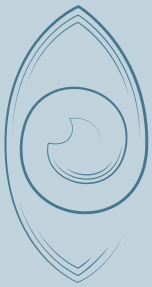
بصير



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SE201 Project

Sec314

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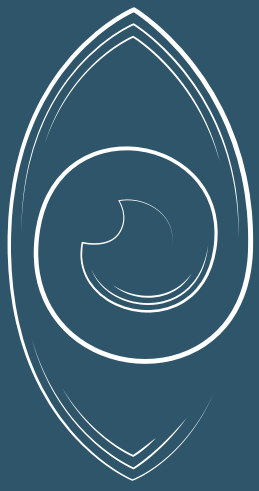


"People with food allergies live under a constant threat, in a society that is still poorly informed about the condition"

–Jerome Groopman

Abstract

Baseer is an application caring for people with food allergies. Our application offers 3 types of login:

1- Regular user -Adult-

2- Guardian

3- Schools

If the user is a regular user

In the beginning, the user selects the type of Allergies.

In the application there is a list of services:

- A list of not allowed foods (with a feature to search for a specific food and whether it is suitable or not).
- Restaurants and stores that provide suitable food.
- The user can scan the food ingredients and discover whether the food is allowed or not.

Abstract

If the user is a guardian

In this case, the guardian controls his child's account and has the same services list as the regular user, in addition to entering the name of his child's school so that the school can access the account and see the child's allergy information. There is also a QR for the child's account. If the child goes to any public places, the mother can attach the QR. When it is scanned, it uploads a file that includes the child's allergy information with not allowed foods, favorite foods, and what to do in an emergency.

If the user is a school

Teachers can view the information of students with food allergies who are enrolled in the school. In addition to the same services list as the regular user.

Problem Statement & Scope

Many children and adults are allergic to a specific food, which restricts their choices of foods and exposes them to a constant risk of the possibility of eating food that does not allow. Also, mothers of the children may not be fully aware of this allergy, products containing allergenic food, or the places that provide the appropriate foods. In addition, searching for the right food and reading the ingredients of the products takes a long time. As well in schools, teachers may suffer from knowing and remembering the food allergies of each student, which may cause many problems.

» SFDA showed that 21% of the population in KSA has food allergies.

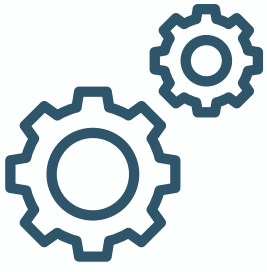
Our Scope:

Parents of children with food allergies, and adults with any type of food allergies.

Goals & Objectivists

- We seek to protect people with food allergies and make them adapt to this disease by providing different alternatives to foods that do not suit them and linking them to stores to meet their needs.

- We aim to protect users and prevent allergic complications by warning them of allergens and providing awareness and knowledge about each type of allergy. Moreover, we aspire to help schools and public places in caring for children with food allergies and dealing with them by using Baseer services that are available to everyone easily and simply.



Motivation

This project is important due to the increasing number of allergic people, especially in Saudi Arabia. Through this app, they will be able to find products or restaurants that won't harm them or affect their health. Since they do not have time to read labels, they can finish their groceries faster. You can customize this app according to your needs, and it will be available at any time for you. Also, with a large number of children in schools, kindergartens, and public places, teachers and staff may not be able to deal well with the food allergies of these children, but with Baseer, the teachers and other staff can deal efficiently and easily by getting to know more about the child's allergy and what is allowed and what is not.

Contribution

Baseer is a unique application, It is a reliable, clear and easy reference for all people with food allergies. In addition, Baseer combines several features in one place, instead of searching for information from different sources and the difficulty of manually checking the ingredients of foods. For example, the user can scan a product and check whether the food is suitable or not, or the user can search for any food he wants in stores or restaurants. Baseer contracts with stores and restaurants to display their items in the application so that Baseer becomes the link between users and the restaurants and stores. On top of that, Baseer provides the ability to staff in schools and public places to deal with various types of food allergies in children by using Baseer services such as the guardian account and QR feature.

User Stories

Registration

As regular user-adult-, guardian, and school, we would like to register in Basser and enter our personal information such as username, password, email, city, user type, and Allergic type (null for schools) so that we can benefit from Baseer system.

Login

As regular user-adult-, guardian, and school, we would like to login by entering the email/username and the password so that we can benefit from Baseer system.

Determine the type of allergy

As regular user-adult- and guardian, we want to determine the type of food allergy. The adult determines the type of allergy he suffers from by himself, and the guardian determines the type of allergy of his child, while the school receives the type of allergy for the children based on the input of the guardian, so that the application provides its services based on the type of allergy.

User Stories

School selection

As a guardian, I would like to specify the school of my child, so that my child's information and allergy will appear in the school system.

Allergy information

As regular user–adult–, guardian, and school, we want to see information about the allergy –based on the type of allergy entered– such as symptoms, causes, treatment, etc., so that we can deal with allergies efficiently.

QR

As a guardian, I would like to use the QR feature to share my child's allergy information when I go to public places to ensure that the child is protected anywhere.

Ingredients Scanner

As regular users–adult–, guardian and school, we want to scan the ingredients of foods to make sure whether they are suitable for the allergic person or not, which saves time for the user.

Find restaurants and stores

As regular user–adult–, guardian, and school, we want to find stores and restaurants that are allergy-friendly. This is based on multiple lists of stores and restaurants that are available in the city specified by the user, which makes adapting allergies greater and easier.

Search for food

As regular user–adult–, guardian, and school, we want to search for a specific food so that the system shows whether this food is suitable for an allergic person or not –based on a database related to the type of allergy– which saves the user time and effort.

Child information

As a guardian, I would like to specify the type of allergy of my child and his school so that my child's information reaches his school.

