**Abstract**

**The Recipe Recommendation System is a Streamlit-based web application designed to help users discover recipes based on available ingredients or specific tags. It leverages Natural Language Processing (NLP) and machine learning techniques to efficiently compare ingredient lists and suggest the most relevant recipes.**

**The system processes a large dataset of recipes, extracting key details such as ingredients, cooking time, preparation steps, tags, and nutritional information. Users can search for recipes in two ways:**

1. **Ingredient-Based Search – Uses CountVectorizer to transform ingredient lists into numerical representations and cosine similarity to match user-input ingredients with existing recipes.**
2. **Tag-Based Search – Allows users to find recipes based on keywords (e.g., "vegetarian," "quick"), filtering relevant results accordingly.**

**By applying vectorization and similarity calculations, the system ranks and recommends recipes that closely match the user’s input. Each suggested recipe includes step-by-step instructions, estimated cooking time, and nutrition details, ensuring a seamless and informative experience.**

**This system enhances meal planning by providing quick, personalized recipe recommendations, reducing food waste, and making cooking more convenient. Future improvements may include integrating user feedback and expanding the dataset for more diverse recipe suggestions.**