**Recipe Ontolgy Documentation**

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| Recipe Ontology | | | | |
| SEEMP Reference Ontology Requirements Specification Document | | | | |
| **1** | **Purpose** | | | |
|  | The purpose of building the Recipe Ontology is to provide a comprehensive knowledge model of various culinary recipes to be utilized by the public. | | | |
| **2** | **Scope** | | | |
|  | The scope of the Recipe Ontology is to provide a broad and detailed coverage of culinary recipes, encompassing diverse cuisines, ingredients, and cooking techniques to meet the informational needs of users ranging from home cooks to culinary researchers. | | | |
| **3** | **Implementation Language** | | | |
|  | The ontology has to be implemented in OWL language, ensuring compatibility with semantic web technologies. | | | |
| **4** | **Intended End-Users** | | | |
|  | User 1. Home cooks and culinary enthusiasts seeking information on recipes.  User 2. Individuals interested in exploring diverse cuisines.  User 3. Researchers conducting culinary studies for various purposes.  User 4. Aspiring chefs looking for areas of interest and specialization based on culinary preferences. | | | |
| **5** | **Intended Uses** | | | |
|  | Use 1. Gain knowledge about different culinary recipes.  Use 2. Explore options within various cuisines.  Use 3. Gather information about specific cooking techniques and ingredients..  Use 4. Discover professional culinary options and trends.. | | | |
| **6** | **Ontology Requirements** | | | |
|  | **a. Non-Functional Requirements** | | | |
|  | NFR1. The ontology must maintain consistency and effectively answer all competency questions.  NFR2. The ontology must adhere to the FAIR (Findable, Accessible, Interoperable, Reusable) principles, ensuring its accessibility and utility. | | | |
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|  | **b. Functional Requirements: Groups of Competency Questions** | | | |
|  | Group 1: Recipe  CQ1. What are the different types of recipes available?  CQ2.Can you list all breakfast recipes in the ontology?  CQ3.Show me the dessert recipes in the ontology.  CQ4.What are the ingredients required for a specific recipe?  CQ5.Provide the instructions for making pancakes.  CQ6.List the nutritional values for a specific recipe.  Group 4: Ingredients  CQ1.What categories of ingredients exist in the ontology?  CQ2.Give me all the dairy products listed in the ontology.  CQ3.Show the types of spices included in recipes.  CQ4.What are the quantities of ingredients needed for a particular recipe?  CQ5. Provide details about the quantity of sugar used in desserts.  CQ6.Show ingredients with the word "vegetable" in their name.  Group 5: Instructions  CQ1. Show the step-by-step instructions for making a specific dish.  CQ2. What are the cooking instructions for a breakfast recipe?  CQ3. Provide the instructions for a dessert recipe that includes baking.  CQ4. List all recipes that involve frying as part of the instructions.  CQ5. Show me recipes that require more than five steps.  Group 6: Nutrition  CQ1. What are the calorie values for different recipes?  CQ2.Show recipes with high protein content.  CQ3.Provide details of recipes that contain more than 20 grams of fat.  CQ4.Compare the sugar content in breakfast recipes vs. dessert recipes.  CQ5.Find recipes with fewer than 300 calories.  Group 7: Cooking Queries  CQ1. Which recipes include milk as an ingredient?  CQ2. Provide recipes that use a specific spice.  CQ3. Find recipes that require fewer than five ingredients.  CQ5. List recipes that have more than ten steps in their instructions.  CQ6. What recipes use eggs as an ingredient?  CQ7. Show recipes without salt in their ingredient list.  CQ8. Find recipes that are low in carbohydrates  CQ9. List recipes that have high fiber content... | | | |
| 7 | **Pre-Glossary of Terms** | | | |
|  | **Terms from Competency Questions** | | | |
|  | Recipe Name  Ingredient  Chef  Category  Instructions  Caloric Value |  | Protein Content  Fat Content  Carbohydrate Content |  |

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| **Some Competency Questions have been executed through SPARQL queries**  **CQ.Which ingredients are used in the preparation of Creamy Alfredo Pasta?**    **CQ. What are the specific nutritional values, such as caloric content, protein content, fat content, and carbohydrate content, per serving of Creamy**  **Alfredo**    **CQ. Who is the chef responsible for creating Creamy Alfredo Pasta?**    **CQ. Under which recipe category does Creamy Alfredo Pasta fall?**    **CQ. What are the cooking instructions for Creamy Alfredo Pasta?**    **CQ. What are the main ingredients used in the Cheese Omelette?**    **CQ. What are the specific nutritional values per serving of the Cheese Omelette?**    **CQ. Who is the chef credited with creating the Cheese Omelette?**    **CQ. Under which recipe category does the Cheese Omelette fall?**    **CQ. What are the step-by-step instructions for preparing the Cheese Omelette?** |