**Abstract**

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**Title:**  
Recipe-to-Shopping List AI

**ProblemStatement:**  
**"Users often struggle to manually extract ingredients from recipes and organize them into efficient shopping lists. This process is time-consuming, error-prone, and lacks personalization. The goal is to build an AI system that can parse any recipe, identify ingredients and quantities, and generate a categorized shopping list tailored to the user's preferences and pantry inventory."**

**Objectives**  
The Recipe-to-Shopping List AI aims to intelligently extract ingredients and quantities from diverse recipe formats, normalize and categorize them into structured shopping lists, and personalize the output based on user preferences, pantry inventory, and dietary needs. It should efficiently merge ingredients from multiple recipes, eliminate duplicates, and offer a user-friendly interface for editing, saving, and exporting lists. Advanced features may include smart recommendations, substitutions, and seasonal suggestions to enhance convenience and reduce food waste.

**ProposedMethodology/Approach**  
The proposed methodology for the Recipe-to-Shopping List AI involves collecting and preprocessing diverse recipe data, applying natural language processing to extract and normalize ingredients, and converting them into structured, categorized shopping lists. It incorporates user personalization by factoring in dietary preferences and pantry inventory, merges ingredients from multiple recipes to optimize quantities, and delivers a clean user interface for input and output. The system is tested and refined to handle edge cases, with optional advanced features like smart recommendations and substitutions to enhance usability and reduce waste.

**ExpectedOutcome**  
The AI system is expected to accurately extract ingredients and quantities from various recipe formats and generate a clean, categorized shopping list tailored to the user's preferences and pantry inventory. It should streamline meal planning by merging ingredients from multiple recipes, eliminating duplicates, and offering smart substitutions for dietary needs. The final output will be a user-friendly interface that simplifies grocery preparation, reduces food waste, and enhances the overall cooking experience through intelligent automation.

**BaseResearchPaperReference**  
Kozinets, Robert V. and Ulrike Gretzel (2023), “Qualitative social media methods: netnography in the age of technocultures”, in Denzin, Norman K., Yvonna S. Lincoln, Michael D. Giardina, and Gaile S. Cannella (eds). The Sage handbook of qualitative research, 6th edition. Sage publications, 403-419.