

# Recipe Cove

## System Design Documentation

(*Laboratory of Advanced Programming 2022/2023*)

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# Abstract

The goal of this document is to present all the work that has been done before and during the development of the system. The first section aims at introducing the general aspects of the system, identifying the general functionalities that the final application should have. Then, a brief overview of the infrastructure adopted is presented and detailed, followed by the instructions needed for the deployment of the system. We then present the user stories and first Mockups of the system in the fourth and fifth section of the document, followed by the Function Points, effort, time and cost estimation presented in section six.

In the second half of the document we present the methodologies employed during the development process starting from section seven, in which we describe the SCRUM roles adopted, the methodologies and ceremonies followed by the team and the artifacts produced during the development cycle. We also present the plan and goals for each sprint we conducted during the system implementation.

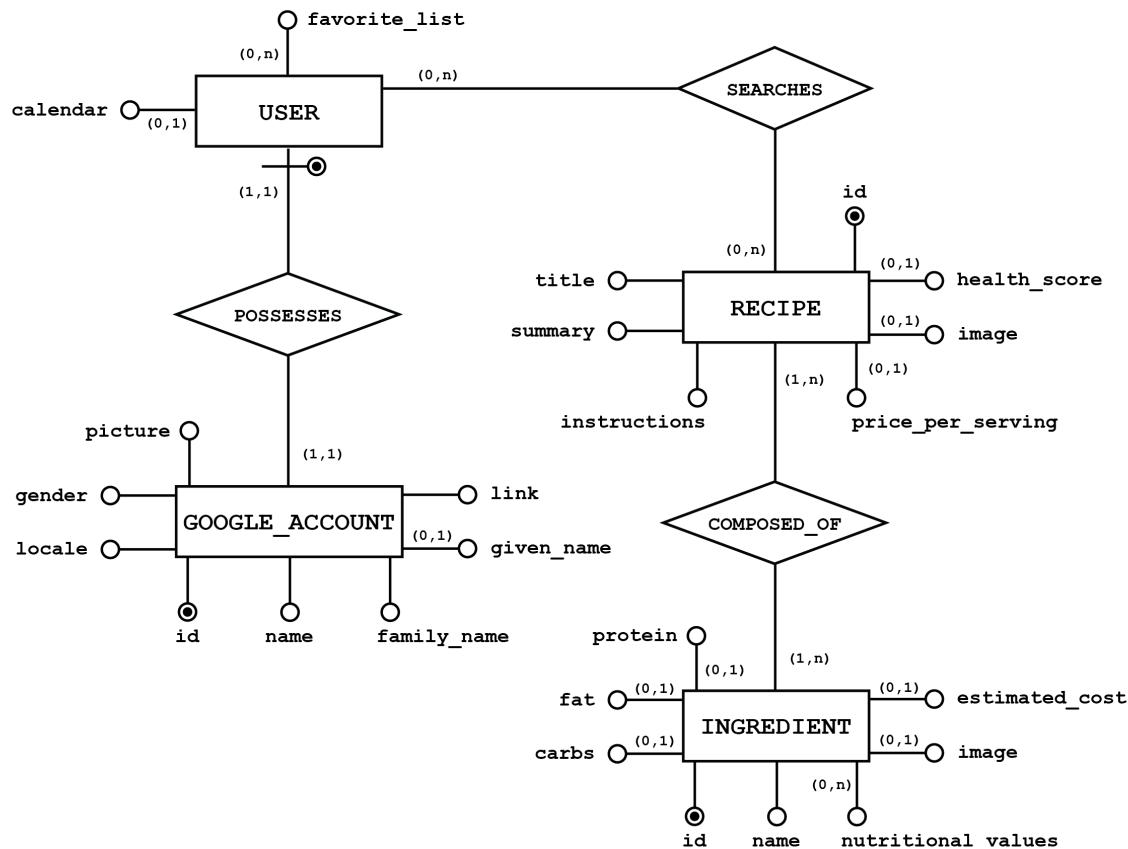
In the final section of the document we provide the final Graphical User Interface for the system, in the form of screenshots for each of the application's pages.

## 1 Introduction

The main idea for our project consists of a web application about recipes, food and cooking. Our goal was to provide an easy-to-use tool to aid in recipe discovering, bookmarking as well as finding exhaustive information about recipes and ingredients. The central focus of the system is therefore the discovery of a wide range of recipes, through the use of a search bar, or with the use of a Chat-BOT which will suggest recipes to the user, following a specific diet.

Additionally, the user has the ability to keep a personal profile within the system, which will allow him to see his basic information, but also the ability to save recipes in a favorite list and publish reminders in an application-created calendar.

The following ER Schema should allow the reader to recognize the entities that have a major role for our system:



## 2 System Infrastructure

The system is composed of several components, running on different Docker containers. Through the use of the docker compose tool, it is possible to re-deploy the whole environment on different clients, with a single instruction.

We also provided a simple script which allows to run the system with just a click. The different main components that have been implemented in our system are the following:

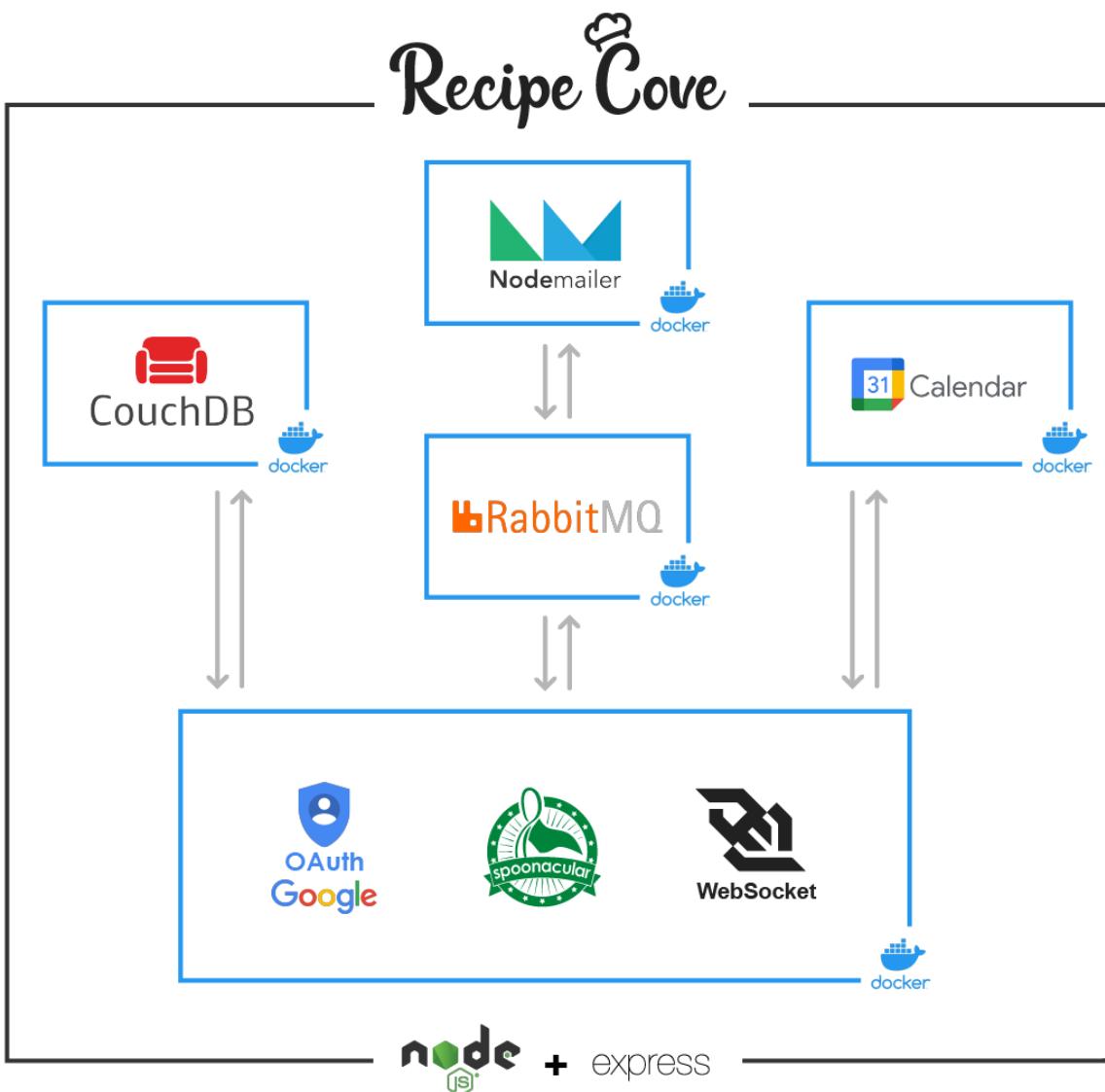
- Webapp container: it is the main container of the system, based on Node.js, which contains the majority of the core functionalities of the system. It uses Express.js, a routing and middleware web framework, as the main application framework for executing the following middleware functions:
  - Application-level middleware, to manage routes and their handler functions;
  - Built-in middleware, which are built-in function, to serve static elements (with express.static) or to properly encode the payloads (with express.urlencoded)

- Third-party middleware, used to include several third-party functionalities, such as the management of the session or the correct parsing of the body of HTTP requests

The main functionalities included in the main container are the registration and login of the user with an existing Google account, the management of his profile, the Chat-BOT microservice implemented using web sockets, and the management of the discovery and visualization of recipes and their information as well as ingredients and related data.

- Calendar container: this container is employed to serve the Google Calendar microservice. It allows the user to create a Google Calendar directly from our system, while also allowing him to correctly delete it from the application. Additionally, there is the possibility for the user to directly create an event (which will function as a reminder) for each recipe the user may intend to prepare on a specific day.
- CouchDB container: it is used as the persistent layer of our system. Its main function is to store the data related to users, including personal information and the recipes added to the favorite list. CouchDB is a document based database, providing a straightforward communication and management of files in the form of JSON documents, which in turn are easily parseable and not too verbose. Additionally, CouchDB provides resiliency of data in the form of replication, always keeping a replica set for the stored data and providing fault tolerance.
- Nodemailer container: this container is devoted to providing a mail service, sending emails to the users that are registered in our application. It communicates with the Webapp container through the RabbitMQ container.
- RabbitMQ container: this container allows communication, in an asynchronous exchange of messages, between the Webapp and the Nodemailer containers. It works as a middleware that provides multiple messaging protocols.

An image that summarizes the whole architecture can be the following:



## 3 Deployment

Docker Compose makes it straightforward to build and deploy the entire application, through the use of the docker-compose.yaml file, which specifies all the services that compose the application, and how they interact and communicate with each other. The docker-compose.yaml file specifies containers' names, the ports that should be exposed, the build and volume directories, the dependencies and the networks used to communicate.

