

LunchBox:- A Web And Mobile Application

Alekh Shirke¹, Mayur Mahajan², Vaibhav Wani³, Sanket Magar⁴, S.H.Lokhande⁵

^{1,2,3,4} SPPU, Department of Computer Engineering, Sinhgad Institute Of Technology And Science, Pune, Maharashtra, India

⁵ Assistant Prof, Department of Computer Engineering, Sinhgad Institute Of Technology And Science, Pune, Maharashtra, India

Abstract – Now-a-days lot of people migrate from their native place or stay away from their families either to earn or for education. These people mostly depend on Messes and small household kitchens for food but most of the time they don't get what they want or pay for. LunchBox is platform that will help these people to find what menu is available in the nearby Mess or kitchens and at what price. It will help them get information about quality of the food the mess serve by looking at the reviews. Mess owners can also increase their reach by bringing listing their mess on the platform. For messes working on the monthly mess system the platform is equipped with QR based attendance system that will help them keep track of their customers attendance and fees they need to pay.

Key Words: LunchBox, Menu, Mess, Restaurants, Flutter, QR attendance, Customer, Business Owner

1. INTRODUCTION

Students residing at hostel depend on Messes or some household kitchens for their food. Everyday, there is a different menu at different messes. So, most of the times, visiting different messes to know about the menu is a time consuming process. Lunchbox is a platform to get information about daily menu at different nearby messes, where they can choose the mess depending on the menu and reviews added by people. User can get information about price, contact details and can locate to the mess easily with the help of navigation support.

This platform will be helpful for mess owners to increase their reach and attract more customers. Mess owners can run their advertisements on the platform for marketing purpose. For Monthly mess systems software will have a QR based attendance system that will replace the traditional register based attendance system. Also, customers will be able to book their seat a day before which will be helpful for mess owners to decide quantity of food to prepare. To make the platform compatible with Android as well as iOS, flutter language will be used in development. Machine learning algorithms will help in providing various application features to the software like sentiment analysis which will analyze the negative and positive reviews.

1.1 Customer Benefit's

Customers can see the menus of the all the messes near by just sitting at home on their phones and decide where they wish to have their food saving them a lot of time of visiting different messes. They can see the ratings and reviews given by other customers to the mess based on which they can predict the quality of the food available there. Customers who are new to the locality can even get navigation to the mess they select.

For the customers who prefer joining mess on monthly basis they can use a QR based scanner with which they can record their attendance of the day on their mess but for that the mess owner should be registered user of attendance system on the app.

1.2 Mess Owner/Merchant Benefit's

This platform will help mess owners increase their reach and get more customers. More reach means More customers and more income.

For the Mess owners who run their mess on the monthly system can register their mess for QR attendance system and they will be able to record the record the data of their customers on platform itself they can see when the customer was present and how many days does the customer have left from his monthly quota.

2. System Design

The System Architecture in Fig. 2.1 gives an overview of the approach toward building a basic version of the intended features for LunchBox web and mobile application.

The workflow works in following manner –

1. Upload the menu- Mess owners upload the menu to the server.
2. Record Storgae- The information regarding the mess is matched and menu is updated for the particular Mess

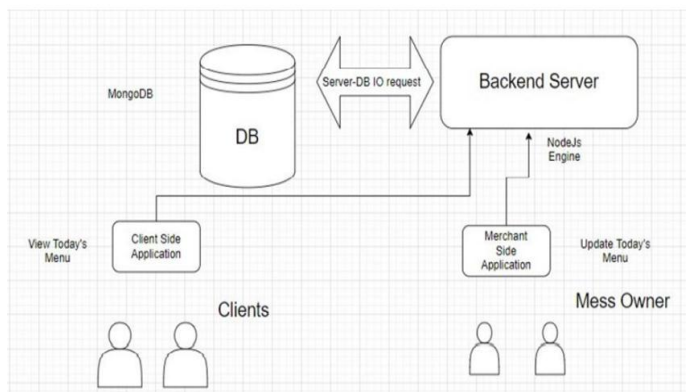


Fig 2.1: System Architecture of Lunch box

3. Display of Information- Location of the Mess and the Menu is made visible to the Customers on the software.
4. Mess rating - Customers rate the Mess based on which high rating mess are displayed first.
5. QR Based Record - To record attendance of a Monthly Customer.

3. Data Flow Diagram

A data-flow diagram (DFD) is a way of representing a flow of a data of a process or a system (usually an information system). The DFD also provides information about the outputs and inputs of each entity and the process itself.

1. DFD (Level 0)

The figure 3.1 shows the abstract level of data flow in this project.

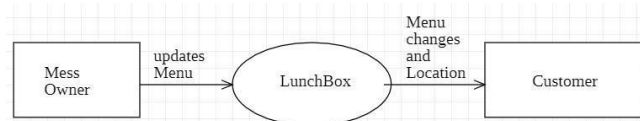


Fig 3.1:-Data Flow level 0

It is also known as a context diagram. It's designed to be an abstract view, showing the system as a single process with its relationship to external entities. It represents the entire system as a single bubble with input and output data indicated by incoming/outgoing arrows.

