# *Chirp!* Project Report
## ITU BDSA 2024 Group 4

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## 0.1   Design and architecture

### 0.1.1   Domain model

### 0.1.2   Architecture — In the small

Below a diagram can be seen, showing the onion architecture of the Chirp program. Were the outer circles depend on the inner circles:
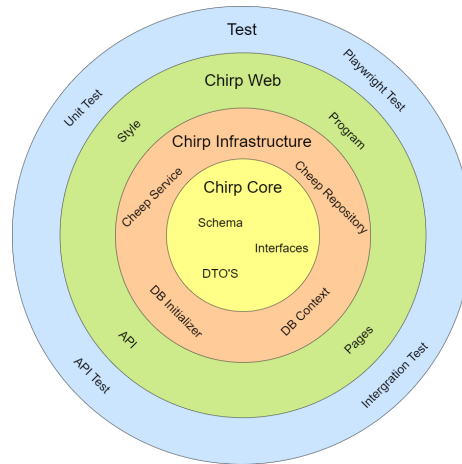


Figure 1: Onion architecture of Chirp program

In the center of the onion one finds Chirp Core, this is were the most primitive code lies, like objects and interfaces.

One step out of Chirp Core, one finds Chirp Infrastructure. This is were the handling of the database is done, this includes retrieving, deleting and updating data. Defining the database and giving it some initial data is also done in Chirp Infrastructure.

In the third layer of the onion, Chirp Web lies. This is were the webpage HTML is found, along with all the styling. The API which the web pages communicate with lies here as well.

Lastly there is the outer layer, naturally here the test lay. The test suit includes Unit-, integration- and end2end test. The end2end test are done using Playwright.

### 0.1.3 Architecture of deployed application

### 0.1.4 User activities

The goal of this chapter is to show some core interactions from both **unauthenticated user** and **authenticated user**. We make use of UML activity diagrams, these will visualize the states triggered by a users actions.

First off we want to show what a unauthenticated user can do, and how the journey is for such users to get to register.
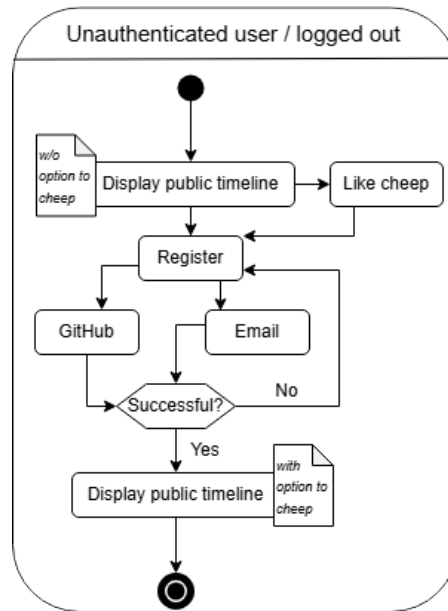


Figure 2: Unauthenticated user journey and register

This diagram show that a user can authenticate with both Email, and GitHub. Also if you like a cheep from a user on the public timeline. It will simply not like it, but instead put you on the register page. Registering this way will give the same result as just navigating to the register page using the navigation bar.

When you are authenticated / logged in, we have 4 primary action a user can do, repectively: Cheep, Like, Follow and Delete the account from the Chirp service.

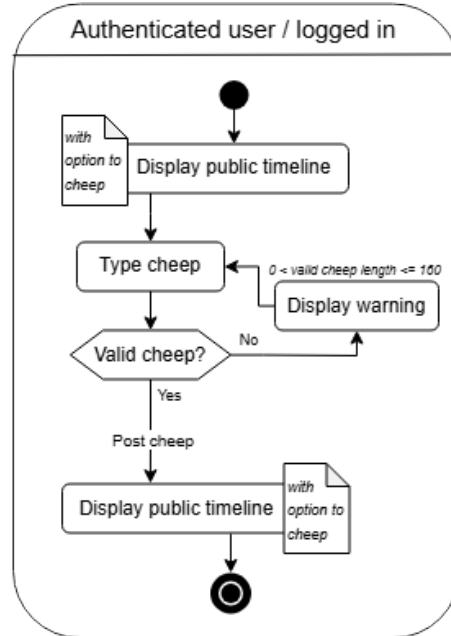The process of cheeping is show in this diagram:



Figure 3: Cheeping journey and validation of cheep

A cheep is valid if its length, as show in the diagram, is between 0 and up to and including 160 characters. If you were to click the Share button, with and empty text field, a warning will pop up. A warning pop up wont explicitly be shown to the user for cheeps longer that 160 characters, we simply show the length counter on screen, and dont allow for more characters, in both front- and backend.

The users also need to like cheeps, for that action we have this diagram:

The 'heart' button we have besides each cheep is essentially a toggle for likes on the given cheep. And as showed in the diagram, each user can only like any given cheep once. It is important to note, as of now the liking of a cheep will result in the page redirecting you to the root page (page 1), even though you might be on for instance page 6. This is an obvious room for improvement and is currently a task in the project board.