The deployment of the application itself is very simple, following these steps:

- Open a terminal
- Move to the folder which contains the application
- Execute the following command: docker-compose up -d --build

- Open on any browser the following link: <https://localhost:3000>

The command is used to first build the necessary images and then to run all the containers composing the application. As an alternative, we also provided a python script named `recipe_cove_starter.py`, which serves the same purpose.

Depending on the system used to run the application, the aforementioned command may require admin privileges to be executed: to overcome this, one should simply add the “`sudo`” string before the command or run the terminal as an administrator.

## 4 User Stories of the system

We identified a range of user stories which were relevant to the goals of our final system's vision: they range from the search for recipes and their information to the creation of in-app artifacts, such as Calendars, reminders and a favorite list.

Additionally, we defined a set of more general system dependent user stories, in the form of registration of a new user, the login and logout functionalities ecc.

The following spreadsheet contains the data of all the user stories of our system:

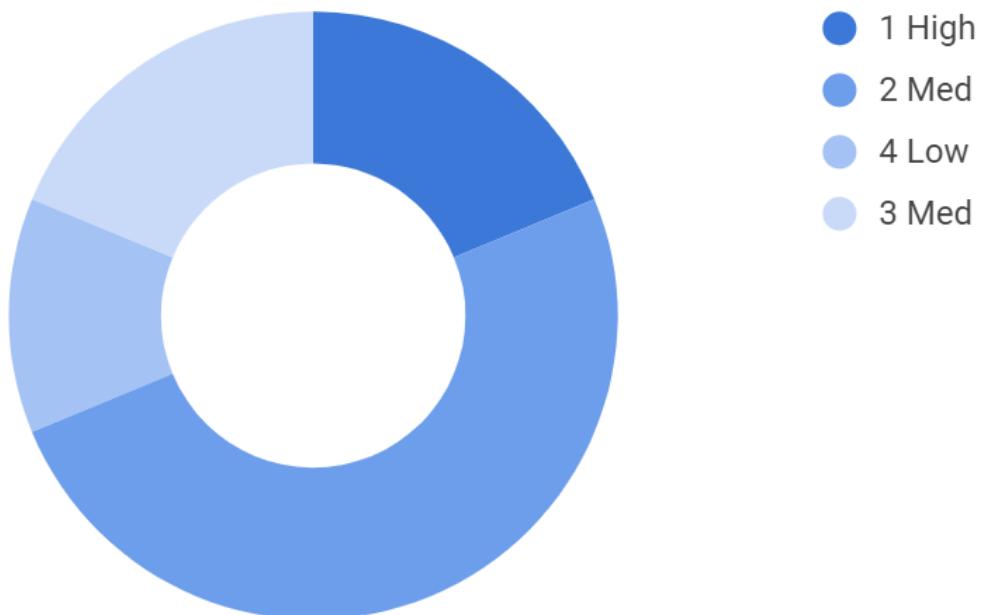
EPIC	USER STORY	PRIORITY	VALUE	RISK	E S T I M A T E	RE L E A S E	ACCEPTANCE	DEPENDEN CIES	NOTES
Registration	As a visitor, I want to be able to register in the website with an external account, so that I can use an existing Google account	1 High	1 High	2 Med	L G	1.x	Upon registering, the user will automatically be logged in the website, with the navbar reflecting the change by showing the updated info	Possession of a Google account	The user must accept Google Terms of Service and agree with the use of Google Calendar if he wants to interact with it directly in the website
Search recipes	As a visitor, I want to be able to search a recipe by its name, so that I can search only what interests me	2 Med	2 Med	3 Med	M D	3.x	The user will see a list of recipes matching the searched value	API service provider and related API Key	The user must avoid being too specific in the search terms since most recipes are particularly specific in their names
Show Recipe Information	As a visitor, I want to be able to see the information of a recipe, so that I can learn more about it	2 Med	1 High	3 Med	L G	3.x	The user will have specific information about the selected recipe, in the form of extended description of ingredients, instructions ecc	Depends on the user story in row #3	The user should notice that each ingredient's card is interactive
Show Ingredient Information	As a visitor, I want to be able to see the information of an ingredient, so that I can know the details of each ingredient in a recipe	4 Low	3 Med	4 Low	S M	4.x	The user will see extended information about the selected ingredient	Depends on the user story in row #4	

Suggest Recipes	As a visitor, I want to be able to check the suggested recipes for a specific diet, so that I can be inspired in what to prepare each day	3 Med	2 Med	2 Med	L G	4.x	The user will receive messages from the Chat-BOT in an asynchronous way	API service provider and related API Key	
	As a registered user, I want to be able to perform the login, so that I can access other system's functionalities	2 Med	1 High	2 Med	M D	1.x	The user will notice the change in the navbar reflecting that he is logged in the website	Depends on the user story in row #2	
Logout	As a registered user, I want to be able to perform the logout, so that I can leave my information within the website	3 Med	3 Med	4 Low	S M	1.x	The user will be redirected to the home page, noticing the possibility to login	Depends on the user story in row #7	
	As a registered user, I want to be able to access my profile page, so that I can check my personal information	1 High	1 High	2 Med	L G	1.x	The user will see all of his information in a detailed page, including his account data as well as his favorites recipes and his calendar	Depends on the user story in row #2 and #7	After the first registration, this page may be relatively empty so it is suggested that the user interacts a little bit with the system first
Calendar Creation	As a registered user, I want to be able to create a Calendar, so that I can populate it with events relating recipes	2 Med	2 Med	1 High	X L G	2.x	Upon clicking the add button, the user will see the newly created calendar in the profile page	Depends on the user story in row #2 and #7	Since a number of API calls to the Google Calendar API needs to be done, as well as an interaction with the database, a small amount of time is needed in order to correctly visualize the calendar in the profile page
	As a registered user, I want to be able to delete a Calendar, so that I can remove the data gathered within the website	3 Med	3 Med	4 Low	L G	2.x	Upon clicking the delete button, the user will notice that the calendar will no longer be visible in the profile page	Depends on the user story in row #10	As before, a small amount of time may be needed in order to properly update the profile page
Add Event	As a registered user, I want to be able to add an event to my Calendar, so that I can be reminded on a specific day to prepare a particular recipe	1 High	2 Med	3 Med	M D	3.x	After filling the required form information, the user will be redirected to his profile page and see the newly added event	Depends on the user story in row #10 and #4	If the event is added for days not displayed in the current month, the user needs to scroll the various months of the calendar to check the new event
	As a registered user, I want to be able to add a recipe to my favorite list, so that I can keep track of all the recipes I like	2 Med	1 High	3 Med	M D	4.x	When the user is logged in, after clicking on the button to add the current recipe to his favorite list, he can see his list updated correctly in his profile	Depends on the user story in row #7 and #4	In order to provide the best navigation for the user, after he adds a recipe to his favorite list, he will not automatically be redirected to the profile, remaining at the current visited page
Remove Recipe from Favorites	As a registered user, I want to be able to remove a recipe from my favorite list, so that I can stop being interested in it	4 Low	3 Med	4 Low	M D	4.x	The user will see his favorite list automatically updated in his profile, with the selected recipe removed from the list	Depends on the user story in row #9	It follows the same principles of the previous user story

Show Favorites List	As a registered user, I want to be able to see my favorite list, so that I can check my current interests in recipes	2 Med	1 High	2 Med	S M	4.x	Once entering the profile, the user will be able to correctly see the displayed favorite list, at the right-hand side of the page	Depends on the user story in row #9	
Delete Account	As a registered user, I want to be able to delete my personal account, so that I can remove everything related to it from the website	2 Med	2 Med	2 Med	M D	1.x	The user will automatically be redirected to the home page, in which he has the ability to register to the website again	Depends on the user story in row #9	When deleting the account from the website, the user will not be automatically have the consent removed from the services he agreed before (Google account and Google Calendar). In order to do so, he has to enter his personal area in his Google account and remove the consents manually
Mail Notification	As a visitor, I want to be able to receive a mail notification when registering, so that I can know if the registration process has succeeded	2 Med	3 Med	2 Med	L G	5.x	The user will receive a mail to the Google account used to register in the system	Depends on the user story in row #2	The user may not have the notifications activated for gmail, so in order to see the feedback he may directly enter the app and check the latest mails

The following charts visually represent the values assigned to each user story. In particular we analyze the priority, value and risk metrics as well as the user story count and value provided for each software release.