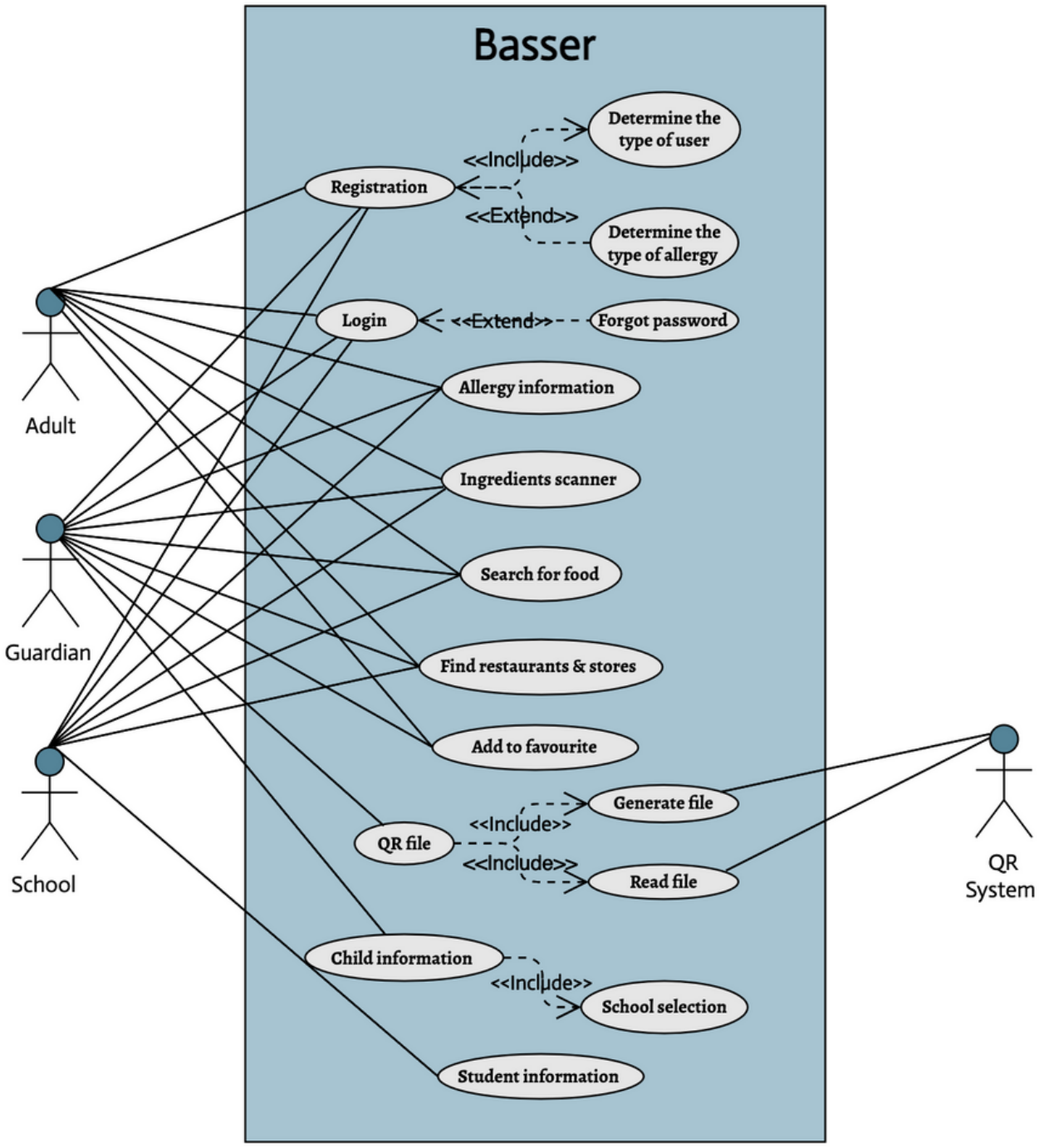
Student information

As a school, we want to receive allergy information about children joining our school so that teachers become aware of each child's allergy information.

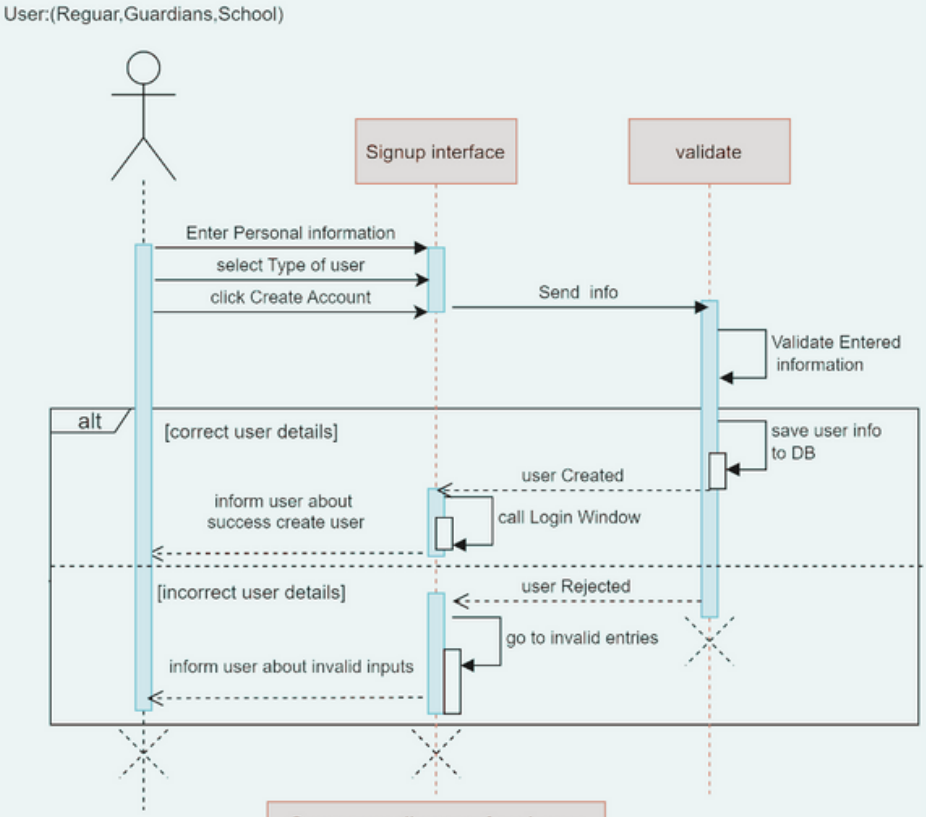
Add to favorite

As a regular user-adult- and guardian we would like to add some stores, restaurants and foods to our favorites list so that we can easily return to them if we need them again.

