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FOOD DONATION AND MANAGEMENT WEBSITE

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ABSTRACT:

The one-third of all food globally goes to waste? That's enough to feed 3 billion people! As per one data, the average person in India wastes 137 grams of food every single day. That's 0.96 kg per week or 50 kg per year. In India, 40% of the food is wasted which is equivalent to Rs 92,000 crores a year. So, we came up with an idea to develop a progressive web application to administrate supply and manage the food from source like Restaurants, Banquet Halls to needy ones such as charitable trusts, orphanages using modern web technologies to ensure fastest updates and notifications, interactive GUI and easy to use for volunteers. Technologies involved are HTML5, CSS, Bootstrap 5.2, Javascript, AJAX, Angular for thefrontend, PHP andMySQL for the back end.

INTRODUCTION

Estimated by the Food and Agriculture Organization (FAO) - Around 40% of the food produced in India is wasted each year due to fragmented food and inefficient supply chain systems. Ironically, the loss occurs before the food reaches the consumer. Food waste management is now a simple process with the help of technology. Many NGOs suffer from several problems in the current working scenario. Although there are mainly communication problems with members, leaders and volunteers, the main goal of the NGO, Robin Hood's Army, is to feed the poor. As a volunteer member, you must visit restaurants, personal donations, and processed foods. Volunteers face

many problems such as communication problems, availability of food, etc., which is the main reason for this project.

WHAT IS ANGULARJS?

AngularJS is a free and open source JavaScript-based web framework for developing single-page applications. It was primarily maintained by Google and a community of individuals and businesses. Develop and test web applications and the progressive web by providing a framework for client-side Model-View-Controller (MVC) and Model-View-ViewModel (MVVM) architectures, along with components commonly used in such applications It was intended to simplify both application.

AngularJS was used as a front end for the mean stack, which consists of a MongoDB database, the Express.js web application server framework, AngularJS itself (or Angular), and a Node.js server runtime.

WORKING HEIRARCHY

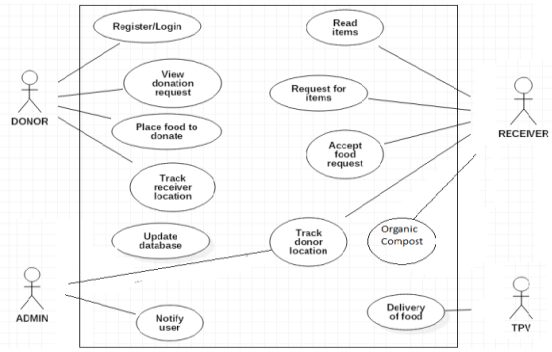

Fig.1 USECASE DIAGRAM

the working flow of this project is user oriented. As user can be either donor or receiver the login is done and then he can get notifications based on his login identity. the data flow of donor is to send his details of quantity of food and the dataflow of reciever(NGO) is to accept the request and to go to the requested adress for pickup of food.

SYSTEM ARCHITECTURE

- Registration: User needs to register as a consumer or producer.
- Posting the availability: The producers (Restaurant Kitchens, Banquet Halls) will post the excess amount of food, Location and contact details if available.
- Pushing Notification: the Notification about the availability is sent to the near by consumers (NGO's, Volunteers).
- Chat option: The consumer can get in touch with producer and pick up the delivery.
- Track Status The updates on availability is given time to time. Consumers can track the status of availability any time.

- Closure of request: After the supply chain is balanced the request will be closed permanately.

STEPS FOR IMPLEMENTATION

- Making html layouts and UI components using Bootstrap
- Applying semantics to the UI components using CSS
- Design database system
- Script the server functions
- DOM manipulations
- Integrating all the systems and scripts

Making html layouts and UI components using Bootstrap

Bootstrap5.2 framework provides various types of UI/UX commonly used java script functions such as courses, pop ups, tooltips, etc. Bootstrap components are highly semantic, saving developers design and coloring time.

The Layout of every page in this project is done with Bootstrap Grid System. All the components, Semantics, colours, widgets are adapted from Bootstrap via CDN Link. Therefore, Bootstrap has reduced a Lot of development and designing time.