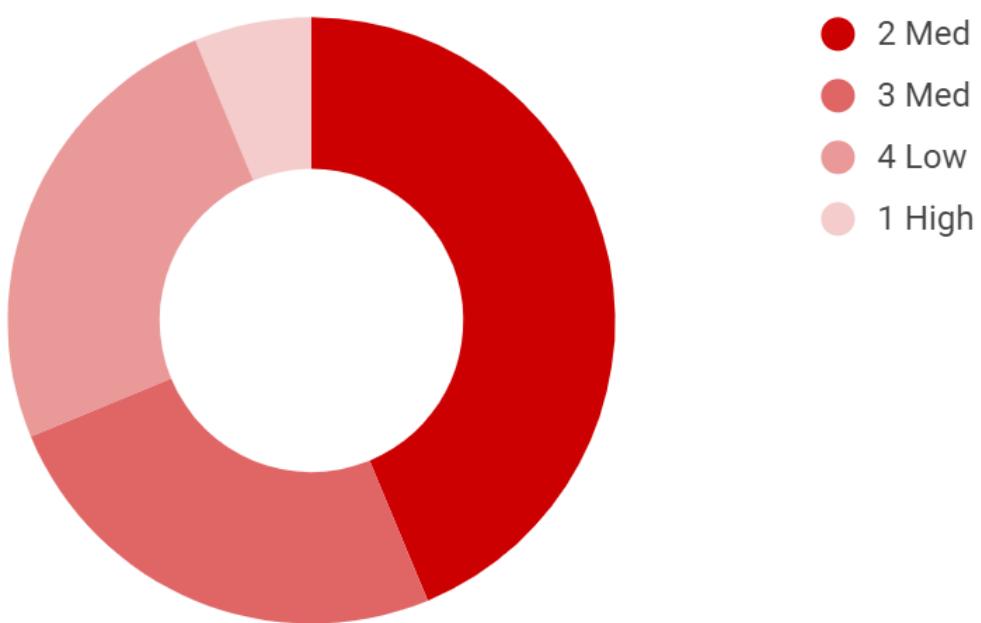
### Count of Priority



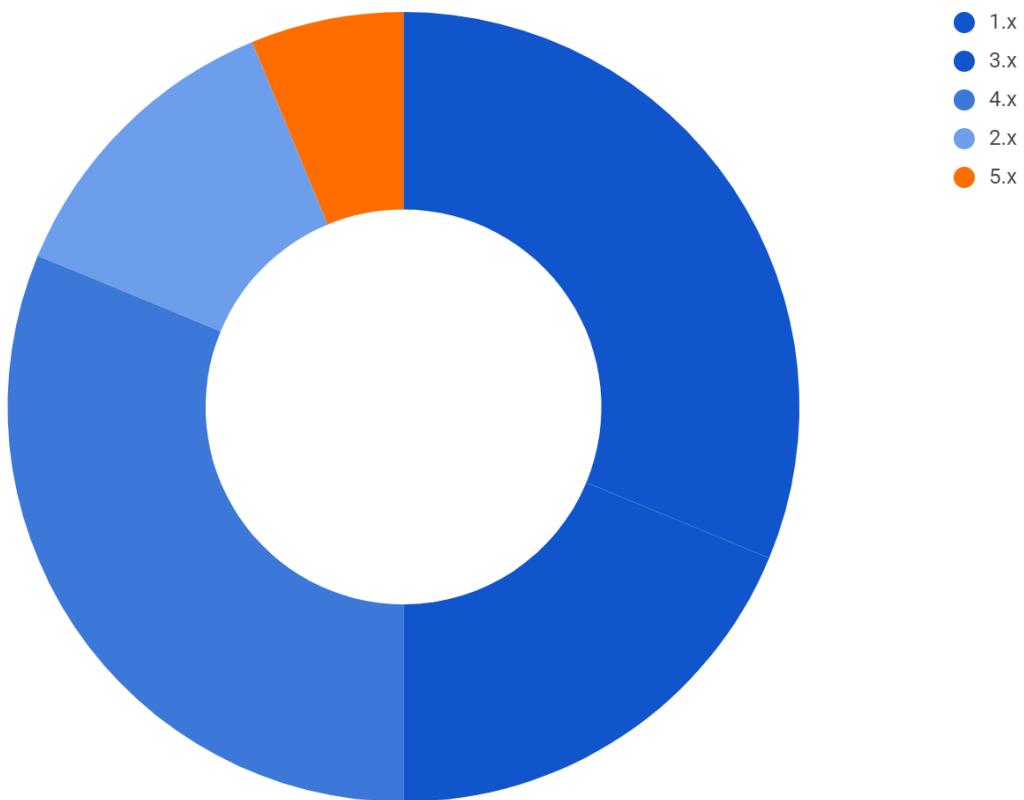
**Count of Value**



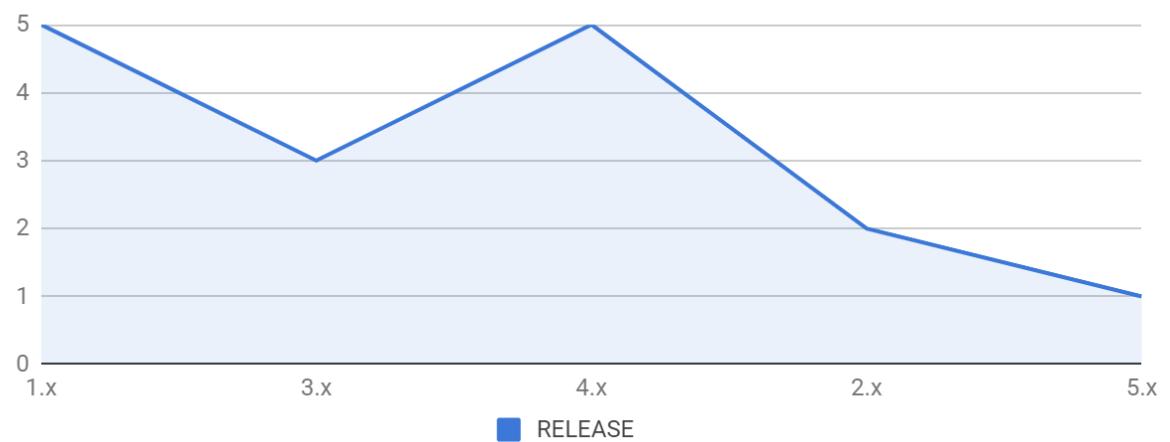
**Count of Risk**



**Stories Per Release**



**Value Per Release**



## 5 Mockups

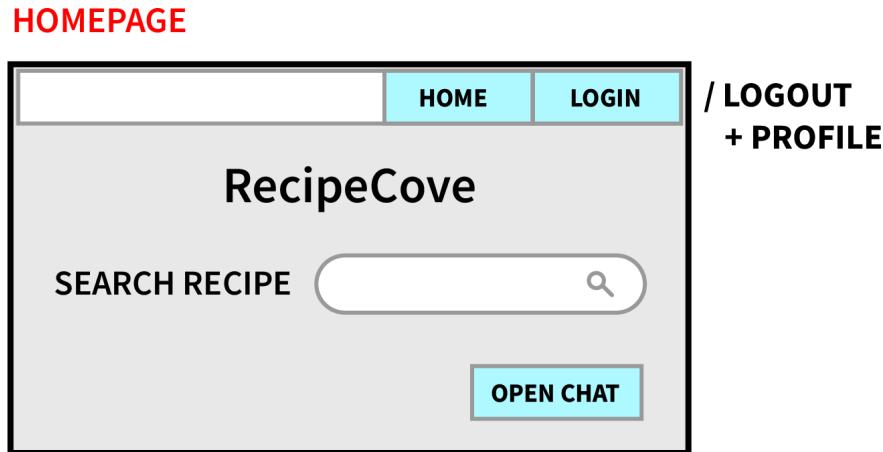
In this section we present the original Mockups of our system, presenting for each page the relevant sections, buttons and elements.

In the following pages, for each Html page represented by a Mockup, we specify which user stories are met for each functionality to be implemented in the final system.

At the end of this section we also included a storyboard which clearly presents the connections between the pages and the user stories involved.

### 5.1 Home Page

From the Home page, the user has the ability to register/login to our system, he can use a Chat-BOT microservice to search recipes following a particular diet, or search them directly through the use of a search bar.



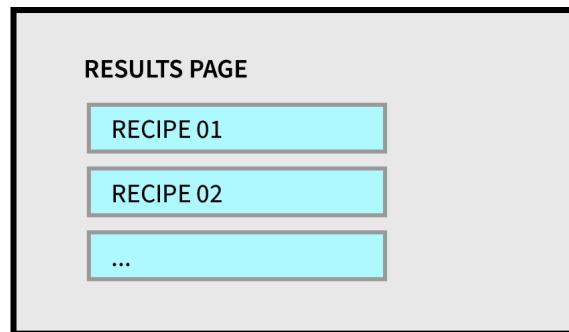
1. As a visitor, I want to be able to register in the website with an external account, so that I can use an existing Google account
2. As a visitor, I want to be able to search a recipe by its name, so that I can search only what interests me
5. As a visitor, I want to be able to check the suggested recipes for a specific diet, so that I can be inspired in what to prepare each day
6. As a registered user, I want to be able to perform the login, so that I can access other system's functionalities
7. As a registered user, I want to be able to perform the logout, so that I can leave my information within the website

8. As a registered user, I want to be able to access my profile page, so that I can check my personal information

## 5.2 Search Results Page

From the search results page, it is possible to see all the results in accordance to the search terms inserted and it is possible to click on each result to be prompted to the Recipe Page, which contains all the relevant information of the selected recipe.

### SEARCH RESULTS PAGE



2. As a visitor, I want to be able to search a recipe by its name, so that I can search only what interests me
3. As a visitor, I want to be able to see the information of a recipe, so that I can learn more about it

## 5.3 Recipe Page

In the Recipe Page it is possible to check all of its information, including its ingredients, as well as put it in the user's favorite list and create reminders for the user's calendar.

## RECIPE PAGE



3. As a visitor, I want to be able to see the information of a recipe, so that I can learn more about it
4. As a visitor, I want to be able to see the information of an ingredient, so that I can know the details of each ingredient in a recipe
11. As a registered user, I want to be able to add an event to my Calendar, so that I can be reminded on a specific day to prepare a particular recipe
12. As a registered user, I want to be able to add a recipe to my favorite list, so that I can keep track of all the recipes I like

## 5.4 Ingredient Page

The purpose of the ingredient page is to visualize the most relevant information about the ingredients used in a particular recipe, ranging from the percentage of proteins, fats and carbs, to the nutritional values of the ingredient.

## INGREDIENT PAGE



- As a visitor, I want to be able to see the information of an ingredient, so that I can know the details of each ingredient in a recipe

## 5.5 User Profile Page

This page gathers the information of the registered user, including his account info, favorite recipes list and personal calendar. From this page it is possible to create or delete a calendar, and to remove specific recipes from the favorite list. The user can additionally delete his account.

### USER PROFILE PAGE



- As a registered user, I want to be able to access my profile page, so that I can check my personal information
- As a registered user, I want to be able to create a Calendar, so that I can populate it with events relating recipes
- As a registered user, I want to be able to delete a Calendar, so that I can remove the data gathered within the website

13. As a registered user, I want to be able to remove a recipe from my favorite list, so that I can stop being interested in it

14. As a registered user, I want to be able to see my favorite list, so that I can check my current interests in recipes

## 5.6 Recipe Calendar Event

This page is used to allow the user to fill in all the details that he wants to include in a new event for his calendar. The information to fill should include the description of the reminder, the start and end dates as well as the displayed color palette for the event.

### RECIPE CALENDAR EVENT

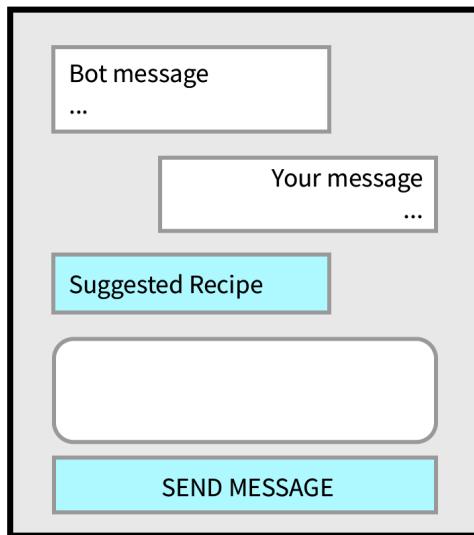
The form is titled "ADD CALENDAR EVENT". It includes fields for "SUMMARY" (with a text input box), "DESCRIPTION" (with a large text input box), "START DATE" (with a "SELECT" button), "END DATE" (with a "SELECT" button), and "PICK EVENT COLOR" (with a dropdown menu). At the bottom is a large blue button labeled "CREATE EVENT".

