

Section 1: Build guide

The IntelliMeal system is available at www.intellimeal.no. If the domain is not available, try to navigate directly to the server at www.hv-6151.idi.ntnu.no. If the server is down, the application can easily be run locally. This section explains how to build and run both the backend and the frontend.

1.1 Building and running the backend

To run the backend, your computer must have Java 1.8 and Maven installed. Java can be downloaded from <https://java.com/en/download> and Maven can be downloaded from <http://maven.apache.org/download.cgi>.

The source code for the backend is located in the `/intellimeal-backend` folder, or it can be downloaded from Dropbox¹.

To locally run the backend, first navigate to the folder where the project is located, then run the following command in the terminal:

```
mvn clean install
```

This initiates all tests, and builds the required JAR file to run the project. The JAR file is located at `/target/intellimeal-1.0.jar`. The following command runs the JAR from the terminal:

```
java -jar [path-to-jar-file]
```

This will run the backend at `localhost` on port `8080`. The API specification can then be found at `localhost:8080/swagger-ui.html`.

¹<http://www.dropbox.com/sh/3cm1hpvosyxcsa3/AADBw11VeR7ADoGAt2H6V2yWa?dl=0>

1.2 Building and running the frontend

To locally run the frontend, Node v4.x.x and npm v3.x.x or newer needs to be installed on your computer. Both Node and npm can be installed from <https://docs.npmjs.com/getting-started/installing-node>. Check your versions by running these commands in the terminal:

```
node -v
npm -v
```

The source code for the frontend is located in the `/intellimeal-frontend` folder, or it can be downloaded from Dropbox².

To locally run the development environment for the frontend, navigate to the folder where the project is located. Then run the following command in the terminal:

```
npm install
npm start
```

This will automatically open a new browser window pointing to `localhost:3000`. Any frontend functionality require the backend to run first.

²http://www.dropbox.com/sh/34abyfpxgk04ccp/AAB0wsi_zmQnZDYHpag652JHa?dl=0

Section 2: User Manual

At the IntelliMeal website¹, you can search for recipes (currently only sandwich recipes) by specifying ingredients you want the recipe to contain, and ingredient that you do not want the recipe to contain. The system searches for recipes in its internal database. The goal is to find the five recipes that match your desires best. The system also modifies recipes if none of the already existing recipes match your desires. The website is configured to work well on desktop, tablet, and mobile devices.

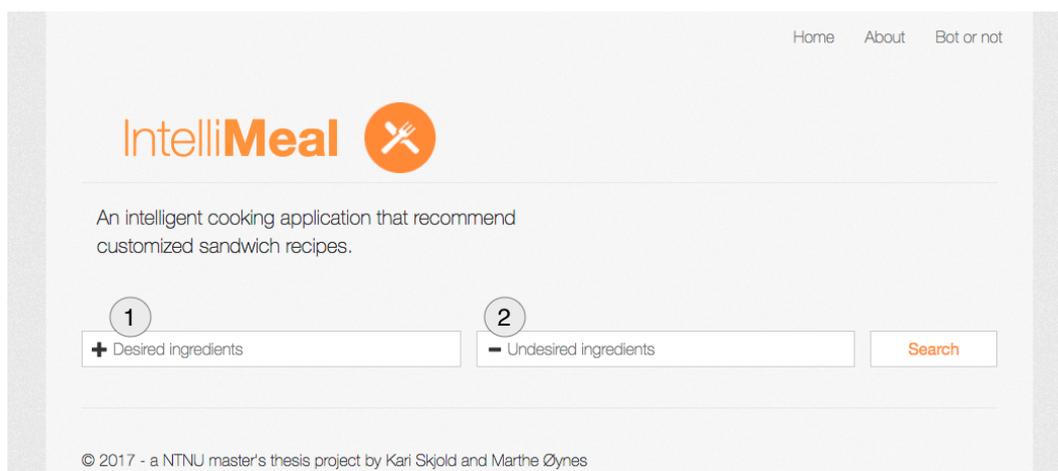


Figure 2.1

Figure 2.1 shows the front page of the website. The focus of the front page is on the two input fields labeled 1 and 2 in the figure. In input field 1 you can specify any ingredients that you *want* to have in the recipes, and in input field 2 you can specify any ingredients that you do *not* want in the recipes. You must specify at least one desired ingredient to be able to click the search button.

