

Project proposal

Other Meal



Evaldas Drasutis

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# The Project

## Problem

A lot of people struggle with cooking different meals each day and find themselves in a position where they might develop a nutrient deficiency or overall staginess in choice of a better variation.

For this project I wanted to build an application that uses AI and makes an impact for society from a perspective of healthy cooking alternatives and possibility in varying daily meals. This project should allow users to find a best suited meal that they both enjoy and could alternate in their most preferred meals with substituting ingredients to fit their preference.

With AI I’m going to build a process that would recognise the users’ preferences in ingredients and type of meals, making a personalized profile with recipes from user clusters who like same or similar ingredients as the user.

Finding recipes who have similar base ingredients in correlation with the users selected ingredients. This should allow users to utilize the ingredients at home to make a meal that would suit their needs with the directions from the recipe.

## Justification for Development

I’m making this project in reference to my own selectiveness in meals and to change my habits of only making the same meals and improve my cooking abilities.

## Assignment

My approach to this will be collecting information on different recipes from data sets to get a collection of clean recipes and recommendations. With the data I want to make custom models to define appropriate format to track their popularity amongst users.

By getting an amount of people who tried the specific food and by the frequency of the ingredients used I can introduce the recipes to other users who frequently use the same ingredients.

To apply these features, I will have to learn both a new programming language python and introduce myself to AI and how can I achieve this result with different training methods.

# Benefits

The software could be used by anyone as this should be applicable to help any user who wishes to improve their cooking skills and vary their daily meals.

One of the features of software should be user friendliness in the UI to not discourage users due to its complexity.

## Societal Benefits of this Project:

This project is targeted to a broad spectrum of target audience. I find this project to be useful for:

* Dieticians who want to track the meals nutritional value.
* People with specific diets.
* People who are reluctant to try new foods.
* People who find it difficult to track their recipes.
* People who want to make a meal from the existing ingredients at home.
* People with medically founded dietary problems.

## The benefit includes:

* Allowing different options to usual meals introducing substitution for ingredients.
* Obtaining multiple data sets to make the best recommendations for user’s meal preference.
* Giving insight to different approaches to daily meals.
* Calculating nutrition of the meal.

# Deliverables & Goals

## Personal development goals

For this project I see multiple goals that I would like to achieve:

* Learning and applying AI to my project to enhance the complexity of the application and usability.
* Learning and applying Python algorithms to make predictions and recommendations.
* Improving my web development skills.
* Delivering functional requirements and improving code qualities in timely manner.

## Products to be Delivered/Realized:

For the deliverable of this project, I will provide evidence and justification for the completion of milestones.

* Breakdown of the process to follow developing the solution. Concise documentation regarding how the model would be trained, utilizing the algorithms, as well as preparation and visualization of obtained data sets.
* Cleaned up data set.
* AI determination of user’s preference in meals.
* AI finding ingredient clusters.
* Combination of data sets.

## Scope

Regarding the scope of this solution includes:

* The prediction model using recipe ingredients to calculate commonalities in the data set of other recipes.
* The documentation of the complete process, explaining what has been done to develop the algorithm.
* The application will recommend user preferred meals.

The aspects out of the scope would include:

* Process of dietary goal process.

## The essential stack

The tooling might vary with the development process because of the undefined requirements. For this I will try to find frameworks that could assist me in developing my interfaces faster.

The expected stack that I will be using consists of:

* Python
* Java
* JavaScript
* Material Ui
* React

# Requirements

When developing a solution for predictions on user preferences I will need to:

* Access other datasets to make up a grander profile recommendation to find compatibility with other recipe ingredients.
* Having a clean data set with data that would provide both clear instruction and possibly some rating count.

## Relation to research

* How to clean a data set and prepare it for specific use.
* What would attract the user to use the software.
* What information is required for me to use to find users preference in meals.
* What data needs to be processed to provide suggestion from the AI algorithm.

I believe that I will have more research questions when I start the implementation process and get a hands-on experience.

# Project Team

## Project Member.

|  |  |  |
| --- | --- | --- |
| Name | Background | Profile |
| Evaldas Drasutis | Information & Communication Technology | Software Engineering |

## Communication

For this personal project I have a lot of mentors who are available online or on site for consultation of my project development.

|  |  |  |
| --- | --- | --- |
| Name | Place | Background |
| Danny Bloks  d.bloks@fontys.nl | TQ5-2  Online  Microsoft Teams | Impact consultant |
| Georgiana Manolache | TQ5-2  Online  Microsoft Teams | AI Consultant |
| Coen Crombach | TQ5-2  Online  Microsoft Teams | AI Consultant |
| Hans Konings | TQ5-2  Online  Microsoft Teams | Data consultant |
| Martijn Lamers | TQ5-2  Online  Microsoft Teams | Ai Consultant |
| Tim van Leeuwerden | TQ5-2  Online  Microsoft Teams | Business consultant |
| Kazimier Helfenralh | TQ5-2  Online  Microsoft Teams | Psychology Consultant |
| Rens van der Vorst | TQ5-2  Online  Microsoft Teams | Moral Design Consultant |

# Planning & Approach

## Approach

For the projects overall timespan, I will be using an agile approach to help me visualizing the workflow and set what needs to be prioritized in completion of this project with a sizeable amount to not overshoot.

Using this approach, this will make the development process more flexible, while maintaining consistent development milestones.

## Functional requirements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Moscow priority | Must | Should | Could | Would |

|  |  |  |
| --- | --- | --- |
| Functional requirement nr. | Functional requirement description | Moscow  MSCW |
| Fr.1 | Registration |  |
| Fr.2 | Selecting ingredients that you own |  |
| Fr.3 | Meal recommendation |  |
| Fr.4 | Meal search by name |  |
| Fr.5 | Meal search by ingredients |  |
| Fr.6 | Selection tracking |  |
| Fr.7 | Meal nutritional value calculation |  |

* System allows user to register.
* System requests the user to select main ingredients.
* System recommends user meals from the ingredient preference.
* System should be able to find meals via name or ingredient.
* System should recommend user meals based on their viewing habits.
* System should recommend user meals based on their ingredient preference.
* System should calculate the nutritional value of the ingredients in recipes.
* Setting up a user profile based on preferred recipes and ingredients they would like.

## Project Breakdown

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Task | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 |
| Preparation |  |  |  |  |  |  |  |  |
| Programming |  |  |  |  |  |  |  |  |
| Training |  |  |  |  |  |  |  |  |
| Testing |  |  |  |  |  |  |  |  |
| Final Report/Presentation |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Week 11 | Week 12 | Week 13 | Week 14 | Week 15 | Week 16 | Week 17 |
|  |  |  |  |  |  |  |
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# Cost & Budget

For this project mostly I will be using an open-source data to support my development. The only concern that could come with it is in case of publishment the sets require you by their licence to mention and pay for the library usage.