11. As a registered user, I want to be able to add an event to my Calendar, so that I can be reminded on a specific day to prepare a particular recipe

## 5.7 Chat-BOT (Menu)

Instead of being a standalone page, the Chat-BOT functionality should be presented to the user as an overlay Menu, placed at the bottom of the Home Page. This Menu should suggest a recipe based on the user's diet interests.

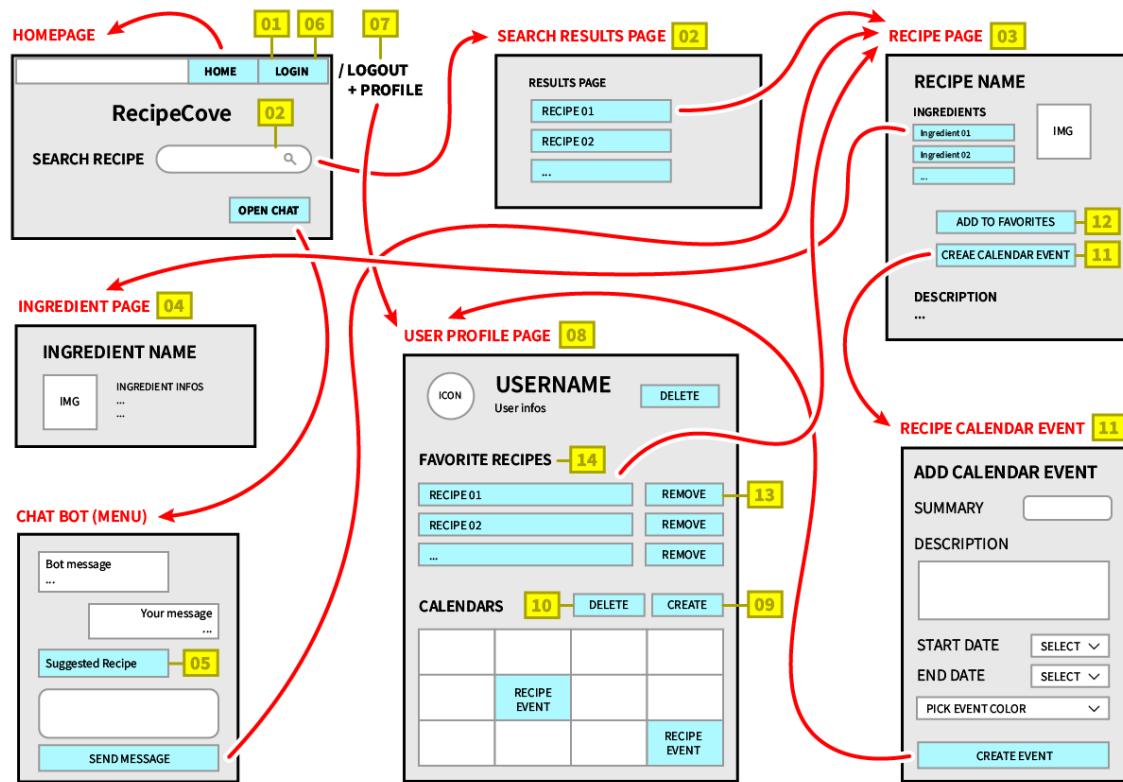
## CHAT BOT (MENU)



5. As a visitor, I want to be able to check the suggested recipes for a specific diet, so that I can be inspired in what to prepare each day

## 5.8 Storyboard

In this section we present the storyboard, which includes all the Mockups and user stories. It should allow the reader to clearly follow the interactions with the links and buttons of the system, while also keeping in mind which user stories are involved in each interaction.



# 6 Function Points Estimation and COCOMO II

In this section we summarize all the results and findings we gathered with the use of specific spreadsheets to estimate the Function Points for our system as well as the effort, time and cost that is needed to complete the project with the COCOMO II method.

## 6.1 Function Points

For the estimation of Function Points, it is needed to analyze the interaction with both the user and other applications.

The system component interacting with the user is the web interface, by allowing the user to register a new account and to login, create a new calendar and add a new event directly in the system.

On the other hand, the interaction with other applications consists mainly in the exchange of data needed for the Google Calendar API as well as the Spoonacular API, used to search, organize and show the recipes and their information.

Additionally, there is the interaction with the RabbitMQ service used to send an email to the user that registers in the system.

CouchDB is the database used to store the users' information, in a table containing the data which is modified periodically by the application and which is maintained within the application's boundaries.

Other data which is instead referenced by the application and maintained within the boundaries of another, external application are the Google account information, the recipes and ingredients information.

All the estimations for the Function Points (FP) has been done through the use of a specialized Excel sheet. However, since we adopt the Cocomo II method to adjust the FPs, we ignore the adjustment done by the sheet, which considers the Value Added Factor (or Value Adjustment Factor, VAF) instead.

Thus, starting from the definition of the Internal Logical Files (ILF) and External Interface Files (EIF), we identified:

- An ILF for the users, with 1 RET and 10 DET (id, name, given name, family name, link, picture, gender, locale, favorites list, calendar information)  $\Rightarrow$  7FP
- An EIF for the google account information, with 1 RET and 8 DET  $\Rightarrow$  5FP
- An EIF for the recipes information, with 1 RET and 7 DET  $\Rightarrow$  5FP
- An EIF for the ingredient information, with 1 RET and 8 DET  $\Rightarrow$  5FP

The total amount of Function Points for all the ILF and EIF is  $7+5+5+5=22$  FP.

The data coming from outside the application boundaries mainly includes the registration process of a new user, the management of a calendar and the data pertinent to the recipes and ingredients. We therefore identified the following External Inputs (EI):

- An EI for inserting a new user, with 2 FTR and 10 DET  $\Rightarrow$  4FP
- An EI for the login of a user, with 1 FTR and 1 DET  $\Rightarrow$  3FP
- An EI for deleting a user, with 1 FTR and 10 DET  $\Rightarrow$  3FP
- An EI for creating a new calendar for a user, with 1 FTR and 1 DET  $\Rightarrow$  3FP
- An EI for deleting a calendar for a user, with 1 FTR and 1 DET  $\Rightarrow$  3FP
- An EI for adding a recipe to the favorite list, with 1 FTR and 1 DET  $\Rightarrow$  3FP
- An EI for deleting a recipe from the favorite list, with 1 FTR and 1 DET  $\Rightarrow$  3FP

The total amount of function points for all EI is  $4+3+3+3+3+3=22$  FP.

For the data sent outside the application boundaries, which modifies or alters an ILF, is composed mainly of the email sent to a registered user and the creation and visualization of an event inside a calendar. Thus we described these External Outputs (EO):

- An EO for preparing and sending an email to the registered user, with 1 FTR and 2 DET  $\Rightarrow$  4FP
- An EO for adding an event to calendar and visualize it, with 1 FTR and 1 DET  $\Rightarrow$  4FP

As far as the data sent outside the application boundaries, which however is not modified nor provides derived data, it consists of the visualization of the user information, as well as recipes and ingredients information. We identified the following External Inquiries (EQ):

- An EQ for the visualization of the profile of a user, with 2 FTR and 7 DET  $\Rightarrow$  4FP
- An EQ for the visualization of the favorite list of a user, with 1 FTR and 1 DET  $\Rightarrow$  3FP
- An EQ for the visualization of a recipe's information, with 1 FTR and 7 DET  $\Rightarrow$  3FP
- An EQ for the visualization of an ingredient's information, with 1 FTR and 8 DET  $\Rightarrow$  3FP

The total amount of function points for all EO and EQ is  $4+4+4+3+3+3=21$  FP.

The final amount of FP for our system is  $22+22+21=65$  FP.

All these computations have been obtained with the Excel sheets presented at the end of this section.

## 6.2 COCOMO II

With the data previously obtained, we can carry out the COCOMO II estimation to see how much effort, time and cost is needed to complete the project.

By inserting all the necessary fields in the online calculator (at the link:

<http://softwarecost.org/tools/COCOMO/>) we obtained the following results:

- it should require us approximately 3445 SLOC
- it should be scheduled for 5.3 months
- the effort required should be 6.1 person-month
- the overall cost (considering the cost per person-month as 2400) would be \$14612

The corresponding values inserted to carry out the previous evaluation are the following:

```
startCOCOMO, 1
MonteCarlo, MonteCarlo_Off
AutoCalculate, On
size_type, Function Points
function_points, 65
language, Java
prec, Very_High
flex, Low
rely, Nominal
data, Low
cplx, Low
ruse, High
docu, Nominal
resl, Nominal
team, Extra_High
acap, Nominal
pcap, High
pcon, High
apex, High
pexp, Nominal
ltex, Nominal
pmat, Low
time, High
stor, Nominal
pvol, Low
tool, Nominal
site, Very_High
sced, Low
software_maintenance, Off
software_labor_cost_per_PM, 2400
software_EAF, 0.55
size_exponent, 1.0677
schedule_exponent, 0.312
software_effort, 6.1
software_schedule, 5.3
```

## 6.3 Adopted Excel Sheets

In this final subsection, we report the Excel sheets that have been used for the previous estimation.