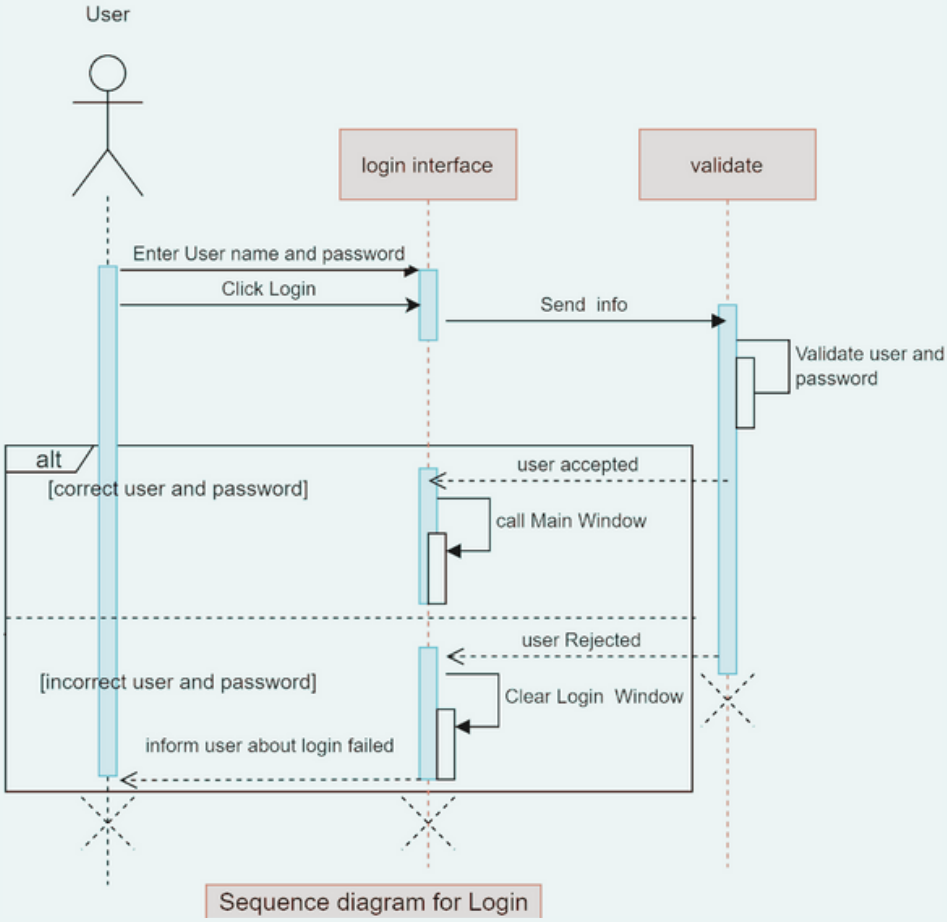
Use Case


Basser
Determine the type of user
<<Include>>
Registration
<<Extend>>
Determine the type of allergy
Login
<<Extend>>
Forgot password
Allergy information
Ingredients scanner
Search for food
Find restaurants & stores
Add to favourite
Generate file
<<Include>>
QR file
<<Include>>
Read file
Child information
<<Include>>
School selection
Student information
Adult
Guardian
School
QR System