In figure 3.2 Customer Logs-in to the system and Mess Owners Update the Menu which are Made visible to the Customer as output.

2. DFD (Level 1)

In level-1 DFD, the context diagram is decomposed into multiple bubbles/processes.

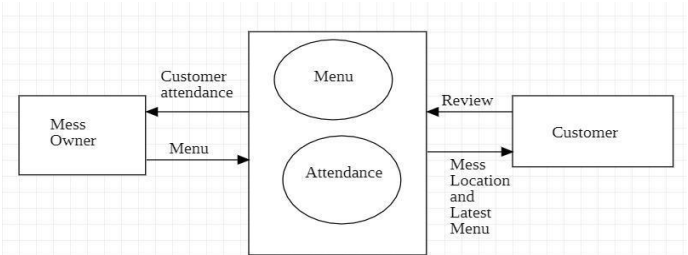


Fig 3.2:-Data Flow Diagram Level 1

3. DFD (Level-2)

Level-2 DFD goes one step deeper into parts of 1-level DFD. It is used to plan or record the specific/necessary detail about the system's functioning. In figure 4.4 the detailed process extended from DFD (Level-1) are shown.

4. UML Diagrams

4.1 Use Case Diagram

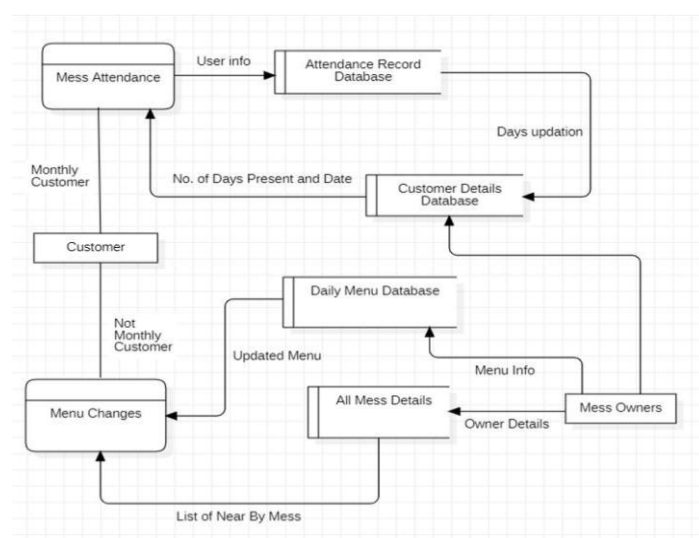


Figure 4.1 depicts the use case diagram which shows the interaction between the actors and the system.

Actor in the use case diagram is

- Student
- Merchant

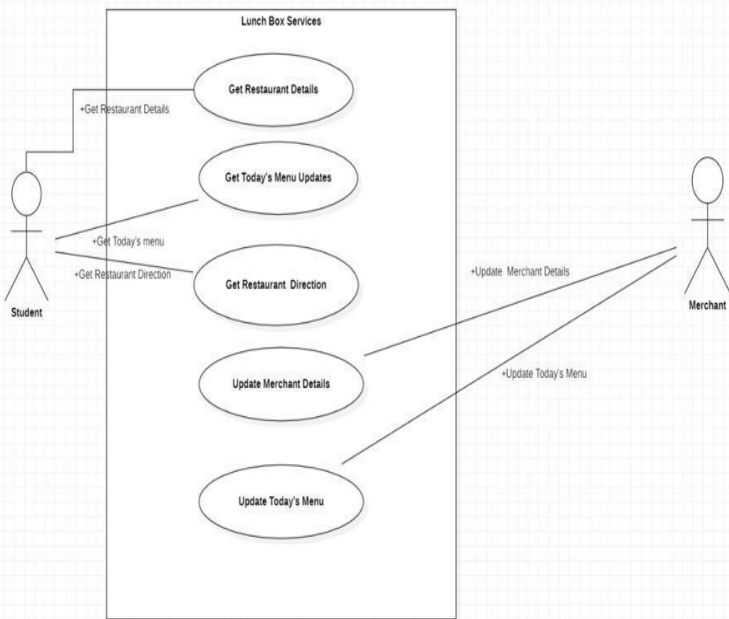


Fig 5.2: UML Use Case Diagram

4.2 Activity Diagram

Figure 4.6 illustrate the flow of control in the system and shows the steps involved in the execution of a use case. User Activity processes of different functionalities of the LunchBox Mobile Application are shown in the Activity Diagram below.