The first sheet presented was used to insert data about our system's functionalities and to obtain an estimate on the total amount of Function Points:

**FUNCTION  
POINT  
CALCULATION**

No.	VAF	Weight: 0 (low) ~ 5 (high)
1	Data communications	3
2	Distributed data processing	3
3	Performance	3
4	Heavily used configuration	3
5	Transaction rate	3
6	On-Line data entry	3
7	End-user efficiency	3
8	On-Line update	3
9	Complex processing	3
10	Reusability	3
11	Installation ease	3
12	Operational ease	3
13	Multiple sites	3
14	Facilitate change	3
		42

Language	English
Adjusted FP	<b>69,55</b>

- FP: Function Point
- VAF: Value Added Factor
- DET: Data Element Type
- RET: Record Element Type
- FTR: File Types Referenced
- ILF: Internal Logical Files
- EIF: External Interface Files
- EI: External Inputs
- EO: External Outputs
- EQ: External Inquiry

Unadjusted FP	<b>65</b>
---------------	-----------

No.	Module	Function Name	Description	Type	DET	RET / FTR	Complexity	FP	Adjust %	FP adjusted
1	User	Users information	Information about the users	ILF	10	1	Low	7		7
2	Google account	Google account information	Information about the Google account	EIF	8	1	Low	5		5
3	Recipe	Recipes information	Information about the recipes	EIF	7	1	Low	5		5
4	Ingredient	Ingredients information	Information about the ingredients	EIF	8	1	Low	5		5
5	User	Insert User	Insert a new user into the database	EI	10	2	Average	4		4
6	User	Login User	Login the user into the system	EI	1	1	Low	3		3
7	User	Delete User	Delete the user from the database	EI	10	1	Low	3		3
8	Calendar	Create Calendar	Create a new Calendar for a user	EI	1	1	Low	3		3
9	Calendar	Delete Calendar	Delete a Calendar for a User	EI	1	1	Low	3		3
10	Recipe	Add Recipe to favorites	Add a Recipe to the favorites list	EI	1	1	Low	3		3
11	Recipe	Remove Recipe from favorites	Remove a Recipe from the favorites list	EI	1	1	Low	3		3
12	User	Send Mail	The system sends a confirmation email to the User the registers	EO	2	1	Low	4		4
13	Calendar	Add Event to a Calendar	Add a new Event to a Calendar	EO	1	1	Low	4		4
14	User	Display User Profile	Visualize the Profile of a User	EQ	7	2	Average	4		4
15	User	Display Favorite List	Visualize the favorite list of a User	EQ	1	1	Low	3		3
16	Recipe	Display Recipes information	Visualize a Recipe's information	EQ	7	1	Low	3		3
17	Ingredient	Display Ingredients information	Visualize a Ingredient's information	EQ	8	1	Low	3		3

The following represents instead the computation for the effort, time and cost estimation for our project, obtained with the use of the COCOMO II method:

**Software Size**      Sizing Method **Function Points**

Unadjusted Function Points  Language **Java**

**Software Scale Drivers**

Precedentedness	<b>Very High</b> <input type="button" value="▼"/>	Architecture / Risk Resolution	<b>Nominal</b> <input type="button" value="▼"/>	Process Maturity	<b>Low</b> <input type="button" value="▼"/>
Development Flexibility	<b>Low</b> <input type="button" value="▼"/>	Team Cohesion	<b>Extra High</b> <input type="button" value="▼"/>		

**Software Cost Drivers**

Product	Personnel	Platform			
Required Software Reliability	<b>Nominal</b> <input type="button" value="▼"/>	Analyst Capability	<b>Nominal</b> <input type="button" value="▼"/>	Time Constraint	<b>High</b> <input type="button" value="▼"/>
Data Base Size	<b>Low</b> <input type="button" value="▼"/>	Programmer Capability	<b>High</b> <input type="button" value="▼"/>	Storage Constraint	<b>Nominal</b> <input type="button" value="▼"/>
Product Complexity	<b>Low</b> <input type="button" value="▼"/>	Personnel Continuity	<b>High</b> <input type="button" value="▼"/>	Platform Volatility	<b>Low</b> <input type="button" value="▼"/>
Developed for Reusability	<b>High</b> <input type="button" value="▼"/>	Application Experience	<b>High</b> <input type="button" value="▼"/>	Project	
Documentation Match to Lifecycle Needs	<b>Nominal</b> <input type="button" value="▼"/>	Platform Experience	<b>Nominal</b> <input type="button" value="▼"/>	Use of Software Tools	<b>Nominal</b> <input type="button" value="▼"/>
		Language and Toolset Experience	<b>Nominal</b> <input type="button" value="▼"/>	Multisite Development	<b>Very High</b> <input type="button" value="▼"/>
				Required Development Schedule	<b>Low</b> <input type="button" value="▼"/>

Maintenance

**Software Labor Rates**  
Cost per Person-Month (Dollars)

---

## Results

### Software Development (Elaboration and Construction)

Effort = 6.1 Person-months  
Schedule = 5.3 Months  
Cost = \$14612

### Staffing Profile

Your project is too small to display a staffing profile due to truncation.

Total Equivalent Size = 3445 SLOC  
Effort Adjustment Factor (EAF) = 0.55

### Acquisition Phase Distribution

Phase	Effort (Person-months)	Schedule (Months)	Average Staff	Cost (Dollars)
Inception	0.4	0.7	0.6	\$877
Elaboration	1.5	2.0	0.7	\$3507
Construction	4.6	3.3	1.4	\$11105
Transition	0.7	0.7	1.1	\$1753

### Software Effort Distribution for RUP/MBASE (Person-Months)

Phase/Activity	Inception	Elaboration	Construction	Transition
Management	0.1	0.2	0.5	0.1
Environment/CM	0.0	0.1	0.2	0.0
Requirements	0.1	0.3	0.4	0.0
Design	0.1	0.5	0.7	0.0
Implementation	0.0	0.2	1.6	0.1
Assessment	0.0	0.1	1.1	0.2
Deployment	0.0	0.0	0.1	0.2

Your output file is at [http://softwarecost.org/tools/COCOMO/data/COCOMO\\_October\\_26\\_2023\\_14\\_22\\_42\\_62079.txt](http://softwarecost.org/tools/COCOMO/data/COCOMO_October_26_2023_14_22_42_62079.txt)

Created by Ray Madachy at the Naval Postgraduate School. For more information contact him at [rjmadach@nps.edu](mailto:rjmadach@nps.edu).

# 7 Development Process - Scrum & Sprint Reports

## 7.1 SCRUM

At the base of the development process for our project we employed the SCRUM methodology.

SCRUM allows the developers' team to focus on delivering the highest business value in the shortest possible time, in an agile process.

With this idea in mind, we organized ourselves in order to deliver the highest priority features in the best way, allowing us to obtain each time a real working software that could potentially be delivered as it is.

The work for the system has been organized into 6 total “sprints”, with the first being concentrated on the requirement gathering phase and organization of the whole system, and the remaining focused on the actual software implementation.

The people working on this project were assigned specific roles in the following way:

- Valerio Di Stefano (1898728) had been assigned the role of the Product owner: he had the task to define the features of the final product, decide the release dates and adjust the features and their priorities at each iteration (in fact he is the one who mainly designed the initial documentation)
- Giuseppe Prisco (1895709) had been assigned the role of Scrum Master: he had the responsibility to manage the project and enforce Scrum values and practices throughout the development phases. Additionally, he had the task to remove any impediments that may have arisen and ensure that the team was fully functional and productive, while ensuring close cooperation between all the roles and functions
- The team is composed of the two people working on the project, Valerio Di Stefano (1898728) and Giuseppe Prisco (1895709). The team is cross-functional, meaning that each member is specialized in different functions, while covering all the ones that are needed for the final system implementation. We ensured that all the team members were full-time and self-organized throughout the development phases

The following charts are devoted to provide a clear understanding on the organization of the whole project, presenting a Gantt chart, which starts from the Work Breakdown Structure (WBS) and provides estimations on the amount of work to be done as well as starting and ending date for each item of the WBS, a Burndown chart, to visually present the working trend throughout the software life cycle, and the Sprint adopted during the development process.

### 7.1.1 Gantt Chart

The following is the Excel sheet containing the WBS of the project:

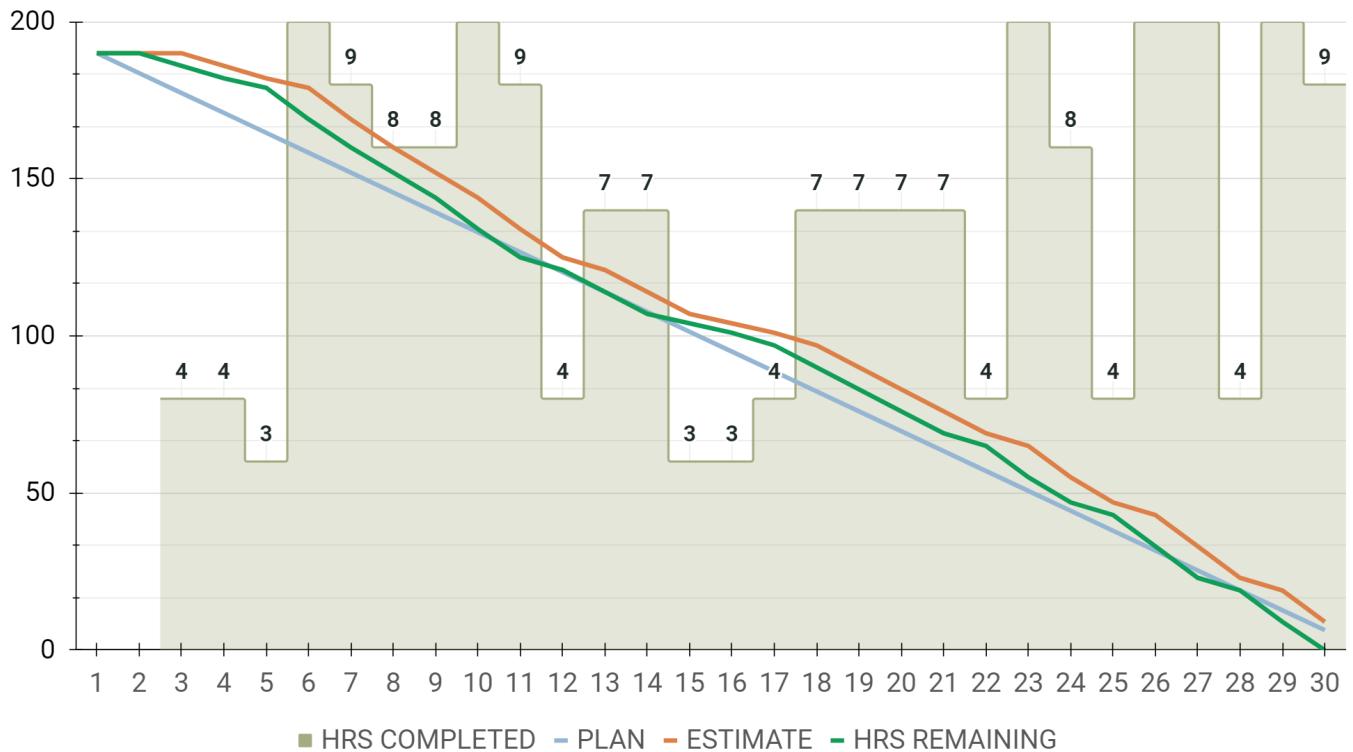
WORK BREAKDOWN STRUCTURE	TASK TITLE	TASK OWNER	AMOUNT OF WORK IN HOURS			SPRINT	START DATE	DUE DATE	DURATION	PCT OF TASK COMPLETE
			ESTIMATE	COMPLETE D	REMAINING					
1	Project Conception and Documentation		56	56	0					100%
1.1	Project Functionalities	V	10	10	0	1	9/20/2023	9/23/2023	4	100%
1.2	User Stories	V	10	10	0	1	9/23/2023	9/25/2023	3	100%
1.3	LoFi Mockups	V	12	12	0	1	9/25/2023	9/29/2023	5	100%
1.4	Function Points Estimate	G	8	8	0	1	9/25/2023	9/26/2023	2	100%
1.5	COCOMO II	G	7	7	0	1	9/27/2023	9/29/2023	3	100%
1.6	ER schema	V	4	4	0	2	9/29/2023	9/29/2023	1	100%
1.7	Software architecture schema	V	5	5	0	2	9/30/2023	10/1/2023	2	100%
2	System Configuration and Basic Functionalities		37	37	0					100%
2.1	Registration with a Google Account	G	12	12	0	2	10/1/2023	10/4/2023	4	100%
2.2	Login	G	6	6	0	2	10/4/2023	10/5/2023	2	100%
2.3	Logout	G	3	3	0	2	10/5/2023	10/5/2023	1	100%
2.4	Delete Account	G	6	6	0	2	10/6/2023	10/7/2023	2	100%
2.5	Profile	G	10	10	0	2	10/8/2023	10/10/2023	3	100%
3	Development of Core Functionalities		54	54	0					100%
3.1	Create Calendar	G	16	16	0	3	10/11/2023	10/14/2023	4	100%
3.2	Delete Calendar	G	12	12	0	3	10/14/2023	10/16/2023	3	100%
3.3	Search Recipes	V	8	8	0	4	10/17/2023	10/18/2023	2	100%
3.4	Show Recipes Information	V	12	12	0	4	10/18/2023	10/21/2023	4	100%
3.5	Add Event to Calendar	G	6	6	0	4	10/18/2023	10/19/2023	2	100%
4	Development of additional minor Functionalities		20	20	0					100%
4.1	Show Ingredient Information	V	4	4	0	5	10/22/2023	10/23/2023	2	100%
4.2	Suggest Recipes	G	8	8	0	5	10/22/2023	10/24/2023	3	100%
4.3	Add Recipe to Favorites	V	4	4	0	5	10/23/2023	10/23/2023	1	100%
4.4	Remove Recipe from Favorites	V	3	3	0	5	10/24/2023	10/24/2023	1	100%
4.5	Show Favorite Recipes	V	1	1	0	5	10/24/2023	10/24/2023	1	100%
5	Finalization of the Project		23	23	0					100%
5.1	Mail Notification	V	12	12	0	6	10/25/2023	10/27/2023	3	100%
5.2	GUI for Home, profile, recipes, ingredients page	V	7	7	0	6	10/27/2023	10/28/2023	2	100%
5.3	GUI for add event to calendar and error page	G	4	4	0	6	10/27/2023	10/28/2023	2	100%



