

# I- Database Design

In this phase, Entity relationship diagram (ER) was extracted from the class diagram. An ER diagram is one which contain entities that depicts real life situations with their different relationships and cardinalities. In the ER diagram the primary keys, foreign keys and other constrains were laid emphasis on as we designed the database for our system.

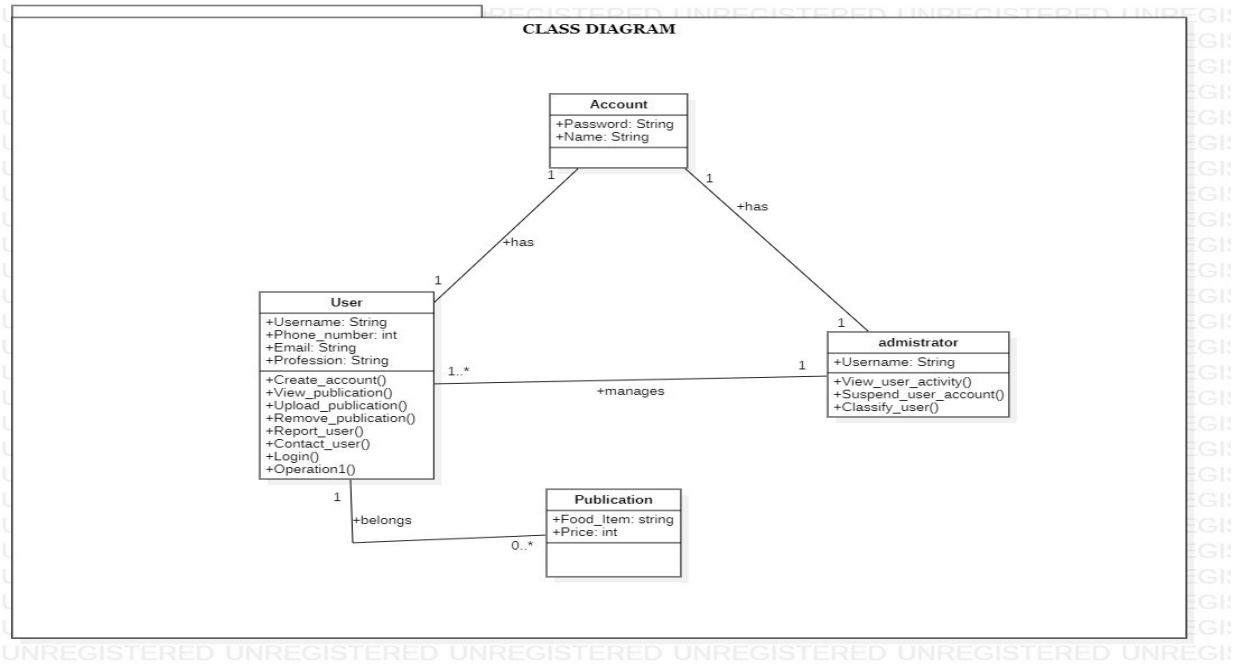



**Fig 1. Class diagram**

Our ER diagram was developed with the use of the class diagram in Fig 1.