Next up we want to show the journey of a user following another user.

The flow of following a user, is close to the same as liking cheeps, as both are 'toggles'. The only difference is that we decided to show the newly followed users profile after the follow action. Which eleminates the issue we are having with liking cheeps far down on the public timeline, and wanting to scroll beyond that point afterwards. This does then create the issue with wanting to continue
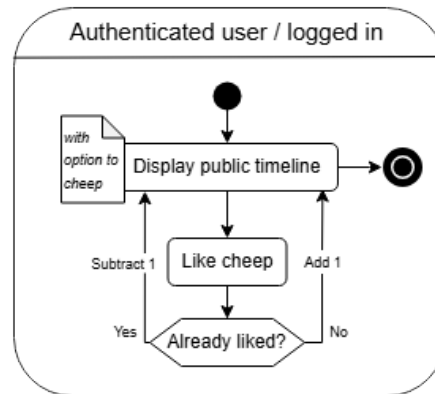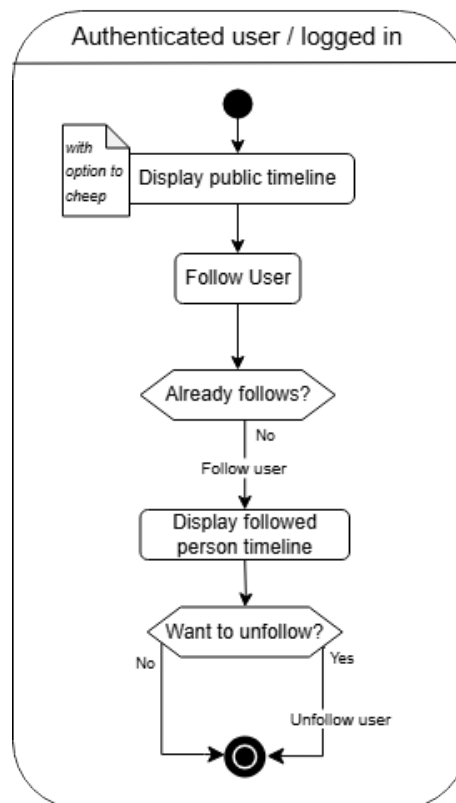
Figure 4: CLiking cheeps



Figure 5: Following users

scrolling after following. But this navigate to the private timeline of the newly followed user, is a conscious decision.

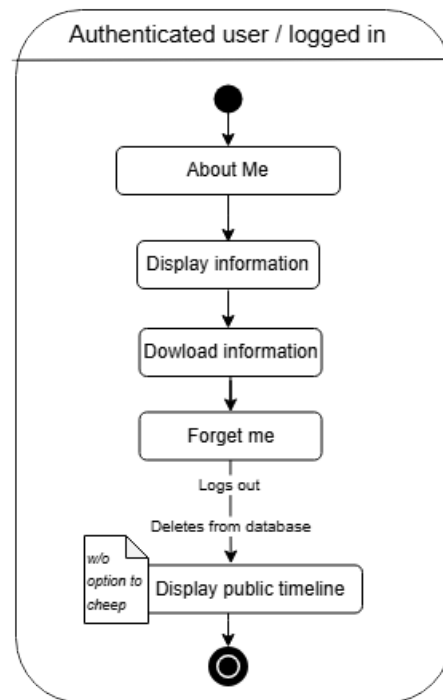Lastly it is important for us to show how the user can delete and see the data we have gathered.



Figure 6: Deleting the user and download data

The linear diagram is pretty much self explanatory, but we feel it's important to show either way, since this is last key feature for a user to experience.

The diagrams provide a clear overview of user journeys, including registering, posting a cheep, liking cheeps, following other users, and deleting an account. Additionally we have highlighted some areas for improvements.

### 0.1.5 Sequence of functionality/calls trough *Chirp!*

## 0.2 Process

### 0.2.1 Build, test, release, and deployment

### 0.2.2 Team work

### 0.2.3 How to make *Chirp!* work locally

### 0.2.4 How to run test suite locally

## 0.3 Ethics

### 0.3.1 License

### 0.3.2 LLMs, ChatGPT, CoPilot, and others

In the development of our project we used ChatGPT, and when we did so, we added ChatGPT as a co-author in our git commit message like so:

ChatGPT <>

ChatGPT was very helpful when used to create simple code parts, but it struggled more with the complex parts. Another area were ChatGPT was very useful, was when we needed to do something and we didn't know where to start.

However we also experienced some negatives when using ChatGPT. It could sometimes go in a spiral, in cases like this we would look at the slides and on the web for help. We did try and use Gemini sometimes when ChatGPT was to no use, we did however never use any of its code, so it never got a co-author.

For the most part the use of LLMs sped up our development, however some times the were send into a spiral because of the LLMs. So we experienced the limitations of LLMs and we now know how to use them more efficiently.