## 7.1.2 Burndown chart

The following is the Burndown chart which shows how many hours of work have been done each day and how they compare to the planned and estimated values.

BURNDOWN CHART



## 7.1.3 Release Backlog

Additionally, we also included the release backlog, containing all the product features which are to be completed within a release cycle:

PRIORITY	SPRINT	FUNCTIONALITY	TASK TITLE	TASK DESCRIPTION	TASK OWNER	WORK ESTIMATE IN HOURS	STATUS
High	1	Project Conception and Documentation	Project Functionalities	Definition of the major functionalities of our project	V	10	Completed
High	1	Project Conception and Documentation	User Stories	Definition of the user stories of the system	V	10	Completed
Medium	1	Project Conception and Documentation	LoFi Mockups	Creation of the Low-Fidelity mockups of the the pages of our system	V	12	Completed
Medium	1	Project Conception and Documentation	Function Points Estimate	Estimation of the function points	G	8	Completed
Medium	1	Project Conception and Documentation	COCOMO II	Utilization of the COCOMO II method	G	7	Completed
Low	2	Project Conception and Documentation	ER schema	Creation of the ER-schema of our system	V	4	Completed
Low	2	Project Conception and Documentation	Software architecture schema	Creation of the schema of our system's architecture	V	5	Completed

High	2	System Configuration and Basic Functionalities	Registration with a Google Account	Creation of the functionality to register with a Google account in our system	G	<b>12</b>	Completed
Medium	2	System Configuration and Basic Functionalities	Login	Creation of the functionality to login in our system	G	<b>6</b>	Completed
Medium	2	System Configuration and Basic Functionalities	Logout	Creation of the functionality to logout from our system	G	<b>3</b>	Completed
Medium	2	System Configuration and Basic Functionalities	Delete Account	Managing the deletion of an account from the system	G	<b>6</b>	Completed
High	2	System Configuration and Basic Functionalities	Profile	Managing the information to be shown in the user profile	G	<b>10</b>	Completed
Medium	3	Development of Core Functionalities	Create Calendar	Creation of the functionality to create a Calendar directly in our system	G	<b>16</b>	Completed
Medium	3	Development of Core Functionalities	Delete Calendar	Creation of the functionality to delete a Calendar directly in our system	G	<b>12</b>	Completed
Medium	4	Development of Core Functionalities	Search Recipes	Creation of the functionality to search for recipes by name with an external API	V	<b>8</b>	Completed
Medium	4	Development of Core Functionalities	Show Recipes Information	Creation of the functionality to get the information for recipes with an external API	V	<b>12</b>	Completed
High	4	Development of Core Functionalities	Add Event to Calendar	Creation of the functionality to add an event to a Calendar directly in our system	G	<b>6</b>	Completed
Low	5	Development of additional minor Functionalities	Show Ingredient Information	Creation of the functionality to get the information for ingredients with an external API	V	<b>4</b>	Completed
Medium	5	Development of additional minor Functionalities	Suggest Recipes	Creation of the functionality to get the suggested recipes for a specific diet with a Chat-BOT	G	<b>8</b>	Completed
Medium	5	Development of additional minor Functionalities	Add Recipe to Favorites	Creation of the functionality to add recipes to a favorite list	V	<b>4</b>	Completed
Low	5	Development of additional minor Functionalities	Remove Recipe from Favorites	Creation of the functionality to delete recipes from the favorite list	V	<b>3</b>	Completed
Medium	5	Development of additional minor Functionalities	Show Favorite Recipes	Creation of the functionality to show all the recipes of the favorite list in the user profile	V	<b>1</b>	Completed
Medium	6	Finalization of the Project	Mail Notification	Creation of the functionality to send an email to the Google account used during registration	V	<b>12</b>	Completed
Low	6	Finalization of the Project	GUI for Home, profile, recipes, ingredients page	Improved the GUI for the Home, profile, recipes and ingredients pages	V	<b>7</b>	Completed
Low	6	Finalization of the Project	GUI for add event to calendar and error page	Improved the GUI for the add event to calendar and error pages	G	<b>4</b>	Completed

All of the previously presented Excel sheets can all be found in the “Scrum” folder.

## 7.2 Sprint Reports

The work for the project has been organized in 6 different sprints: for each sprint, the team selected items from the product backlog and committed to completing them in the current sprint, then, the sprint backlog has been created, with the team collaboratively identifying the tasks and properly estimating them.

Additionally, at the end of each working day, the team had a 10-15 minutes discord call to reorganize what has been done during the day, what has been accomplished and, ultimately, what was not working.

At the end of each sprint, the team presented what has been done during the sprint, showing a brief demo of the newly accomplished functionalities (as previously noted, we always delivered a working version of the system at the end of each sprint). Fortunately, nothing particularly was in our way during the development of the system at each iteration.

In the following, we present specific data for each of the accomplished sprints, including at the end a section summarizing the results achieved.

### 7.2.1 Sprint #1

The goal for the first sprint was to gather all the requirements that we needed to take into account for developing our system: it includes the identification of the system functionalities and user stories, a first design for the LoFi mockups and the estimation of the Function Points, effort, time and cost.

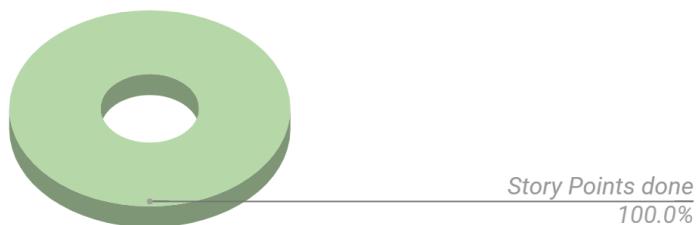
Sprint 1				0
Name	Initial Sprint			
Goal	Define basic functionalities and documentation	Duration	8 working days	
Process improvement	Improve the estimation of the work	Things	5 things	
Start Date	20/09/2023	Story Points	47 points	
End Date	29/09/2023		days left	

## Sprint Metrics

Things Planned	5	Key Achievements	The task plan for this sprint was correctly completed. The general conceptions and the documentations of the Project have been defined.
Points Planned	47		
Things done:	5		
Things left:	0	Performance Summary	
Story Points done	47		The tasks we identified requested the same amount of hours we initially planned.
Story Points left:	0		

## Sprint Backlog

Things (5)	Type	Story Points (47)	Description
Project Functionalities	task	10	Definition of the major functionalities of our project
User Stories	task	10	Definition of the user stories of the system
LoFi Mockups	task	12	Creation of the Low-Fidelity mockups of the pages of our system
Function Points Estimate	task	8	Estimation of the function points
COCOMO II	task	7	Utilization of the COCOMO II method



### 7.2.2 Sprint #2

For the second sprint, we planned to create a basic system configuration as well as implement basic functionalities for the system, which include the registration of a new user, login and accessing the profile.

# Sprint 2

Name	Second Sprint			
Goal	System Configuration and Basic Functionalities	Duration	8 working days	0
Process improvement	Improve the commit quality	Things	7 things	
Start Date	29/09/2023	Story Points	46 points	
End Date	10/10/2023			days left

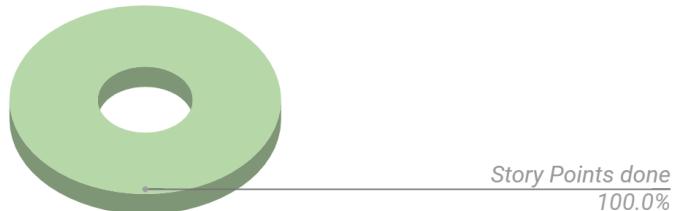
## Sprint Metrics

Things Planned	7	Key Achievements  Performance Summary	In this sprint we successfully delivered a first working version of the system, with basic functionalities as the registration in the website.
Points Planned	46		
Things done:	7		
Things left:	0		Similarly to the first sprint, we managed to complete everything we had planned in the identified estimated days. The amount of work was similar to that of the first sprint
Story Points done	46		
Story Points left:	0		

## Sprint Backlog

Things (7)	Type	Story Points (46)	Description
ER schema	task	4	Creation of the ER-schema of our system
Software architecture schema	task	5	Creation of the schema of our system's architecture
Registration with a Google Account	story	12	Creation of the functionality to register with a Google account in our system
Login	story	6	Creation of the functionality to login in our system

Logout	story	3	Creation of the functionality to logout from our system
Delete Account	story	6	Managing the deletion of an account from the system
Profile	story	10	Managing the information to be shown in the user profile



### 7.2.3 Sprint #3

For the third sprint, we focused on the first set of core system functionalities: the Google Calendar interaction. In particular the interface with the Google Calendar API has been implemented, with the possibility to create or delete a calendar directly in the application.