Applying semantics to the UI components using CSS

Additional adjustments of the Components, blocks, words, icons such as placing co-ordinates w.r.t parent Component, Colour replacement w.r.t Background, Aligning and Justification of text are done using Inline and embedded CSS.

Design database system

MySQL is a best Data Base choice for this project as it has the following features:

- Atomicity
- Relational DB
- Key Constraints
- Large Community Support

For this project 1 Database and 4 tables are used. Tables are as follows:

- **Users :** Storage of Login credentials and User Information such as Contact info, Address, Type=Donor or Receiver
- **Available Donations:** Storage of available donations by donors.
- **Requests :** Storage of Receivers requests for the donations.
- **Notifications :** Storage of Notifications which need to be pop up on users screen.

Time stamps of every record is maintained and key constraints like primary key and foreign key is maintained for valid flow of transactions.

Script the server functions

The Server handling functions needed for this project are as follows:

- **User Authentication:** Login Credentials verification like username and password.
- **User Authorization**: Denial of access to Donor operations for receiver and vice versa.
- **Form Validation:** validating each and every attribute with respective constraints like length, range, not null, unique.
- **Fetching Data from DB:** This is the most important function of server, with out this the project couldn't stand. Fetching the required information from database in time.
- **Session creation and time out:** This is another crucial function of server, without session communication of information between the pages becomes very complex task. Creating, Starting and ending the session for accessing global variables which are used throughout the project. In this project session variables used are: username, user-type, city of user.

For all the above functions PHP suits best. PHP stands for pre hyper text protocol. PHP is a server side scripting language. It is light weight programming language, It can be easily embedded with HTML It is works best with MySQL to execute queries and fetch records. PHP is best backend programming language till date. It has great community support.

DOM Manipulation

All the tasks cannot be handled by server, some easy tasks such as pop up notifications need to handled by front-end part that is HTML, CSS or JavaScript. As HTML and CSS are not programming languages they cannot manipulate HTML elements or attributes. Now JavaScript comes to the picture. A simple java script can manipulate HTML elements from that file but for more flexible operations such as getting information from other pages, http requests, http response we

need to use modern Java Script Libraries such as AngularJS, ReactJS or AJAX. For the Applications which are developed with Mixtures of different technologies AngularJS best suits the need as it is easy to import and implement in the project.

Integrating all the systems and scripts

All the files performing different actions built with different technologies are combined into folder and hosted via XAMPP. As we have used many technologies to building the project XAMPP is perfect platform to Development. XAMPP provides a platform to host the web application on local computer.

RESULTS

This project is fit for real time application and can be adapted to reduce the food wastage, feed the needy and balance the ecosystem. This project is also fit for administration and tracking orders to avoid fraud organisation for consumption and mis usage of the donations. This application is flawless by ensuring all the encryption of data, built in firewalls and proper sanitisation of inputs, optimised by least execution of queries in back end, least page loading time, faster request and response time via HTTP.

MERITS

The food supply chain can be managed, balancing the orderly flow of produced food from the point of production to all levels of the consumer ecosystem. Reduce food waste and create a more sustainable environment. Energy is therefore conserved at all levels of the food chain.

LIMITATIONS

All NGO units and charity trusts and non profitable organizations cannot afford software runnable devices. Even if they do so, they lack the technical expertise in the usage of software application. Lack of awareness of the availability of such applications. Legal publication of this application and incorporations requires government approval.

SOFTWARE REQUIREMENTS

In this project we have used Windows 10, Intel Core i7-9700 CPU of 3.00 GHz, 32.0 GB RAM, and NVIDIA GeForce RTX 2080 graphics card, Bootstrap 5.2, MySQL AngularJS, Pre Hypertext Protocol.

CONCLUSION

Leftover food from events and gatherings can easily be donated. The visibility effect of donations can have a positive impact on users. Minimizing food waste and satisfying hunger are the main goals of food donation projects. The application is targeted in two ways: users who donate food and individuals/organizations who claim food.

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