COOKBETTER: A Bot for Personalized Recipe Recommendation (Phase-2)

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ABSTRACT

Food is a primary need of all humans. People have always wanted good taste in their food along with the food keeping them healthy. Proper nutrition is essential for optimum nourishment and health of everybody. Lack of time, cooking knowledge, and health problems stop people from receiving this. Multiple ways are tried by people to remedy this issue, but most of these ways make the user compromise on either taste or health. Having proper tools for users to fulfill their food intake should be a given today. So in this paper, we have proposed a system that helps user manage their diet by complete comprehension of their preferences. Along with a proper recommendation of food recipes in accordance to the user's taste, the system targets the improvement of the user's health. Also, users can have ideal recipes suggested to them based on the ingredients they have available.

Keywords

Slack, Cooking, Association

1. INTRODUCTION

1.1 Problem Statement

1.2 Proposed Solution

2. LITERATURE SURVEY

3. USER STUDY

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5. IMPROVEMENTS

5.1 Accuracy

5.1.1 Association on ingredients to get more relevant recipes

Currently the implemented system is restricted to the data injected in the database and suggests the recipe based on the ingredient and other requirements provided by the user which are then queried in the database along with the personalized parameters to give the recommended recipe to the user. Though this implementation works with the small data set, it will fail for the large data-set. So to improve the accuracy of the system and broaden the range of recommendation system, we will find the potentially interesting and relevant relations between the ingredients in the recipes using descriptive data mining method, known as the association rules mining. To explain our approach letâĂŹs consider an example where X and Y are sets of ingredient from two different recipes and a recipe that contains all ingredients from X also tends to contain all ingredients from Y, then we can define a association rule i.e. X -> Y in association rules mining. We will be using support and confidence criteria of the association rule to build the knowledge base. Where, The confidence is the ratio between the number of recipes that have true values for all ingredients in X and Y and the number of recipes that have true values for all ingredients in X and support of an association rule is the ratio of the number of recipes that have true values for all ingredients in X and Y and the number of recipes in our database.

We will implementing Apriori association rules algorithm and will be doing experiments with the different values of the minimum support and minimum confidence to find the values of support and confidence which maximize the information that can be retrieved from the different rules. Moreover, to represent analytical results of the rules achieved, we will be using graph-based visualization technique.

The above analysis will help us to see how the ingredients are combined in different recipes. The information will be very important for recipe recommendation as we need to broaden the range of our recommendation system.

5.2 Usability

5.2.1 Multiple input formats rather than filters.

The chatbot currently uses drop down menus and buttons as the input medium for the required information. While these drop down menus can be helpful in maintaining a clean interface, it increases the user effort required to provide some key words. A better technique for input in this case would be an input from a text box. While chatting with the bot, the

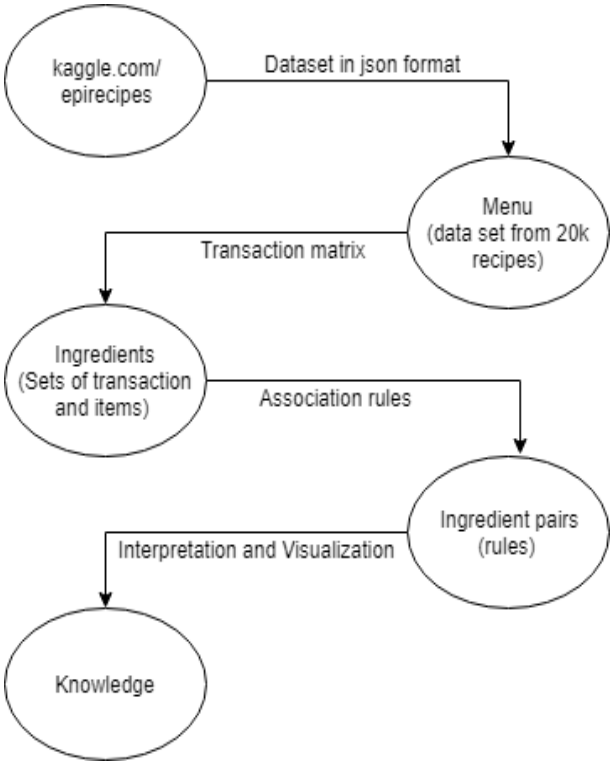

Figure 1: The knowledge discovery process.

users can enter the list of ingredients separated by comma whenever the bot asks them to. It saves a lot of effort of opening the drop down menu and selecting an option.

We are planning to allow user to provide the required information by entering text in the textbox. The input string will then be parsed by our parsing algorithm and a list of required data, such as the list of ingredients or dietary restrictions, will be obtained and stored in the database. After this change, we believe that the user experience will improve. Our plan still includes the buttons in the UI because their ease of use as an input measure for a binary choice is unchallenged.

5.2.2 Upgrading the UI

The UI of the current application looks cluttered because of a large number input tools (drop down menu, buttons) and display texts in a small. We plan to increase the readability by providing a more cleaner UI which will be obtained by removing multiple things that currents are displayed on the screen at once. One of these space consuming yet not so user experience improving thing is the dropdown menu. We plan to remove these menus and change the input technique to help the user achieve the task that they want to do in minimal effort.

5.2.3 Saving the preferences

This application has been designed to make the users provide inputs whenever they want to use it. This can be a very tedious task for someone if they use this application frequently. This application should be smart enough to save the preferences of the users and use these preference while making recommendations or while filling any input. These choices are likely to stay the same but in case there needs to be a change in them, the user will be provided with an option to update them.

5.2.4 Making list of favorite recipes

Every time a user uses this application to get a personalized recommendation of the recipe, they should be asked if they liked the item they cooked or not. If they did, then they should be provided with an option of adding that particular recipe to their list of favorite recipes.

The list of favorite recipes should be accessible form the chatbot so that, if the user wishes, he may pull up a recipe from this list and not ask the bot to recommend some recipe.

5.2.5 Recipe ranking - Rating of recipe

On "epicurious" website, users can rate each recipes by 0-5 scores, leave reviews and answer yes or no to "Do you want to make it again?" question. We would like to use the review scores and "make it again" rate to sort the search recipes. Moreover, we want to to make a personal rating system that the user can sort their favorite recipes to optimize the search result.

5.2.6 Short description

Whenever a user uses the bot for recipe recommendation, they are provided with links to the recipe page on a website. The user is then required to visit that website to see the recipe. This becomes a tedious task which leads to bad user experience.

We plan to change this by providing a short description of the recipe to the user. It will help the user to know the ingredients and the time required to make that particular dish. This information can save a lot of time for the user as it does not involve visiting a website for each of the recommended recipe.

6. EVALUATION

7. CONCLUSION