¹www.intellimeal.no

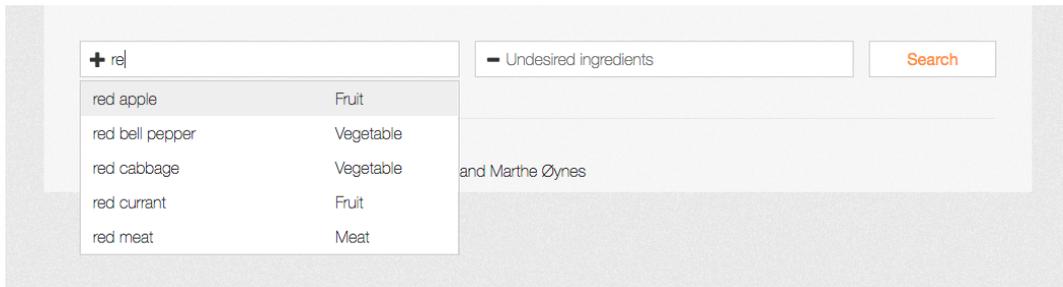


Figure 2.2

When you click one of the input fields and start typing, the system will continuously suggest ingredients that match what you write, as shown by Figure 2.2. In the example, the user has started to type "re". You can use your keyboard's "up" and "down" buttons to navigate between the suggestions. To select one of the suggested ingredients, you can click the ingredient with your mouse or press the "enter" button on your keyboard.



Figure 2.3

Figure 2.3 shows how the ingredients you have chosen are displayed. Desired ingredients are displayed in green while undesired ingredients are displayed in red, both on top of their corresponding input field. In the example, *red bell pepper* is specified as desired while *onion* is specified as undesired. You can specify as many ingredients as you like.

When you have specified all your ingredients, you can click the "Search" button. As a reminder: You need to specify at least one desired ingredient before the "Search" button is activated.