## I-1 Entity Relationship Diagram

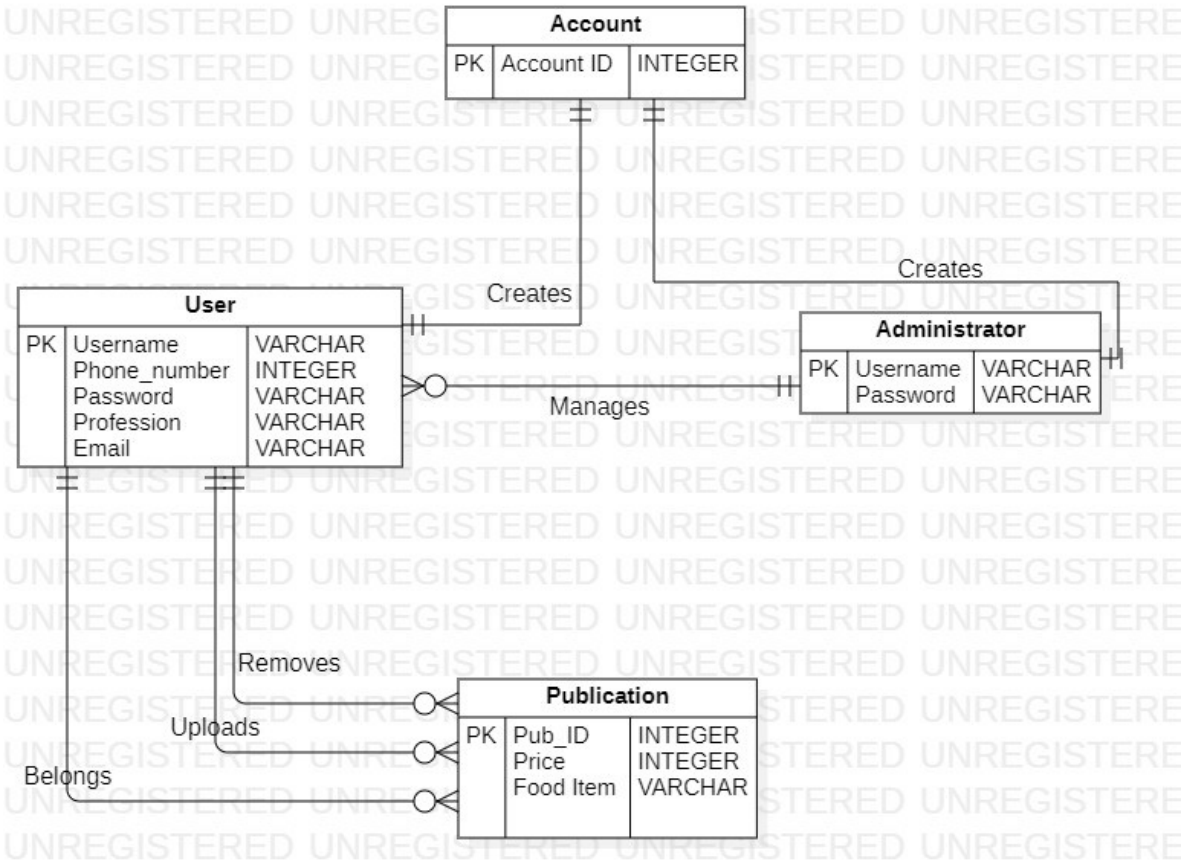



**Fig 2. Entity Relational (ER) Diagram**

## I-2. Relational Schema

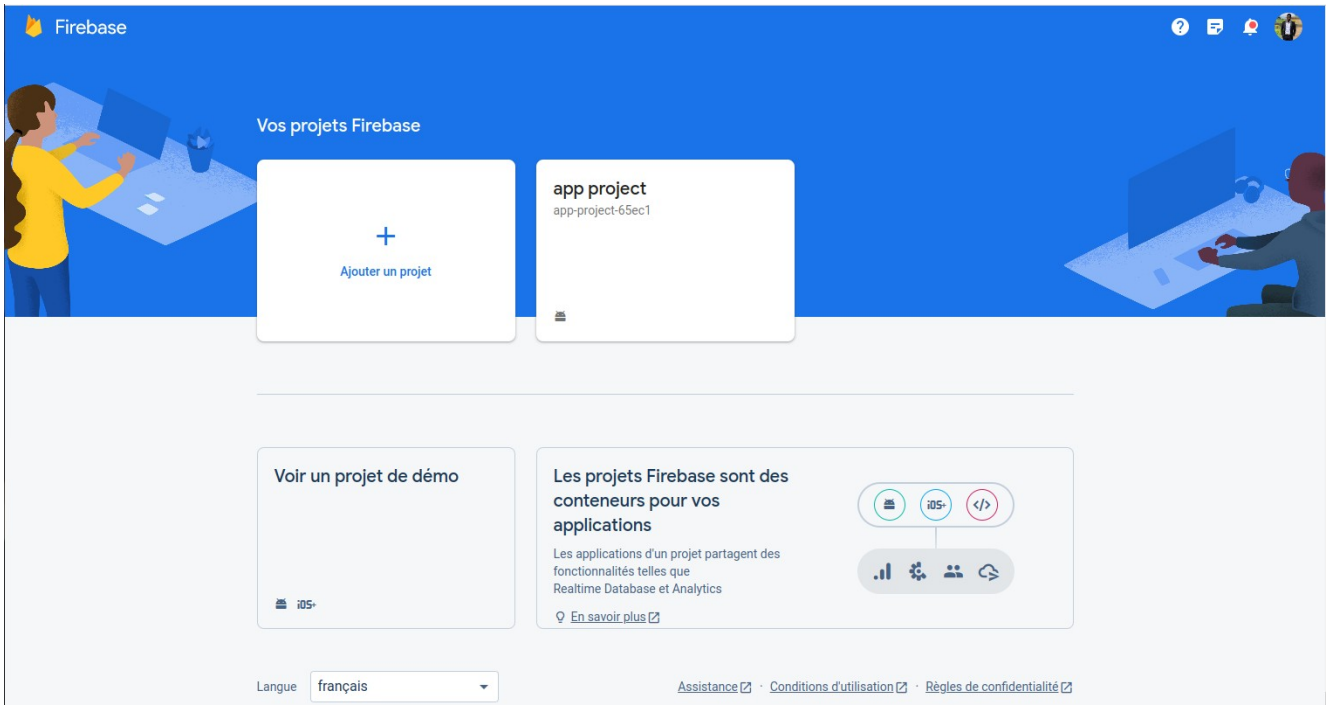
With the help of the ER diagram, we proceeded to creating the relational schema containing the various tables with their primary keys, foreign keys as well as their various attributes and datatypes as shown below.

