Computer Science A Level Project Proposal

**Recipe Recommendation System in Python**

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**Introduction**

The idea for my project is a Recipe Recommendation System built entirely in Python. It will utilize a data sorting algorithm that will recognize ingredients being input by the user and suggest possible recipes that can be made with the available ingredients.

The user will be able to save recipes and keep a profile of their ingredients where they can add or remove them at any time and can be accessed by login.

**Problem Definition**

This program will help those unsure of what to cook with the ingredients available and provide suggestions on new recipes for them to cook with the provided ingredients.

The program will work by accessing a large database of ingredients and recognizing them as such when a user inputs one – it will begin to run through an associated table of recipes in which the ingredients are found and will display them to the user.

Another purpose of the program is to provide an easy way to find recipes and to be highly accessible. This computerized solution eliminates the need to buy cookbooks or scroll through an overwhelming amount of recipes online – simplified all into one program that does all the work for you. It also saves the instructions to the recipes of your liking, solving the need to write down the step-by-step instructions.

**Stakeholders**

People who are enthusiastic about cooking whether they are a home cook or a professional chef will find this program very helpful as it will assist them in their daily cooking. It will give them new ideas for recipes which the consumer and their household/customers can enjoy.

Food entrepreneurs who own small restaurants may also find this program beneficial, giving them a wide variety of recipes to add to their menu based on the available ingredients.

**Practicality**

Since the project implements data science and machine learning, the most suitable programming languages for this type of project would be the following: ***Python, C++, JavaScript, and R***

Python is the programming language of my choice as it simplifies the process of programming complex data sets due to its high readability and easy syntax. It also contains a variety of modules and libraries - when used it can save a lot of time with its built-in functions. It is also very efficient in data science and is one of the top programming languages for this category of programs.

As previously mentioned, the target audience of this program are people who are enthusiastic about cooking. A program like this can be used both casually at home for recipe ideas and professionally in a restaurant environment. Therefore, it is very practical.

Ingredients and Recipes will be stored in their own separate databases and will be each be sorted through according to the user’s input. It recognizes these ingredients and recipes from online sources and contains unique information for each food and recipe.

**Backup**

For my backup idea, I would like to create a Thesaurus in Python which will use the PyDictionary module. It will offer synonyms and antonyms to any word and if possible, definitions. It will make use of a dictionary database to sort through a selection of words and their synonyms and antonyms, outputting them to the user.

This program provides a quick and easy solution to finding the synonyms and antonyms to a word, as the user must simply input a word and it will show up. If no synonyms or antonyms are available to a word, nothing will show up. What makes this project complex is the data science that is involved which includes data sorting algorithms.

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