## Sprint 3

Name	Third Sprint			0
Goal	First set of Core functionalities	Duration	4 working days	
Process improvement	Improve the coding quality	Things	2 things	
Start Date	11/10/2023	Story Points	28 points	
End Date	16/10/2023			

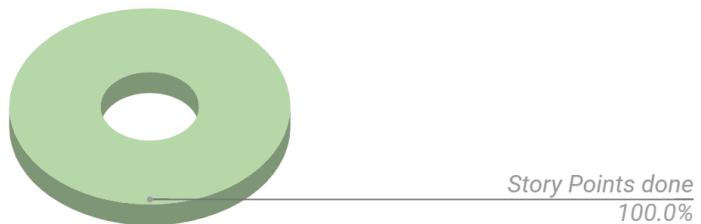
## Sprint Metrics

Things Planned	2	Key Achievements	The first set of core functionalities has been implemented, while also assuring a general robustness to the working system.
Points Planned	28		
Things done:	2		

Things left:	0	<b>Performance Summary</b>	For this sprint, only one of the two team members could work on the project, as to why only two major "things" have been developed.
Story Points done	28		
Story Points left:	0		

## Sprint Backlog

Things (2)	Type	Story Points (28)	Description
Create Calendar	story	16	Creation of the functionality to create a Calendar directly in our system
Delete Calendar	story	12	Creation of the functionality to delete a Calendar directly in our system



### 7.2.4 Sprint #4

In the fourth sprint we completed the second set of core system functionalities, including the majority of the interaction with Spoonacular (a third-party API for recipes data) and the possibility to create a Google calendar event using the system.

<b>Sprint 4</b>				
Name	Fourth Sprint			
Goal	Second set of Core functionalities	Duration	4 working days	0
Process improvement	Improve sprint reporting	Things	3 things	
Start Date	17/10/2023	Story Points	26 points	

End Date	21/10/2023			days left
----------	------------	--	--	-----------

## Sprint Metrics

Things Planned	3	Key Achievements	The second set of core functionalities has been implemented into the system, and additional improvements were brought for existing functionalities.
Points Planned	26		
Things done:	3		
Things left:	0		
Story Points done	26	Performance Summary	Nothing particularly interesting to report.
Story Points left:	0		

## Sprint Backlog

Things (3)	Type	Story Points (26)	Description
Search Recipes	story	8	Creation of the functionality to search for recipes by name with an external API
Show Recipes Information	story	12	Creation of the functionality to get the information for recipes with an external API
Add Event to Calendar	story	6	Creation of the functionality to add an event to a Calendar directly in our system



### 7.2.5 Sprint #5

The goal for the fifth sprint was to refine and introduce other minor functionalities, including the creation of a Chat-BOT suggesting recipes, the search for ingredient

information, and the management of a favorite list to keep track of the recipes a user is interested in.

## Sprint 5

Name	Fifth Sprint			0
Goal	Additional minor functionalities	Duration	2 working days	
Process improvement	Improve sprint reporting and team synergy	Things	5 things	
Start Date	22/10/2023	Story Points	20 points	
End Date	24/10/2023			

## Sprint Metrics

Things Planned	5	Key Achievement s	Other minor functionalities have been successfully implemented in the system.
Points Planned	20		
Things done:	5	Performance Summary	For this sprint, the team had to pursue an additional effort to implement all the planned functionalities.
Things left:	0		
Story Points done	20		
Story Points left:	0		

## Sprint Backlog

Things (5)	Type	Story Points (20)	Description
Show Ingredient Information	story	4	Creation of the functionality to get the information for ingredients with an external API
Suggest Recipes	story	8	Creation of the functionality to get the suggested recipes for a specific diet with a Chat-BOT
Add Recipe to Favorite	story	4	Creation of the functionality to add recipes to a favorite list

Remove Recipe from Favorites	story	3	Creation of the functionality to delete recipes from the favorite list
Show Favorite Recipes	story	1	Creation of the functionality to show all the recipes of the favorite list in the user profile



### 7.2.6 Sprint #6

In the last sprint we implemented our last functionality, a mail service: it has been employed through the use of RabbitMQ to manage the incoming messages for registration, and this service will send an email to the newly registered user. Additionally, we polished the general GUI of the website.

## Sprint 6

Name	Sixth Sprint			
Goal	Last functionalities and polishing of the GUI	Duration	3 working days	0
Process improvement	Improve the overall code integration	Things	3 things	
Start Date	25/10/2023	Story Points	23 points	
End Date	28/10/2023			days left

## Sprint Metrics

Things Planned	3	Key Achievements	In this sprint we focused on the last aspects of the project, including the polishing of the GUI of the pages. We successfully concluded all the planned activities for the project.
Points Planned	23		
Things done:	3		

Things left:	0	<b>Performance Summary</b>	In this last sprint the team managed to successfully complete all the "things" in the estimated time.
Story Points done	23		
Story Points left:	0		

## Sprint Backlog

Things (3)	Type	Story Points (23)	Description
Mail Notification	story	12	Creation of the functionality to send an email to the Google account used during registration
GUI for Home, profile, recipes, ingredients page	improvement	7	Improved the GUI for the Home, profile, recipes and ingredients pages
GUI for add event to calendar and error page	improvement	4	Improved the GUI for the add event to calendar and error pages

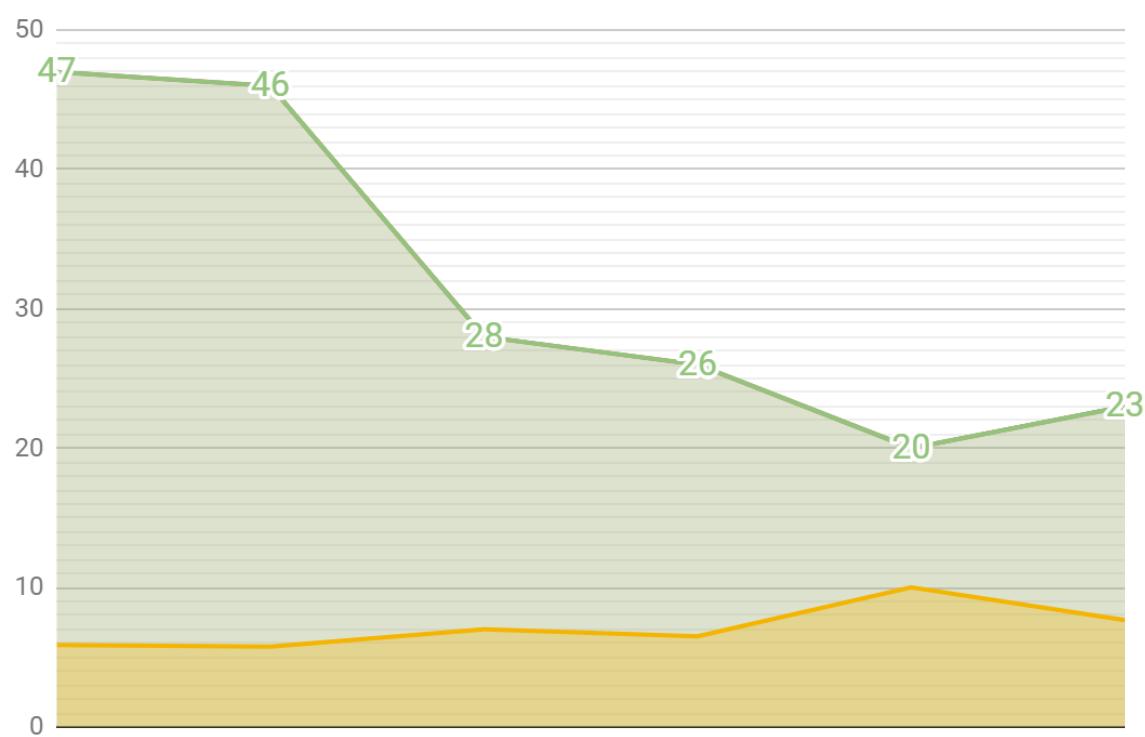


### 7.2.7 Sprint summary

In this final section, we provide a summary on the general statistics characterizing the sprints, which include, for each sprint:

- The working days
- The planned things
- The planned points
- The finished things
- The finished points
- The points per dev day
- The commit score