**Account** (AccountID, UserID*)
**Administrator** (Username, password, AccountID*)
**User** (user_name, password, Phone_number, Password, Profession, Email, Username*)
**Upload** (pub_id, Price, food_item, user_name*)
**Removes** (pub_id, price, food_item, user_name*)

# II- Database Implementation

## II-1 Firebase

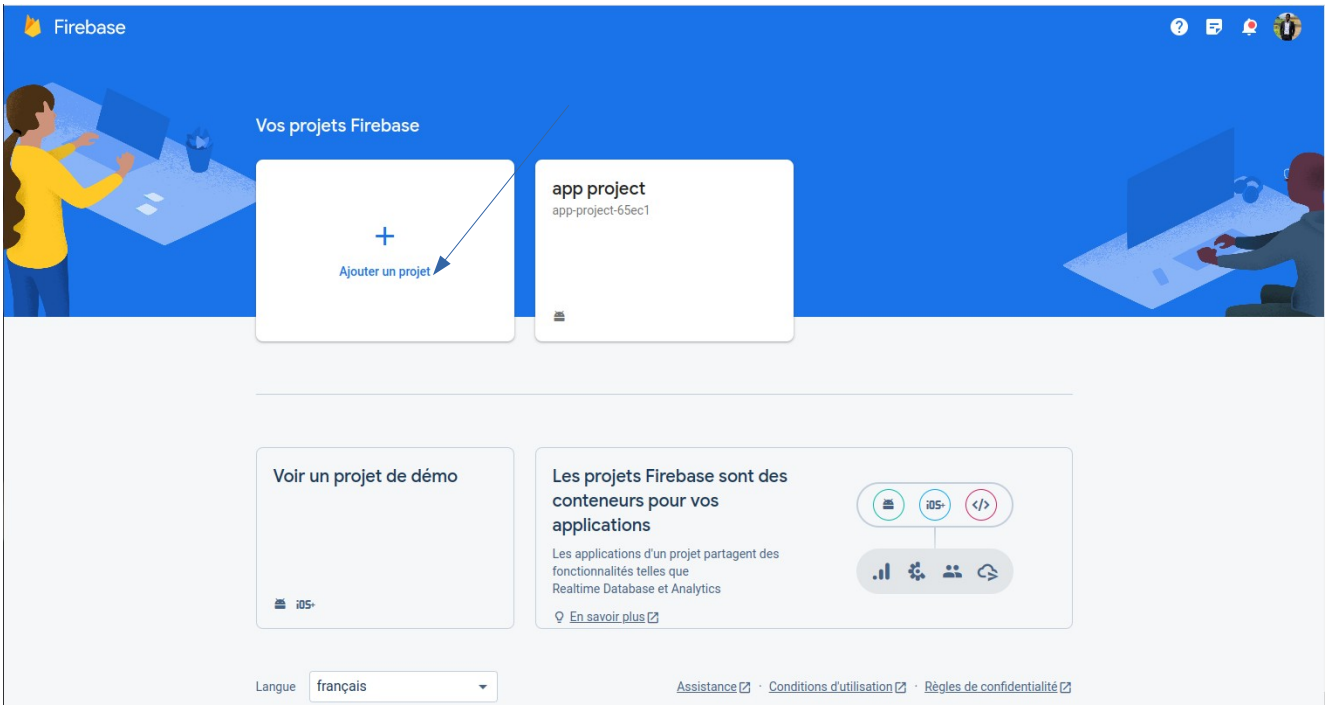
Firebase is an app development platform that helps you build and grow apps and games users love. Backed by Google and trusted by millions of businesses around the world. For this project we will use it as our Database management tool.