System Sequence

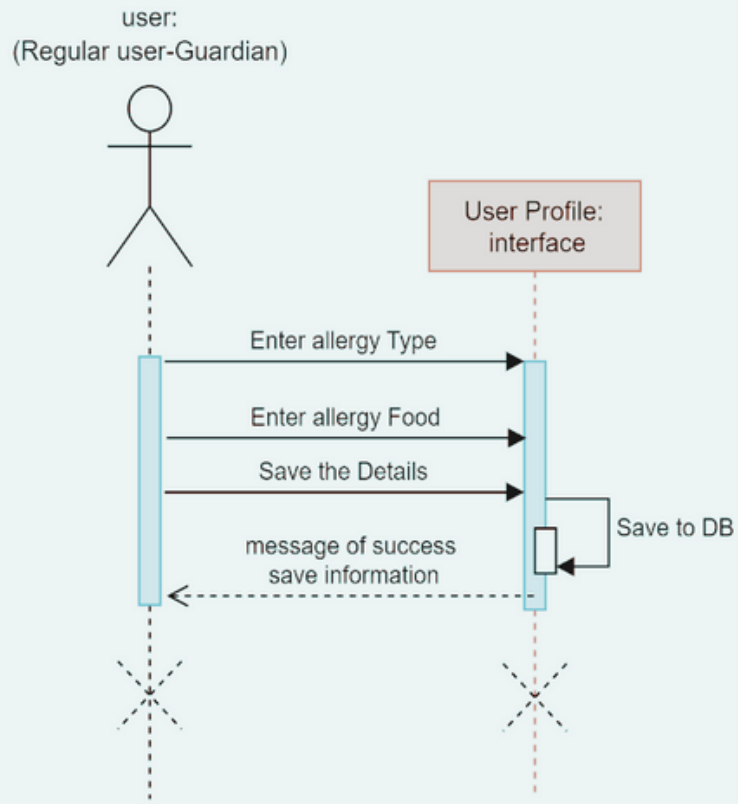


Sequence diagram for signup

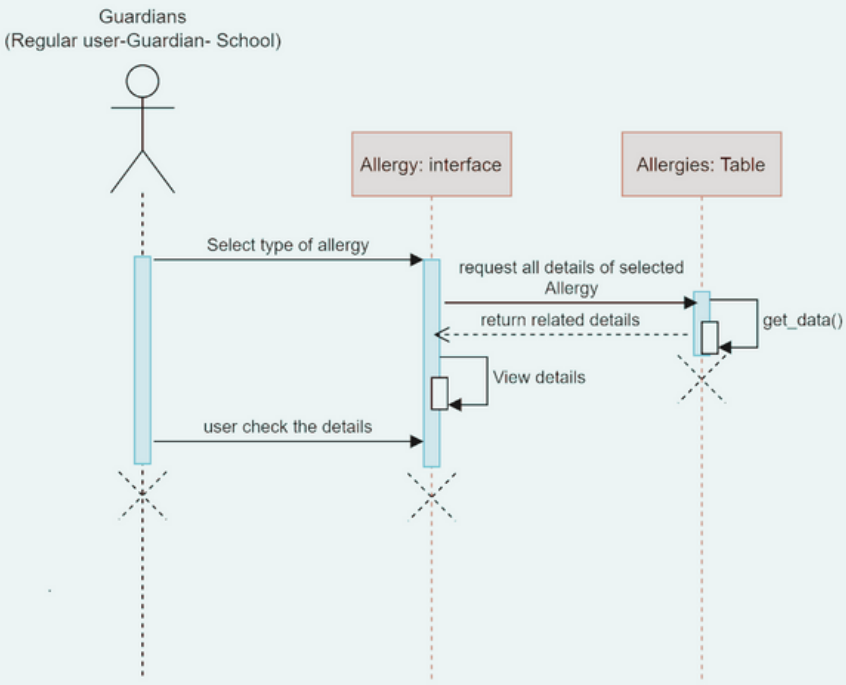


Sequence diagram for Login

System Sequence

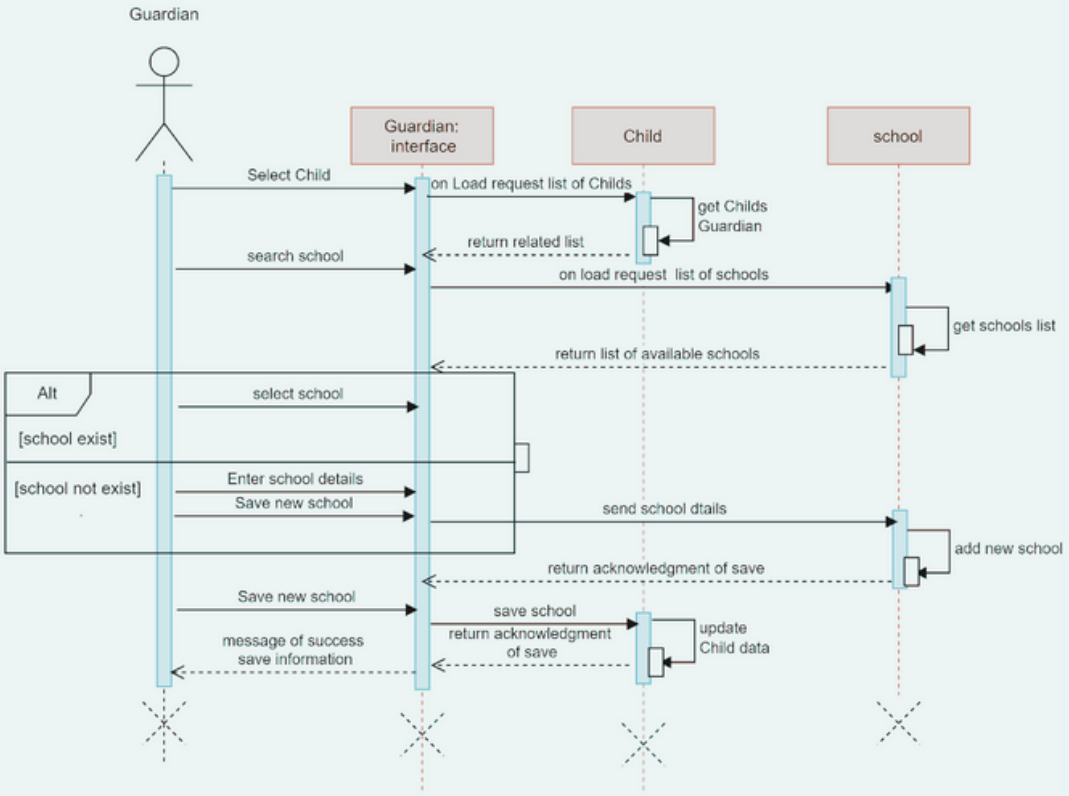


Determine Type of Allergy

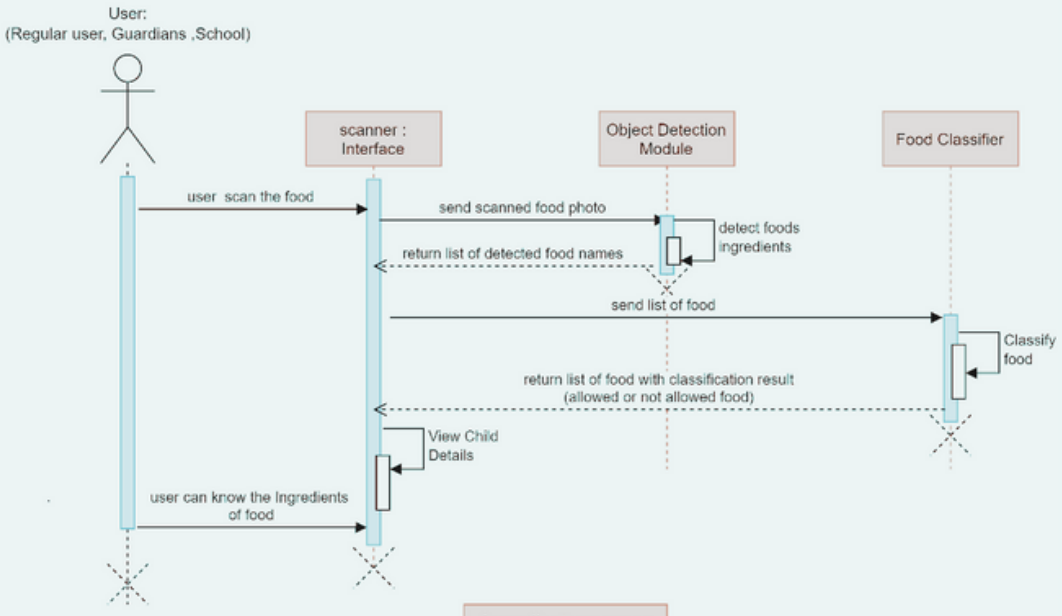


Allergy information

System Sequence

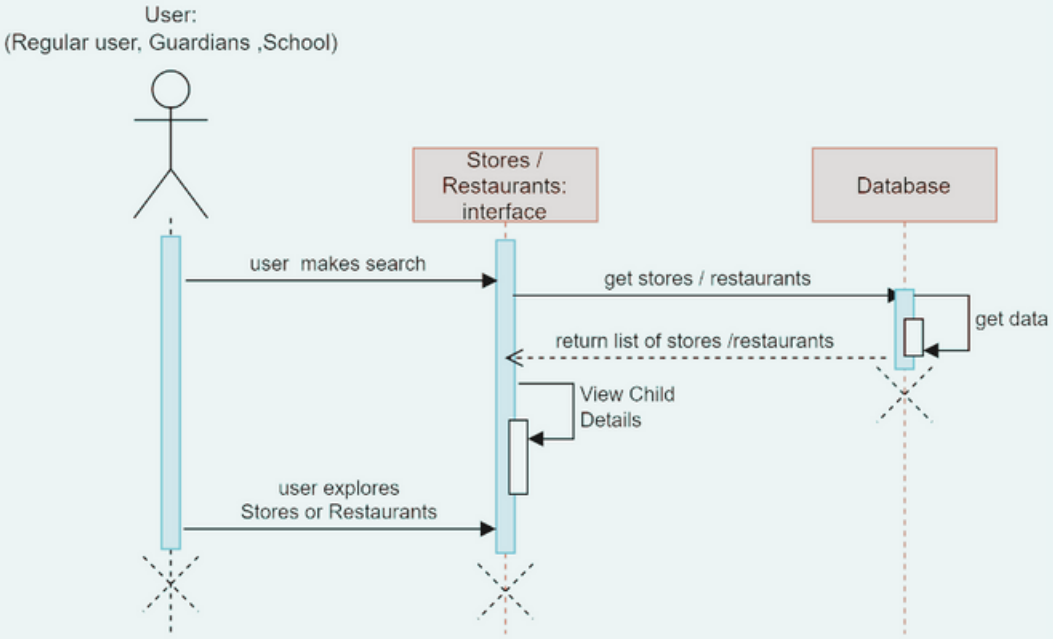


school selection

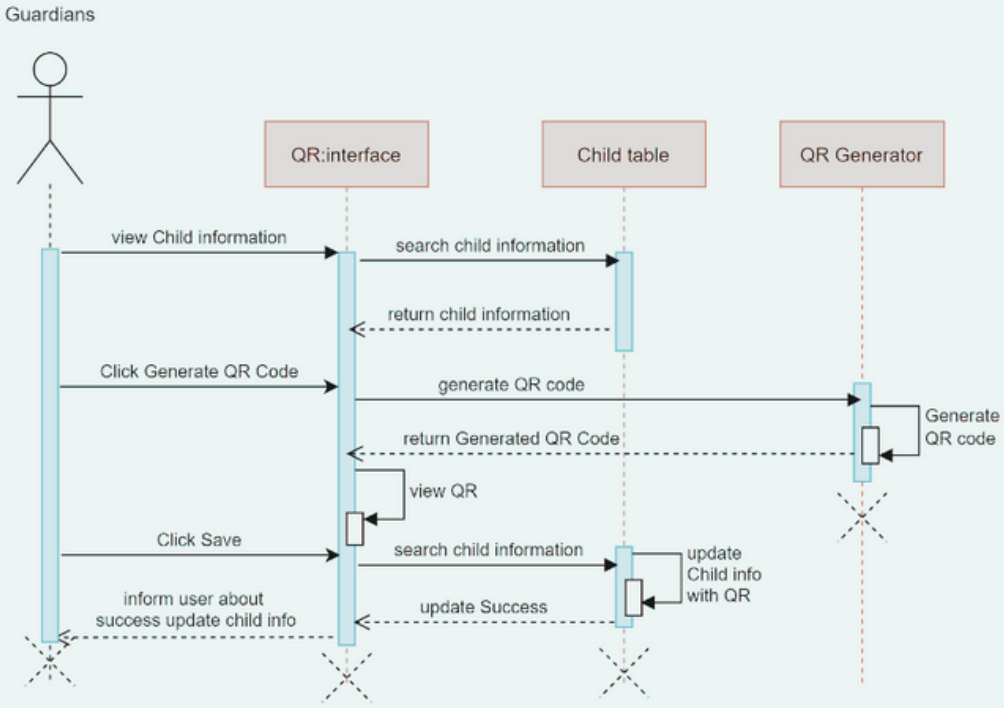


Ingredients scanner

System Sequence

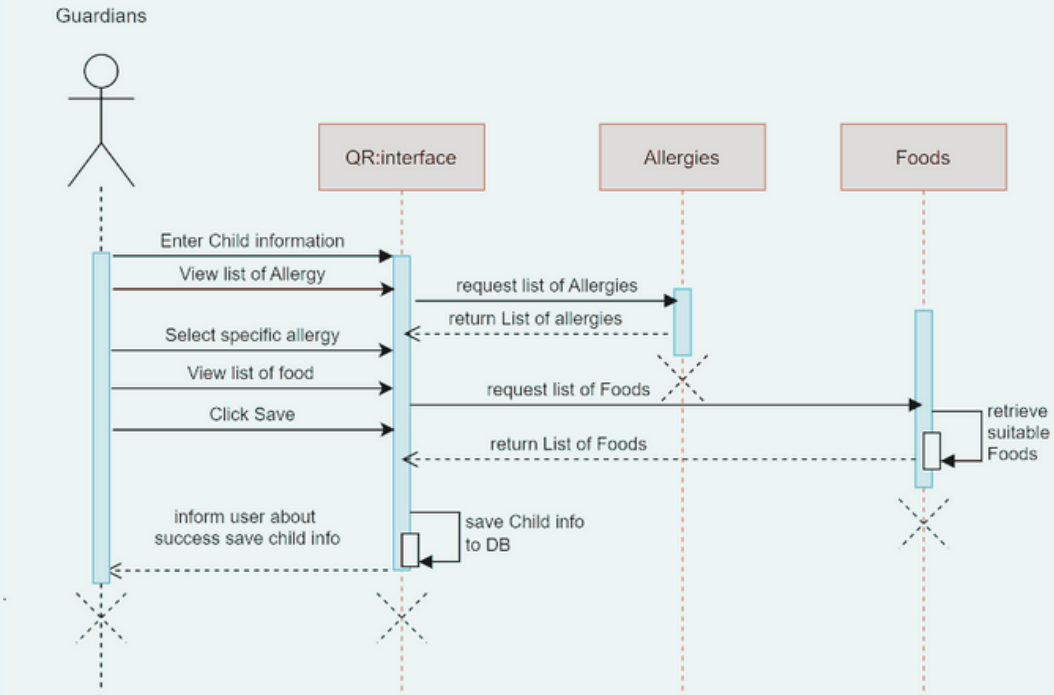


Find Stores /restaurants

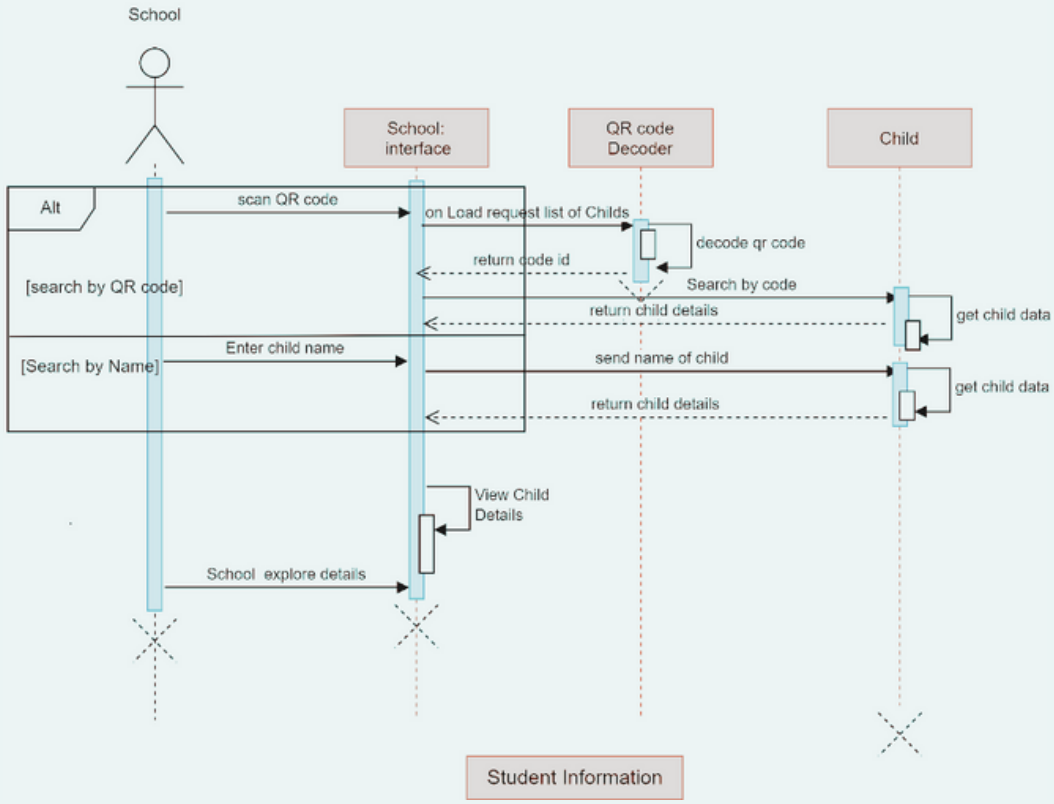


Child QR Code

System Sequence

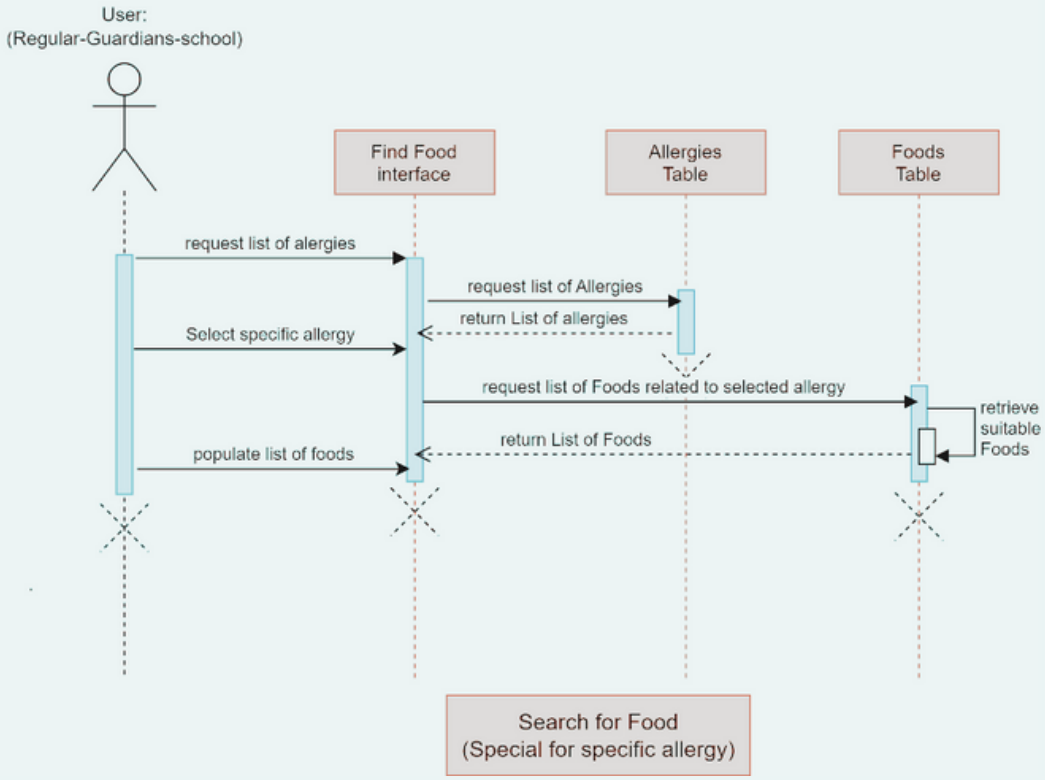


child information

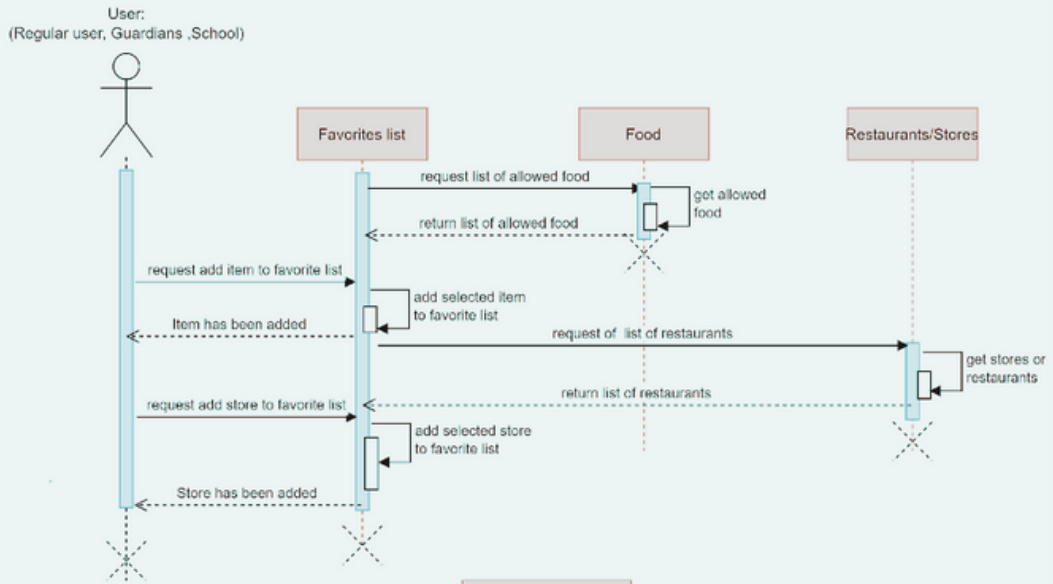


Student Information

System Sequence

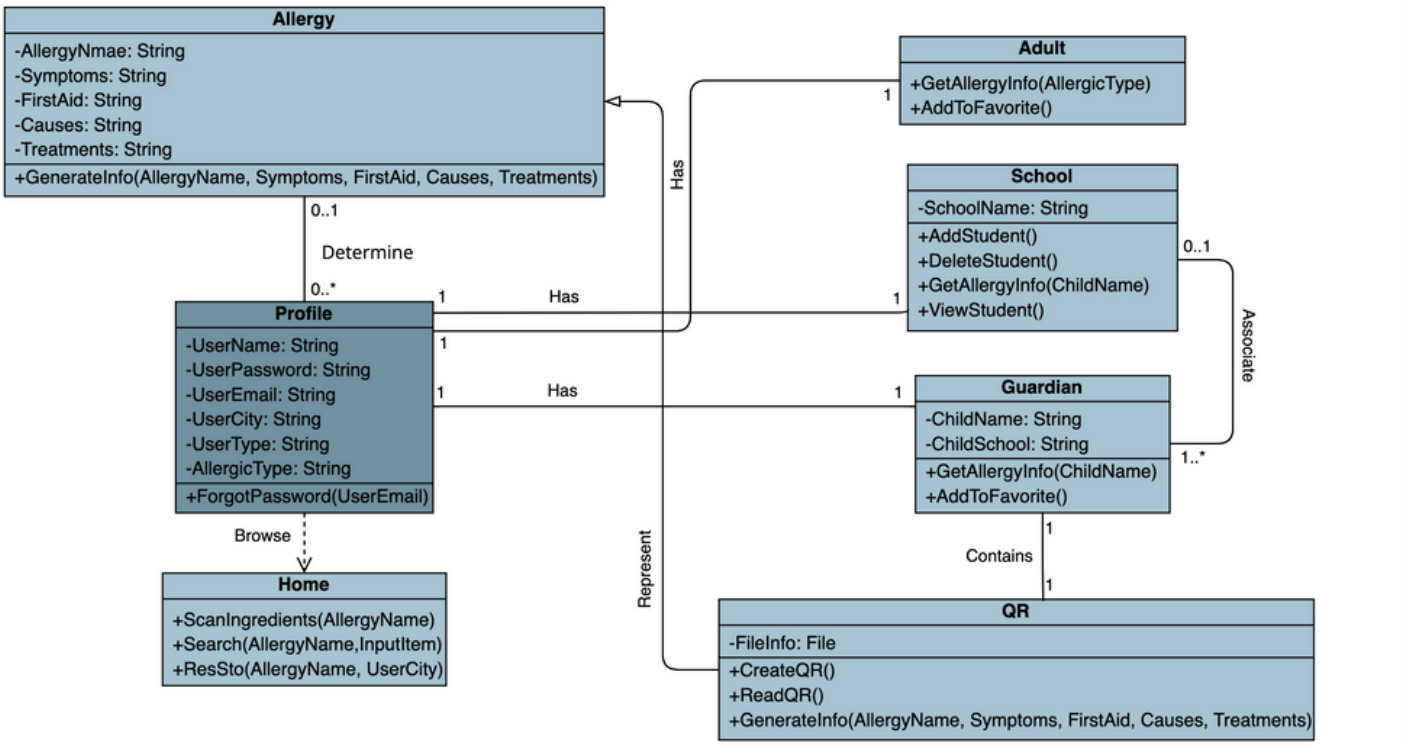


Search for Food
(Special for specific allergy)



Add to Favorites

Class Diagrams



More about our system:

Profile Class

During registration -creating a new account- the user enters this information: Name, Password, Email, City, User type and Allergy type.