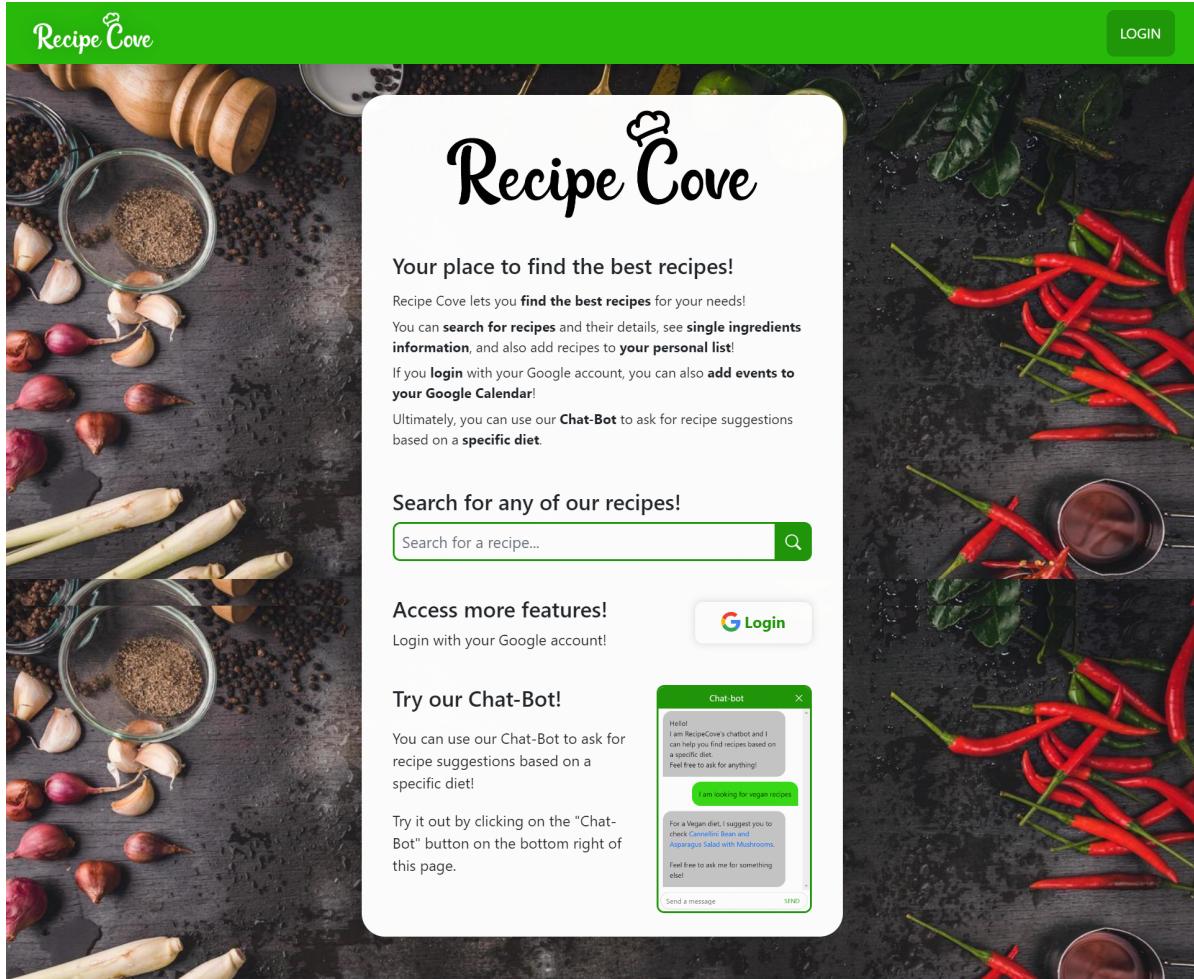
Velocity	Sprint	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6
	Working Days	8	8	4	4	2	3
4.166666667	Planned Things	5	7	2	3	5	3
31.66666667	Planned Points	47	46	28	26	20	23
4.166666667	Finished Things	5	7	2	3	5	3
<b>31.66666667</b>	Finished Points	47	46	28	26	20	23
7.13	Points per dev day	5.88	5.75	7.00	6.50	10.00	7.67
100%	Commit Score	100%	100%	100%	100%	100%	100%



# 8 Graphical User Interface

In this final section of the document we present the GUI for the final system implementation. We will just show the general looks of each page composing the application.

## 8.1 Home Page



## 8.2 Search Results Page

Search results for "pasta"

Pasta With Tuna	Pasta Margherita	Pasta On The Border	Pasta Vegetable Soup	Pasta With Italian Sausage
Pasta With Gorgonzola Sauce	Pasta With Salmon Cream Sauce	Pasta With Chickpeas and Kale	Pasta With Chicken and Broccoli	Pasta With Chicken and Mushrooms
Pasta with Spicy Sausage & Rapini	Pasta e Fagioli (Pasta and Beans)	Pasta Roses With Zucchini and Ham	Pasta with Peas and Italian Sausage	Pasta With Cream Sauce and Mushrooms
Pasta With Feta Cheese And Asparagus	Pasta A La Lydia (Halloween Inspired)	Pasta casserole with zucchini and chicken	Pasta Shells With Ricotta Cheese Stuffing	Pasta With Roasted Vegetables & Greek Olives

## 8.3 Recipe Page

Profile LOGOUT

### Pasta e Fagioli (Pasta and Beans)



**Estimated Price**  
\$51.05 per serving

**Health Score**  
22%

**Ingredients**

Olive oil	Cannellini beans
Vegetable stock	Water
Tomatoes	
Onion	Garlic clove
Elbow macaroni	Parmesan cheese
Pepper flakes	Salt
Pepper	
Parsley	

**Add to favorites** 

**Add to Calendar** 

**Recipe Description:**  
Pasta e Fagioli (Pasta and Beans) might be a good recipe to expand your hor d'oeuvre recipe box. This recipe makes 6 servings with **214 calories**, **10g of protein**, and **6g of fat** each. For **51 cents per serving**, this recipe **covers 10%** of your daily requirements of vitamins and minerals. A few people really liked this Mediterranean dish. 13 people were impressed by this recipe. This recipe from Foodista requires olive oil, garlic clove, onion, and water. From preparation to the plate, this recipe takes around **45 minutes**. With a spoonacular **score of 52%**, this dish is solid. Users who liked this recipe also liked [Pasta e Fagioli con Salsicce \(Pasta and Beans with Sausage\)](#), [Pasta e Fagioli con Salsicce \(Pasta and Beans with Sausage\)](#), and [Pasta e Fagioli con Salsicce \(Pasta and Beans with Sausage\)](#).

**Recipe Instructions:**  
In a large stock pan over medium-high heat, add the olive oil and the onion. Allow the onion to cook until it is tender (about 3 minutes). Add the tomato (or marinara sauce) and garlic and incorporate it into the mixture. Cook for just 1-2 minutes (be careful not to burn the garlic). Add the vegetable stock, water, salt, pepper and red pepper flakes. Bring this to a boil and then add your pasta. Lower the heat and allow the pasta to cook until its about 3/4 of the way finished (still slightly firm). Add your beans and allow the mixture to continue cooking until the pasta is fully cooked (about 10-15 minutes). Add the parsley toward the end of your cooking time. Taste and adjust the seasoning as needed. Serve in individual bowls with extra parsley as garnish and sprinkle with the Parmesan cheese.

## 8.4 Ingredient Page

The screenshot shows the RecipeCove website's ingredient page for avocados. At the top, there's a navigation bar with 'Profile' and 'LOGOUT' buttons. The main content area has a title 'Avocados' and a large image of two avocados, one whole and one cut open to show the pit. Below the image, there's a section for 'Estimated Cost' (74.63 US Cents) and a 'Caloric Breakdown' table:

Protein	Fat	Carbs
4.59	75.85	19.56

Underneath, the 'Nutritional Values' section lists various nutrients with their respective amounts:

- Folic Acid: 0 µg | Sodium: 7 mg | Vitamin A: 146 IU |
- Fluoride: 7 mg | Iron: 0.55 mg | Caffeine: 0 mg |
- Vitamin B2: 0.13 mg | Phosphorus: 52 mg | Vitamin C: 10 mg |
- Manganese: 0.14 mg | Vitamin K: 21 µg | Zinc: 0.64 mg |
- Vitamin B6: 0.26 mg | Vitamin E: 2.07 mg | Lycopene: 0 µg |
- Potassium: 485 mg | Fiber: 6.7 g | Calories: 160 kcal |
- Sugar: 0.66 g | Mono Unsaturated Fat: 9.8 g | Choline: 14.2 mg |
- Folate: 81 µg | Vitamin D: 0 µg | Net Carbohydrates: 1.83 g |
- Magnesium: 29 mg | Fat: 14.7 g | Carbohydrates: 8.53 g |
- Protein: 2 g | Poly Unsaturated Fat: 1.82 g | Cholesterol: 0 mg |
- Copper: 0.19 mg | Alcohol: 0 g | Vitamin B12: 0 µg |
- Calcium: 12 mg | Selenium: 0.4 µg | Vitamin B1: 0.07 mg |
- Vitamin B3: 1.74 mg | Saturated Fat: 2.13 g |
- Vitamin B5: 1.39 mg |

## 8.5 User Profile page

The screenshot shows the RecipeCove website's user profile page for Valerio Di Stefano. At the top, there's a navigation bar with 'Profile' and 'LOGOUT' buttons. The main content area features a purple circular profile picture with a white letter 'V'. Below it, the user's name 'Valerio Di Stefano' is displayed, along with their details: Name: Valerio, Surname: Di Stefano, Nationality: it. To the right, there's a gear icon for settings.

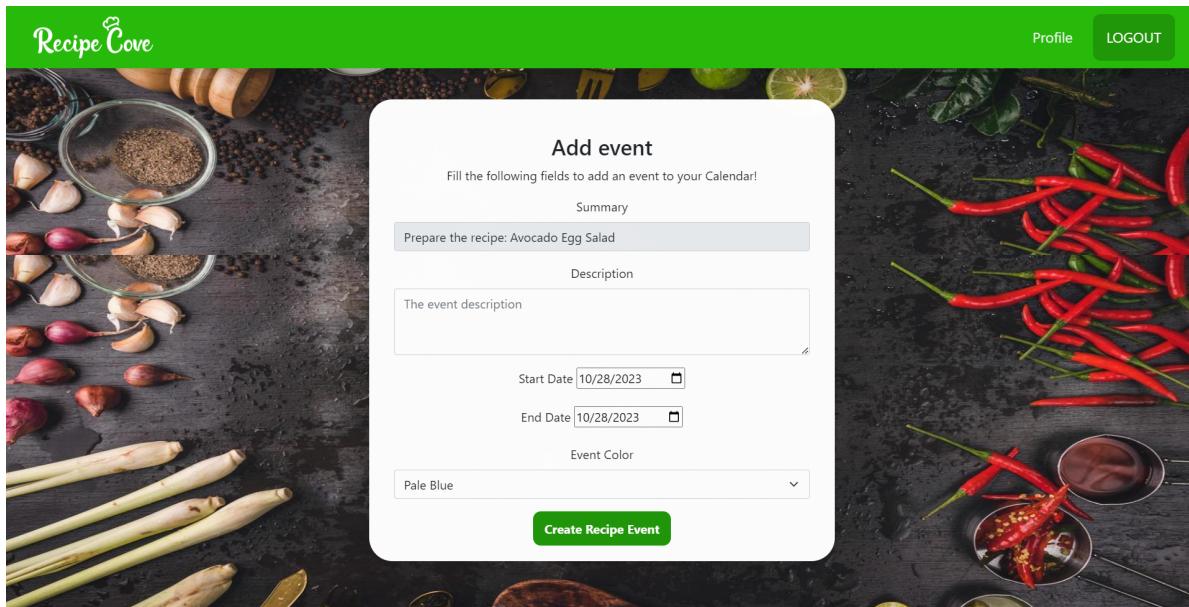
The page is divided into sections: 'Your Calendar' and 'Your favorite recipes'.

**Your Calendar**: A calendar for October 2023 showing days from 1 to 31. The 27th is highlighted in yellow, and the 28th is also highlighted. Buttons for zooming in and out are at the top right of the calendar. Below the calendar, there's a note: 'Eventi mostrati nel fuso orario: Ora dell'Europa centrale - Roma' and a link to 'Google Calendario'.

**Your favorite recipes**: A list of four recipes with red trash can icons to remove them:

- Chicken Kale Bake
- Pasta Shells With Ricotta Cheese Stuffing
- Salmon Confit with Lemongrass Sauce
- Fast Tiramisu

## 8.6 Recipe Calendar Event



## 8.7 Chat-BOT (Menu)

