Phase 5: Performance Testing Phase

Project Title: To supply leftover food to poor.

Introduction

Food wastage is a major issue in our society, while many underprivileged people struggle daily for a single meal. This project aims to create a system to collect, manage, and distribute leftover food from restaurants, events, and households to the needy. The system connects food donors and volunteers with nearby shelters and NGOs to ensure timely and safe food distribution. The focus is on minimizing waste, reducing hunger, and promoting social responsibility.

Objective of Testing

The main objective of this project is to design an efficient platform that identifies and collects surplus food and supplies it to poor and homeless people before it spoils. It ensures:

- Proper tracking of food quantity and quality
- Quick response between donors and recipients
- Reduction in food wastage and hunger
- Safe and hygienic handling of food during transport and delivery

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Functional Testing

The system operates through three main modules: Donor, Volunteer, and Receiver.

- Donor Module: Restaurants, events, or individuals can register and enter food details (type, quantity, pickup time).
- Volunteer Module: Volunteers receive alerts about nearby donations and handle collection and delivery.
- Receiver Module: NGOs or community kitchens receive the food based on availability and need.
  Notifications, tracking, and confirmation updates are automatically sent through the app to maintain transparency.

Performance Testing

The system was tested for efficiency, reliability, and data accuracy. Several test scenarios were simulated:

- Multiple donors registering simultaneously
- Food pickup and delivery tracking
- Response time between donor and volunteer notifications
  The system maintained fast performance, accurate record updates, and reliable operation even with multiple users.

Usability Testing

Usability tests ensured the application is simple and accessible for all users, including NGOs and volunteers. Clear labels, icons, and navigation paths were implemented. The interface allows quick food listing and pickup confirmation with minimal training.

Security Testing

Security features include user authentication, data encryption, and role-based access control. Only authorized users can access donor and receiver data. Privacy of donors and recipients is strictly maintained to ensure trust and safety.

Integration Testing

Integration testing confirmed smooth communication between donor, volunteer, and receiver modules. Once a donor posts food availability, the system automatically notifies the nearest volunteer, who delivers it to the assigned NGO. Delivery status updates are reflected in real-time for all parties.

Test Environment

Testing was carried out on a web-based platform using a local database. Simulated user loads and real-time food pickup scenarios were conducted to ensure system stability and accuracy.

Conclusion

The “To Supply Leftover Food to the Poor” project successfully demonstrates how technology can reduce food wastage and feed the needy. The system performed well in terms of speed, reliability, and usability. It efficiently connects donors, volunteers, and NGOs, ensuring timely food distribution. The project contributes to both environmental sustainability and social welfare, making it a practical solution for community hunger management.