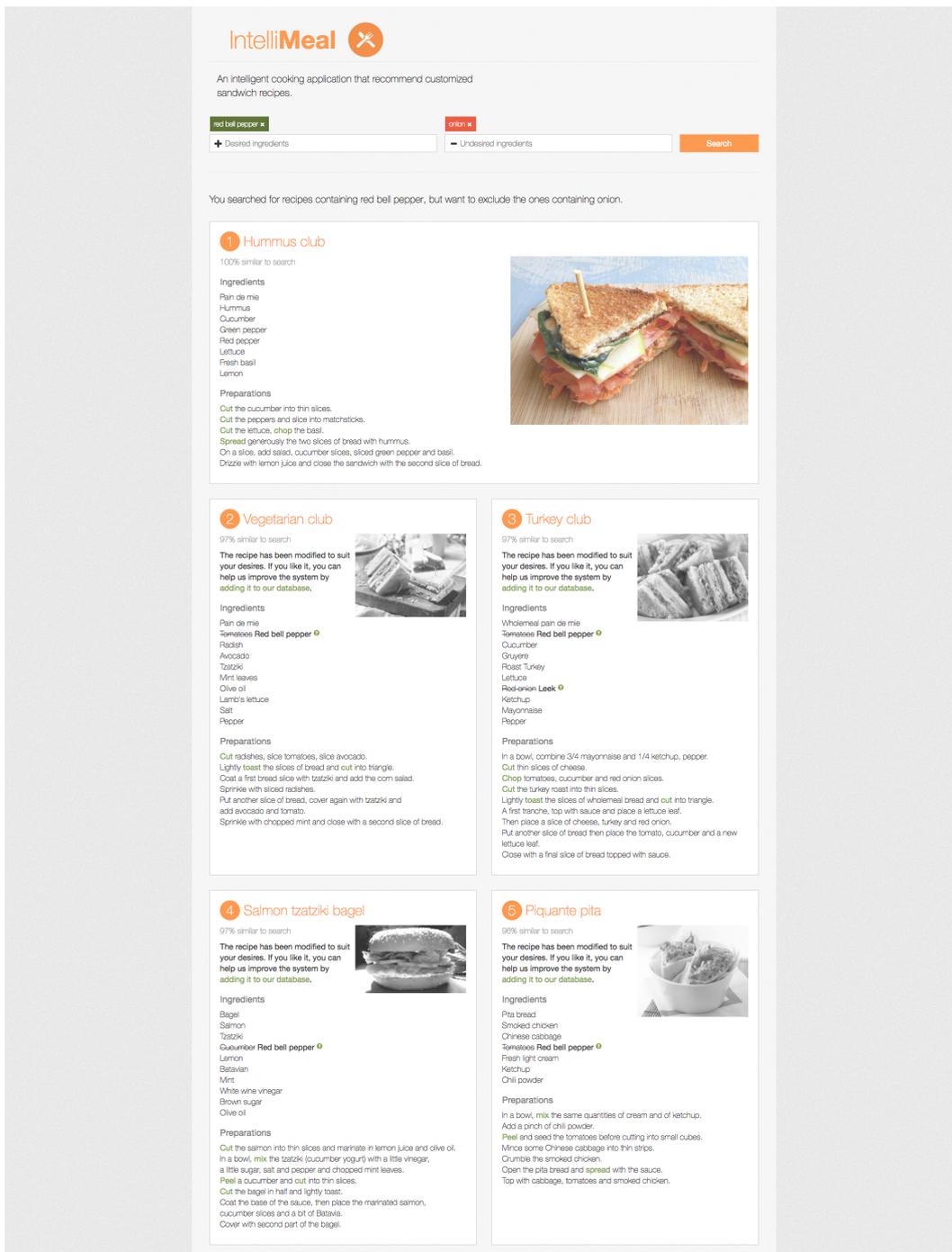


Figure 2.4

After you have clicked the search button, the website will look something like in Figure 2.4. The website displays the five cases that it found most similar to your specified desires, in decreasing order. The system will never suggest *any* recipes containing ingredients that you have specified as undesired. If a recipe has an accompanying black-and-white image,

this means that some ingredients within the recipe has been modified to better suit your desires. Recipes with colored images are original recipes that is not modified in any way.

1 Hummus club

100% similar to search

Ingredients

- Pain de mie
- Hummus
- Cucumber
- Green pepper
- Red pepper
- Lettuce
- Fresh basil
- Lemon

Preparations

- Cut** the cucumber into thin slices.
- Cut** the peppers and slice into matchsticks.
- Cut** the lettuce, **chop** the basil.
- Spread** generously the two slices of bread with hummus.
- On a slice, add salad, cucumber slices, sliced green pepper and basil.
- Drizzle with lemon juice and close the sandwich with the second slice of bread.



Figure 2.5

Figure 2.5 shows how non-modified recipes are displayed. At the top, the recipe title is displayed. Below the title, there is a text stating how *similar* the recipe is to the search. In the example, the recipe is 100% similar to the search. This means that it fulfills all the specified desires: It does contain *red bell pepper*, and it does not contain *onion*.

1 Turkey club

94% similar to search

The recipe has been modified to suit your desires. If you like it, **1** you can help us improve the system by [adding it to our database](#).

Ingredients

Wholemeal pain de mie ~~Tortilla~~ **2**

Tomatoes

Cucumber

~~Gruyere~~ **Cheddar** **3**

Roast Turkey

~~Lettuce~~ **4**

Red onion

Ketchup

Mayonnaise

Pepper

Nacho chips **5**

Preparations

In a bowl, combine 3/4 mayonnaise and 1/4 ketchup, pepper.

Cut thin slices of cheese.

Chop tomatoes, cucumber and red onion slices.

Cut the turkey roast into thin slices.

Lightly **toast** the slices of wholemeal bread and **cut** into triangle.

A first tranche, top with sauce and place a lettuce leaf.

Then place a slice of cheese, turkey and red onion.

Put another slice of bread then place the tomato, cucumber and a new lettuce leaf.

Close with a final slice of bread topped with sauce.



Figure 2.6

Figure 2.6 shows how modified recipes are displayed. To clarify: To get this result, we searched for the following recipe:

Desired ingredients: Tortilla and Cheddar

Undesired ingredients: Lettuce

Below the recipe title we can see that this recipe is 94% similar to the search. The recipe contains all the ingredients specified as undesired, but the system has decreased the similarity score of the recipe because it had to be modified. Further, several aspects in the figure are labeled:

Label 1 marks an explaining text below the title. This text is displayed when the recipe is modified to suit your desires. Here, you also have the opportunity to add the new recipe to the systems database, which we will come back to later in this user manual.

Label 2 and 3 marks two different modified ingredients. In the example, *Wholemeal pain de mie* has been substituted with *Tortilla*, and *Gruyere* has been substituted with *Cheddar*. Ingredients that are substituted out have a line through the text, while ingredients that are substituted in are displayed in bold.

Label 4 marks one ingredient that has been removed. Removed ingredients have a line through the text.

Label 5 marks one ingredient that has been added to the original recipe. Added ingredients are displayed in bold.



