PROJECT REPORT

AI-ML Internship | IBM SkillsBuild

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Title:

FoodShare AI: A Smart Web Platform to Reduce Food Waste and Feed More People

Introduction:

Food waste is one of the most avoidable problems we face today. Every day, large amounts of good, edible food are thrown away by restaurants, supermarkets, and even households. At the same time, millions of people struggle with hunger, especially in urban areas. The issue isn't just about food availability — it's also about poor distribution and lack of coordination between those who have surplus food and those who need it.

This is where technology, especially Artificial Intelligence (AI), can play a powerful role. With the help of a web platform powered by AI, we can connect food donors with NGOs and people in need, all in real-time. AI can help match donations quickly, manage pickups efficiently, and even track how much food has been saved and how many people have been helped. This project focuses on building such a platform — one that makes donating food as easy as ordering it.

Problem Statement:

There's currently no simple and reliable way for food donors and NGOs to connect instantly. Many restaurants and shops are willing to donate surplus food but don't know how or where to start. On the other hand, NGOs often struggle to find a regular supply of food to support their communities. Most existing solutions are manual, slow, and not built for scale.

This project aims to solve that problem by creating an easy-to-use web platform that connects both sides efficiently. By using AI, the platform can notify nearby NGOs when food is available, suggest pickup timings, and help avoid food spoilage. It can also help volunteers manage deliveries and give donors insights into the real impact they're making.

This project supports the United Nations Sustainable Development Goals:

- **SDG 2: Zero Hunger**
- **SDG 12: Responsible Consumption and Production**
- **SDG 13: Climate Action**

By reducing food waste and feeding more people, this platform aims to make a small but meaningful difference in the fight against hunger and climate change.

Objective:

The main goal of this project is to design and develop a smart, AI-powered web platform that helps reduce food waste by connecting surplus food providers with NGOs and communities in need. The system aims to:

- Match food donors and recipients in real time.
- Send instant alerts to nearby NGOs and volunteers.
- Track food saved, people fed, and environmental impact.

Why This Problem?

Every day, large amounts of edible food are wasted while many people still go hungry. Most of this happens not because food is unavailable, but because there is no reliable system to redistribute it on time. Manual methods are slow, unorganized, and lack reach.

By using an AI-powered digital solution, we can help bridge this gap with a fast, affordable, and scalable platform. It supports better planning, faster response, and real-world impact by saving food and feeding more people — while also contributing to environmental sustainability.

Solution

Overview:
Our solution is a web-based platform powered by AI that connects restaurants, supermarkets, and households with verified NGOs and food banks. It enables food donors to list surplus items and uses smart matching to notify the nearest recipients.

Features:

- **Instant Matching:** AI matches food donations with NGOs based on location and urgency.
- **Real-Time Alerts:** Sends notifications to NGOs and volunteers when food is available.
- **Impact Dashboard:** Tracks how much food is saved, how many people are fed, and how much waste is reduced.
- **User-Friendly Interface:** Simple for both food donors and NGOs to use.
- **Scalable Design:** Built to expand easily to new areas and communities.

Technical Implementation:

- **Data Collection & Processing:** Collect location data of donors and NGOs, food availability information, and pickup schedules.
- **AI Matching Algorithm:** Use smart logic to pair donors with recipients based on proximity, food type, and timing.
- **Platform Development:** Build a clean and responsive web interface with backend support for managing donations, alerts, and analytics.
- **Deployment:** Host the platform on cloud infrastructure for scalability and uptime.
- **Monitoring & Updates:** Continuously improve features based on user feedback and usage data.

Why These Resources and Tools?

- **TensorFlow:** Used to build and train machine learning models that can predict food demand trends and optimize food matching based on location and availability.
- **Scikit-learn:** Helps us apply simple, efficient ML algorithms to analyze food donation patterns and user behavior for continuous improvement.
- **Cloud Infrastructure:** Ensures smooth storage, fast processing, and reliable performance for managing donations and alerts in real time.
- **Visualization Tools:** Useful for creating easy-to-understand dashboards that show how much food has been saved, how many people were helped, and where efforts are making the most impact.
- **Secure Data Practices:** Protect donor and NGO information, ensure privacy, and follow data security standards to build trust and reduce risks.

Conclusion:

This project shows how technology — especially AI and web platforms — can play a key role in reducing food waste and fighting hunger. By creating a system that connects food donors with NGOs in real time, we help ensure good food reaches those who need it most, instead of being thrown away.

The platform is efficient, easy to use, and designed to grow with community needs. It supports multiple UN Sustainable Development Goals, including **Zero Hunger (SDG-2)**, **Responsible Consumption (SDG-12)**, and **Climate Action (SDG-13)**.

With continuous updates and support from communities and partners, this project has the potential to create a real difference — not just in reducing waste, but in building a fairer, more sustainable future for everyone.