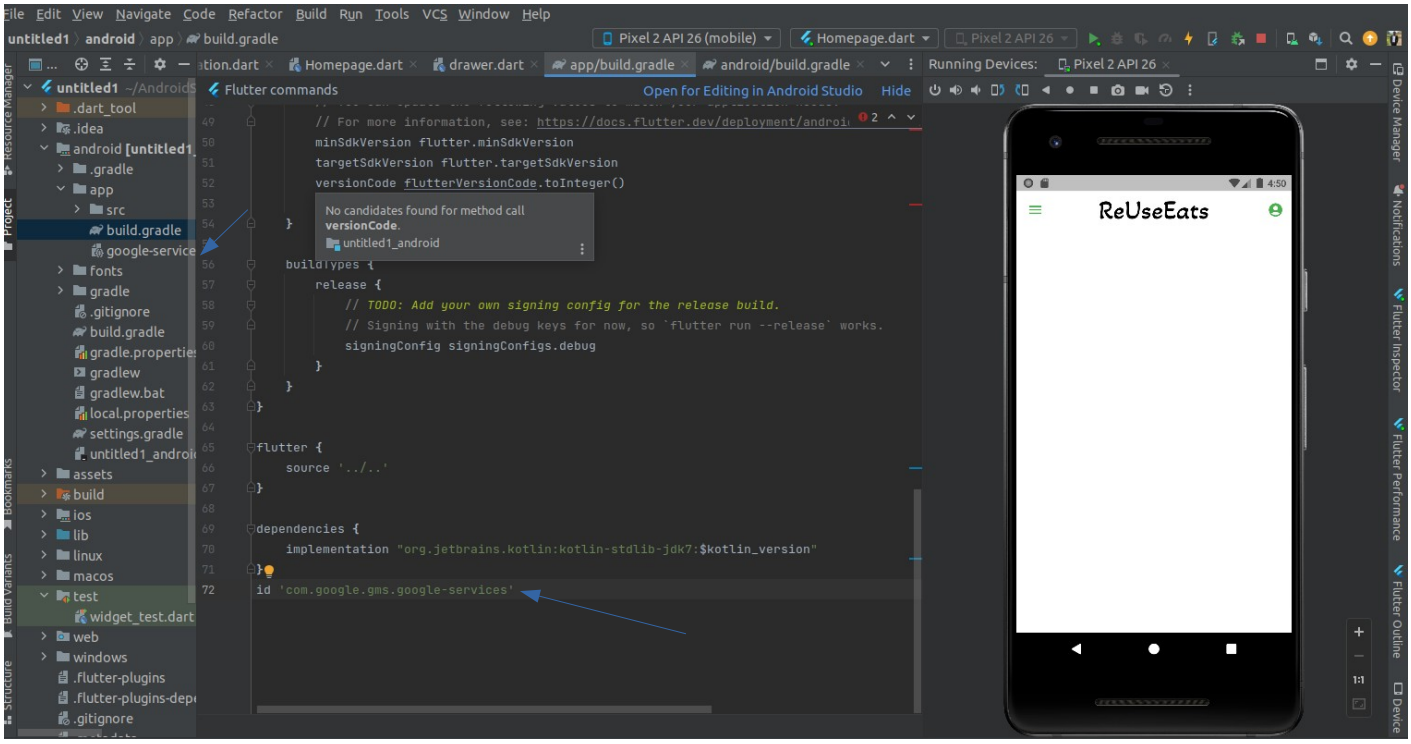



The reason we chose Firebase as our Database Management tool is because it has many built in features that accelerates the development of your mobile app (Authentication,registration) and it is free.