Why should you specify the city?

- As an adult, he will need it to locate restaurants and stores. The same applies to the guardian, in addition to the need for it when he determines the school.
- As a school, they will need it so that guardians can access them.

Class Diagrams

Why should you specify the type of allergy?

- As an adult and a guardian, they will need it because the results of scanning the ingredients, searching for any food if it is suitable or not, and finding restaurants and stores, all of this is related to the type of allergy.
- For the school, they can choose the null option in determining the allergy, or it is possible to program the system in such a way that if the user chooses the type of user "guardian or adult", the user will have the option to specify the allergy, and if it is a school, it will not appear.

Allergy class

It is a database and contains information about allergies. There is a method that sends data to the QR class. **How?** We create an object inside this method -type QR-.

Adult class

Contains two methods,

- **GetAllergyInfo**

  It takes the allergy type as a parameter and returns the allergy data -from the Allergy class- to the user.

- **AddToFevorites**

  The user can also add anything he likes from stores or foods to his favorites list.

Class Diagrams

School class

It contains the name of the school. The school can add a student and they can delete a student (for example, if the student graduates). They can get allergy information about the student from **GetAllergyInfo.** In general, the imaginary form of the system from the school's point of view is that there is a list of students, the teacher can click on any student from the list, and then all the functions within the system send results based on the student that has been selected.

Guardian class

The guardian enters his child's name and the name of the school. guardian can get information about his child's allergy from **GetAllergyInfo.** Also guardian has AddToFavorite like the adult class.

QR class

It receives information from the Allergy class and writes it to a file so that the contents appear after reading the QR. The QR system generates the QR –it is possible through the Java libraries that generate and read the QR–.

Class Diagrams

Class Home

It contains the basic function in the system; Ingredients Scanner, the result depends on the allergy type that the user has previously entered. Food searcher, similar to a search engine, the user enters the food he wants to search for, and the result depends on the entered food and type of allergy. The list of restaurants and stores is a list built from a database based on the city and the type of allergy. There may be a question: **Why does the school need restaurants and stores?** This benefits them in entertainment and school trip.

Relationships in the system:

Between allergy and profile, cases

- A type of allergy that is not associated with any profile.
- A profile that does not specify the type of allergy, such as schools.
- Several profiles with the same type of allergy.
- Only one profile is associated with a specific type of allergy and that is not with other profiles.