Figure 2.7

Next to every ingredient that is modified, a green so-called *infotip* is displayed. If you hold your mouse over the infotip a small information box will reveal itself, like illustrated in Figure 2.7. The information box explains why the given ingredient was substituted, removed, or added.

1 Cocktail Baguette

100% similar to search

Ingredients

- Baguette
- Avocado
- Tomato (cherry tomato) **1**
- Hard-boiled egg
- Shrimp (fish) **2**
- Mayonnaise
- Ketchup
- Tabasco sauce

Preparations

Prepare a cocktail sauce: **Mix** 2/3 of mayonnaise with 1/3 ketchup, add few drops of Tabasco.

Peel an avocado and **cut** it into strips, cut the tomato into cubes.

Open the baguette and **spread** with cocktail sauce.

Add the sliced hard-boiled egg, avocado, peeled shrimp and some diced tomato.



Figure 2.8

Figure 2.8 shows the top result for the following search:

Desired ingredients: Fish and Cherry Tomato

Undesired ingredients:

As you can see, the recipe is calculated to be 100% similar to the search. However, the recipe do not directly contain neither *Fish* or *Cherry Tomato*. However, as label 1 and 2 in the figure marks, the system has generalized the *Shrimp* inside the recipe to fit the desired ingredient *Fish*, and specialized the ingredient *Tomato* inside the recipe to fit the desired ingredient *Cherry Tomato*. The recipe is not modified, but the system aims to show you that your desires are actually fulfilled.

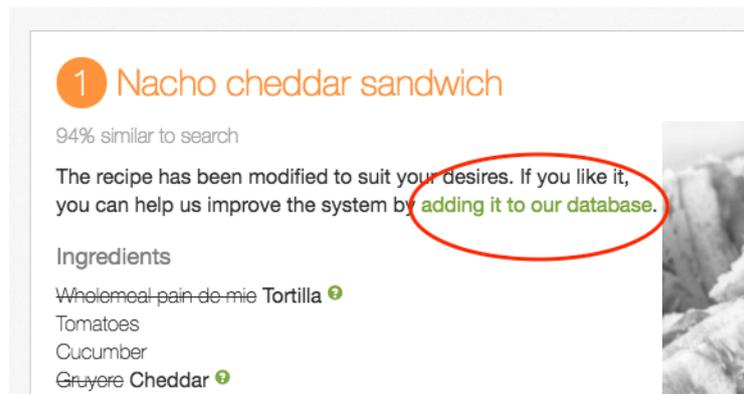


Figure 2.9

Let us go back to viewing an adapted recipe. As mentioned: When the system has modified a recipe to suit your desires, you get the opportunity to add this recipe to the system's database. The system will then save this recipe and recommend it to future users with a similar query as yours. If you found the recipe tasteful and want to add it to the database, you click the link encircled in Figure 2.9.

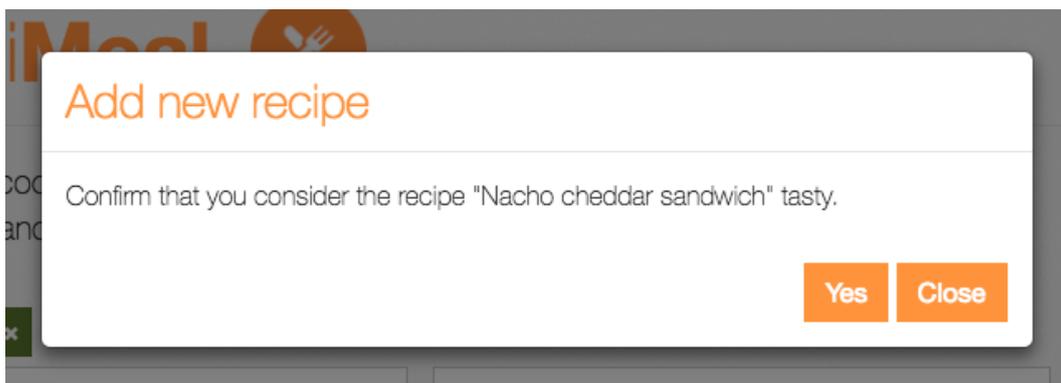


Figure 2.10

When you click the link, the modal displayed in Figure 2.10 pops up. Here, you have to confirm that you would like to add the recipe to the database. If you confirm, the recipe will be added to the database, and the "Yes" button will be disabled. You can then click the "Close" button to close the modal.