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Project Milestone 2A (One-Pager)

42578 ADVANCED BUSINESS ANALYTICS
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AUTHORS

Fie Christina Møller - s205291
Raquel Moleiro Marques - s243636
Sabina Maria Kozłowska - s233185
Sree Keerthi Desu - s243933

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Title

Anti-Food Waste Recommender

Keywords

- Food Waste
- Recipe Generator
- Image analysis
- Recommendation System

Abstract

Objective

The problem we aim to address is the alarming issue of food waste. Many people struggle with not knowing what to do with leftover food ingredients, leading to unnecessary waste. The challenge lies in figuring out how to combine these single leftover ingredients into new, enjoyable recipes that effectively utilize older ingredients without compromising quality. Our objective is to create a solution that helps reduce food waste by recommending recipes that make the best use of aging ingredients.

Scope

There is no specific timeframe or geographical area that we consider. Our focus will be specific to generating recipes with one or more ingredients near expiry. For example, if someone were to want to use old tomatoes, then a regular recipe recommendation system might suggest a salad. However, due to the lack of freshness of the tomatoes, this would not be a viable option for the user. To improve this situation, we would want our recommender to be able to take into account the freshness of the ingredients when recommending a recipe. This system might prove useful for individual users looking to empty their fridge, for corporations that target reducing food waste such as Too Good To Go, or also for supermarkets that sell items near expiry at a reduced price to encourage sales.

Dataset

This is the considered dataset: Kaggle dataset. It includes recipes along with their required ingredients and consists of 13582 rows/recipes and 5 columns, with a total size of 238.62 MB.

ABA topics

To implement our project, we would like to apply the following topics for our project: Natural Language Processing (NLP), Recommender Systems, and Deep Learning.

NLP will help us determine whether a recipe within the dataset uses fresh ingredients or not. The Recommender System would allow the user to input an image of the ingredients which can then be analyzed using a Convolutional Neural Network (CNN) to generate a list of items within the inputted image. These ingredients would then be used to find relevant recipes within the dataset filtered earlier using the NLP techniques.