## II-2 Connecting our project to Firebase

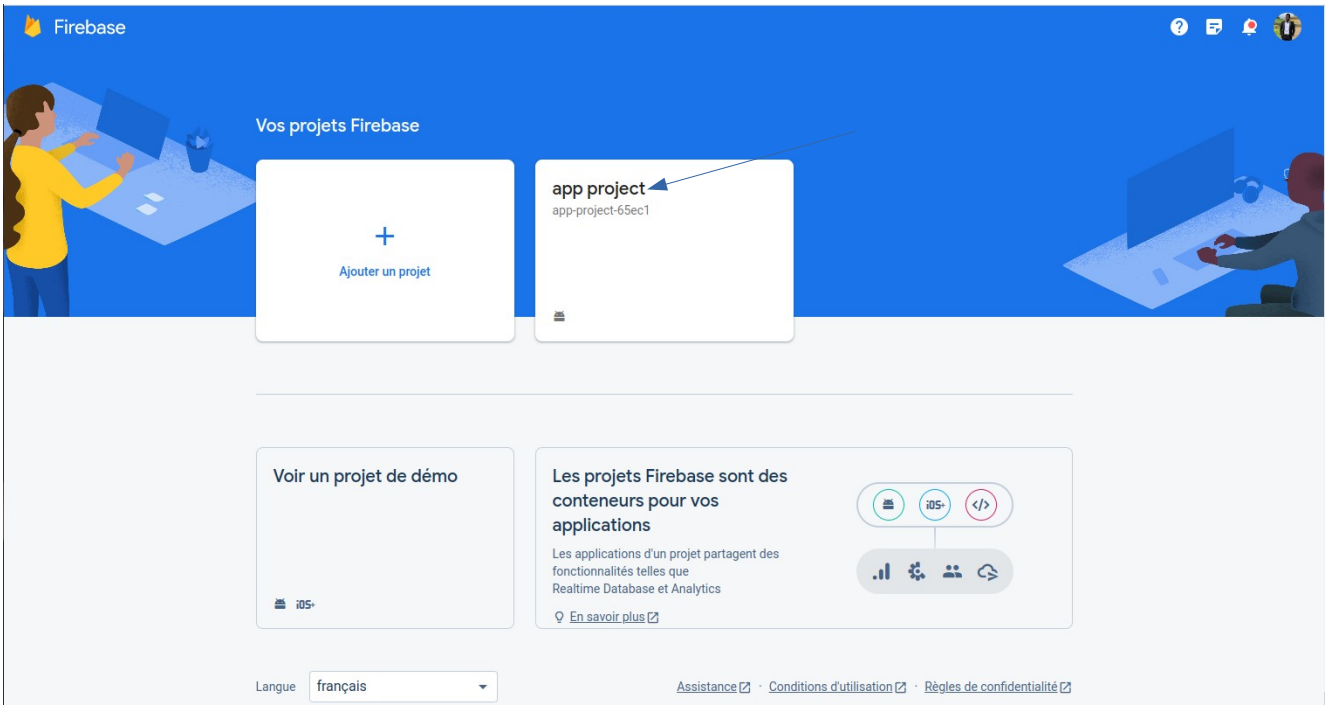
In this part we have to connect our project found in Android Studio to Firebase




Basically, you download a json file from firebase and copy it to the rood directory of your project. And then after that you just add the required dependency.

After that you just reload firebase and your project will appear showing that it is connected.




## II-3 JSON(JavaScript Object Notation) Document

Firebase is a document-oriented database that is data is stored in the form of JSON-like documents. A JSON document is format for storing data derived from javascript.

```
Category: "cooked"
Exp.date: "2023-06-13"
Imageurl: "https://firebasestorage.googleapis.com/v0/b/app-project-
          65ec1.appspot.com/o/Pictures%2Fdata%2Fuser%2F0%2Fcom.exam
          blaque-x-863963.jpg?alt=media&token=0e936c9a-b774-4429-8fd1-db
Upload_date: "2023-06-04"
name: "ndolobi"
price: "150"
quantity: "12"
```

**JSON document**

## II-4 Creating our Collections and fields

From our Entity relationship diagram, we have 4 collections(tables) namely: Account, Publication(Food_post),Administrator,User.