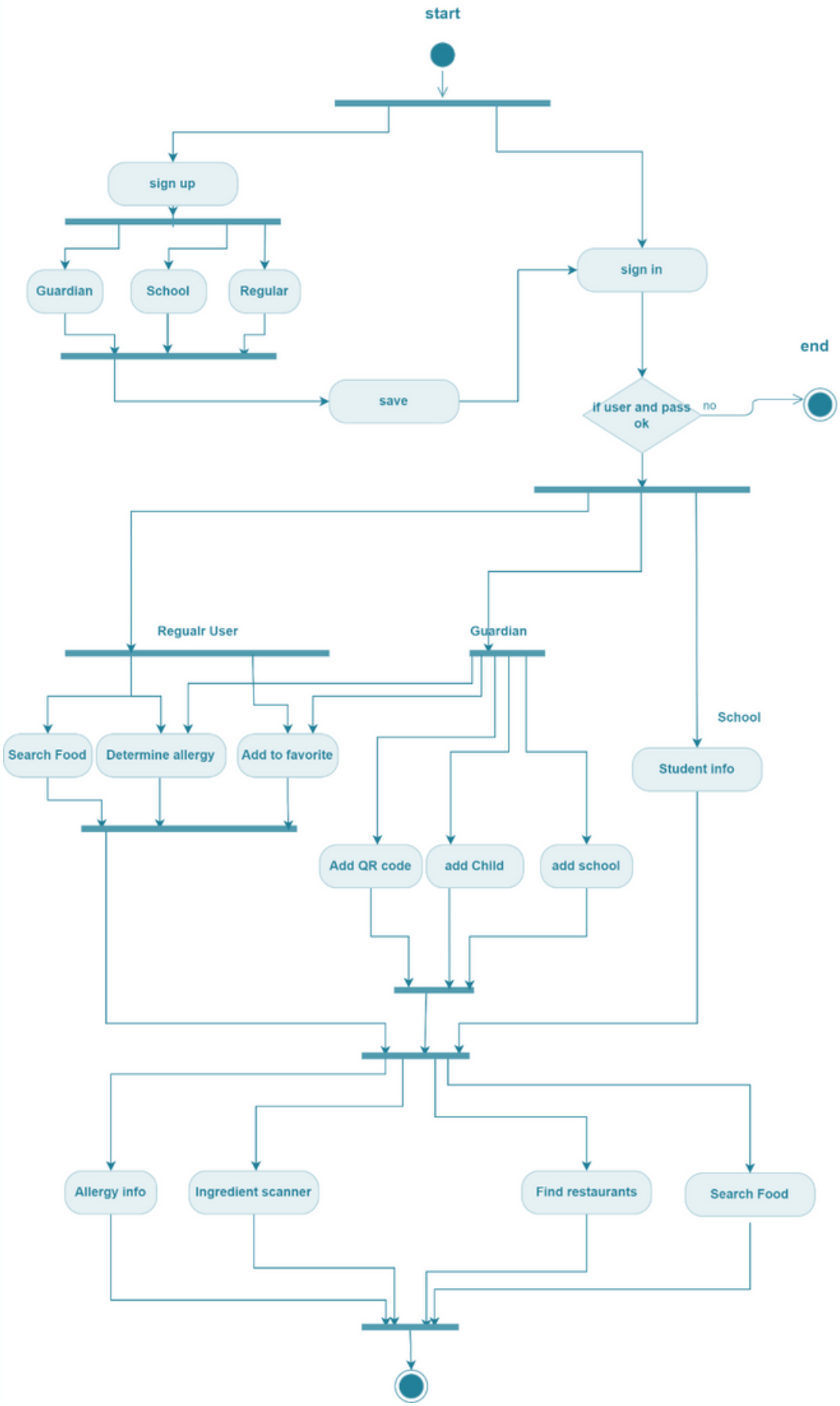
Between the guardian and the QR,

- One guardian has one QR.

Between the school and the guardian,

- A guardian who has not registered his child in a school (such as if the student has not entered the school yet).
- More than one guardian in the same school.

Activity diagram



NON-functional requirements

Safety Requirements

Allergy-causing products should be rejected by the system.

Alternative products should be suggested according to the user's preferences.

Performance requirements:

It should not take long for the application pages to download.

QR codes can be scanned quickly and accurately.

Performance Requirements

Usability

The system should be simple for everyone

Maintainability

The system is easy to extend and it doesn't cost much to update and fix over time

Availability

The system must be available 24 hours a day

Portability

This system can be ported to a new environment

Accuracy

The system requires that the correct requirements be implemented

Compatibility

Mobile devices and operating systems should be modified

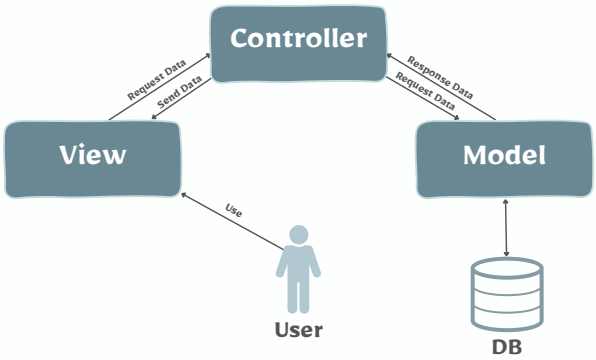
Architectural Pattern

The architectural pattern used in Basser is MVC (Model-View-Controller). The system contains three components:

View

Controller

Model



View

It provides a user interface for the user that allows the user to communicate with the system by clicking on the icons, then the request will send to the controller. The operations are processed based on the user's requests, and changes are shown accordingly through the user interface. View -UI- contains many components such as the menu of the services provided by the application, profile information, and the registration and login interface.

Controller

The controller acts as an interface between the view and the model. By linking the controller to the view, the user can get his requests, the controller handles all the interactions and inputs from the view, and based on that it processes, sends, and updates the database through the model.

Model

The data is returned to the controller via the model. It is linked to the database, for example, when the controller requests data from the model, the model sends a request to the database then the model sends the result to the controller, which displays the result on the user interface. The model controls the databases that Baseer needs such as allergy information, user personal information, a list of schools and students' names, lists of restaurants and stores for each city, retrieves all the data in the list of favorites for the guardian and the adult user, etc.

Different scenarios explaining the role of each component on the Baseer system based on the user type:

- **All three types of users have a user interface for registration in the application, which represents the view, and when the user clicks any icon or enters information, automatically, the controller interacts with all the inputs that the user enters and the outputs that will display to the user. Also, when the user clicks the option to select the user type –during the registration– the controller controls this and sends the model a request to recall the user types to appear to the user. When the user determines that he is a guardian or an adult, in this case, the controller will send a request to the model to show the option to specify the type of allergy to the user.**

Architectural Pattern

- When the user wants to specify any of the services in the application: the services are displayed on the user interface that enables the user to interact with the system. For example, when the user wants to search for stores and restaurants that suit the allergy that he previously selected; When the user clicks on the service icon to search for restaurants and stores through the user interface, the controller will send a request to the model to extract the data that matches the pre-user information (city and allergy type) and then the model will send the list of stores and restaurants to the controller, which displays the output to the user -associated with the view-.

- When the user is a school, a list of students' names will appear to the user, and this represents the view -the user interface-, when the user clicks on the name of any student, the controller controls these inputs from the user -clicking on the student's name- and sends a request to model to extract this student's data. Also, when the users chose to delete a student from this school, the controller sends this request to the model, which sends the request to the database, then the output will send to the controller, which displays the output to view and shows the user -through the user interface- that the student has been deleted.

Architectural Pattern

- When any user wants to search for food and sees if it suits him or not, the user clicks on the search service through the user interface, chooses either to scan the ingredients of the food or search manually by entering the name of the food, the controller controls the inputs and sends them to the model and then they will send to the database, the controller will show the result in association with the view.