<u>ABSTRACT</u>

<u>RECIPE SHARING PLATFORM</u>

The **Recipe Sharing Platform** is an innovative web application built using Django, designed to empower users to create, share, and discover culinary delights. This platform provides an integrated, user-friendly experience for recipe management, meal planning, and ingredient knowledge. It offers additional features such as dietary filters and user-generated content to foster a sense of community while providing nutritional insights and substitution suggestions for enhanced user engagement.

The platform's core functionalities include user authentication, recipe management, categorization, and search. Features such as recipe sharing, meal planning, ingredient knowledge, and recipe rating/review further enrich the user experience. Recipe contests, complete with clear guidelines and judging criteria, encourage participation and community interaction. To optimize content and improve user engagement, the platform leverages analytics to understand user behaviour. Robust security and scalability are prioritized to ensure a reliable and user-centric experience.

Machine Learning Integration

To further enhance the platform, ML-powered features will be implemented:

1. Ingredient Usage Insights

- Why it's easy: Analyze ingredient usage trends based on user activity or recipe uploads.

- **Steps:**

  1. Count ingredient occurrences across all recipes.

  2. Display frequently used ingredients or trends.

- **Tools:** Pandas or Python's collections.Counter.

2. Basic Recipe Recommendations

- Start with content-based filtering, which matches recipes based on shared tags or ingredients. No advanced algorithms are required.

- **Steps:**
    1. Compute similarity scores between recipes using tags or ingredient lists.
    2. Recommend recipes with high similarity scores to the user.
- **Tools:** Python's collections or Scikit-learn for cosine similarity

3. Allergen Alert System

- This is rule-based and doesn't need ML initially.
- **Steps:**
    1. Store user allergies (e.g., nuts, gluten).
    2. Check recipes for flagged ingredients and alert users if allergens are present.
- **Tools:** Python's dictionaries for allergen mapping

4. Recipe Upload Quality Check

- Use predefined rules or basic ML to check for common issues like missing ingredients or unclear instructions.
- **Steps:**
    1. Define rules for checking recipe completeness (e.g., all fields are filled).
    2. Optionally, use NLP for simple grammar checks in instructions.
- **Tools:** TextBlob or NLTK for text validation.

5. Recipe Image Classification (Basic)

- **Why it's easy:** Use pretrained models to classify recipe images (e.g., "Vegetarian," "Dessert").
- **Steps:**
    1. Collect images with labels.
    2. Use a pretrained model like MobileNet or ResNet to classify.

- **Tools:** TensorFlow or PyTorch with transfer learning.