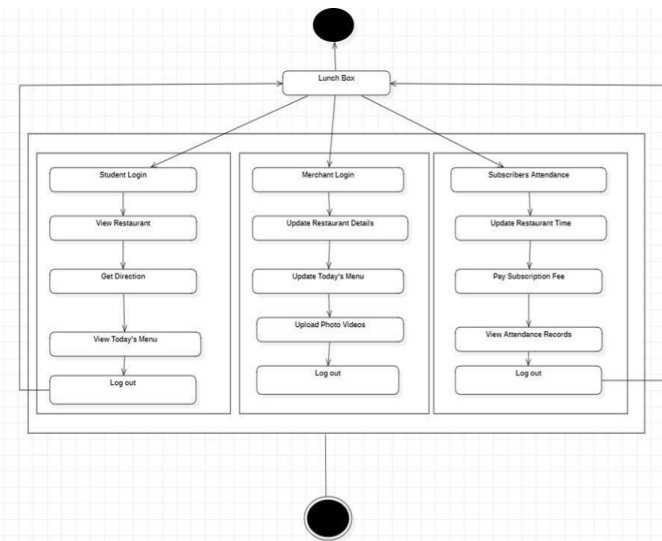


Fig 4.2: UML Activity Diagram

4.3 Class Diagram

In figure 4.8 the class diagram is shown which represents the relationship between classes. Each class contains some attributes and functions. The system is the interface in the class diagram to be used with the Application.

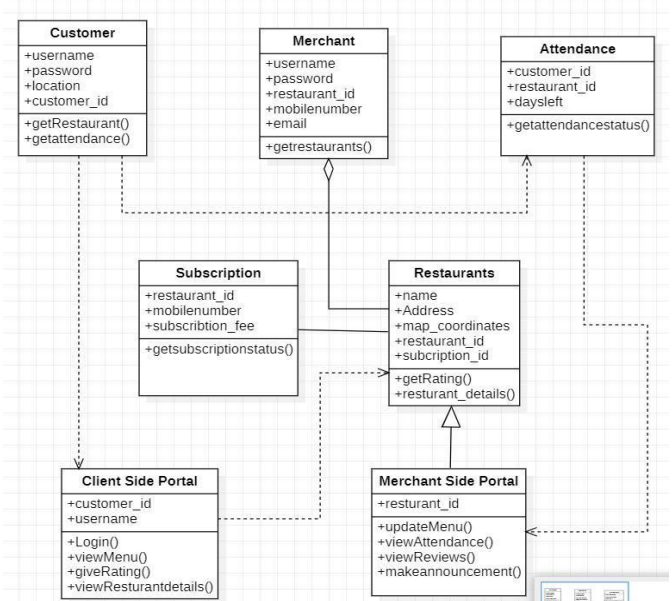


Fig 4.3: UML Class Diagram

5. CONCLUSIONS

Lunch Box Platform for Mess Owner and Clients will solve the practical problem of easily finding nearby Mess. Customer can also give ratings to menu. This platform will allow the users to check the latest menus on the registered Mess and Kitchens Near by without visiting them in person. Portal enables the Mess owners to update their menus and rates daily basis. Customers can see these changes. In future scope, we can add Machine learning and Artificial Intelligence to make the platform more advanced.

REFERENCES

[1] Patra, S., Velisetty, K., Patel, P. (2015). GOOGLE MAPS AND RSS INTEGRATION IN ANDROID. International Journal of Students' Research in Technology Management, 1(6), 614-618.

[2] C. Chauhan and S. Sehgal, "Sentiment analysis on product reviews," 2017 International Conference on Computing, Communication and Automation (ICCCA), 2017, pp. 26-31, doi:10.1109/CCAA.2017.8229825.

[3] S. Boukhary and E. Colmenares, "A Clean Approach to Flutter Development through the Flutter Clean Architecture Package," 2019 International Conference on Computational Science and Computational Intelligence (CSCI), 2019, pp. 1115-1120, doi: 10.1109/CSCI49370.2019.00211.

[4] S. -H. Zou, N. -S. Fang and W. -J. Gao, "Research on online cloud storage technology," 2020 19th International Symposium on Distributed Computing and Applications for Business Engineering and Science (DCABES), 2020, pp. 62-65, doi: 10.1109/DCABES50732.2020.00025.

[5] Manori, Anupam Devnath, Nandgopal Pasi, Nitin Kumar, Vivek. (2017). QR Code Based Smart Attendance System. International Journal of Smart Business and Technology. 5. 1-10.10.21742/ijsbt.2017.5.1.01.

[6] R. Gupta, A. Verma and H. O. Topal, "Customer Segmentation of Indian restaurants on the basis of geographical locations using Machine Learning," 2021 International Conference on Technological Advancements and Innovations (ICTAI), 2021, pp. 382-387, doi: 10.1109/ICTAI53825.2021.9673153.

[7] H. ChunLi and J. WenJun, "Aspect-Based Personalized Review Ranking," 2018 IEEE SmartWorld, Ubiquitous Intelligence Computing, Advanced Trusted Computing, Scalable Computing Communications, Cloud Big Data Computing, Internet of People and Smart City Innovation(Smart World/SCALCOM/UIC/ATC/CBDCOM/IOP/SCI), 2018, pp. 1329-1334, doi: 10.1109/SmartWorld.2018.00231.

[8] Y. J. Ah, K. H. Jeong, S. J. Woo and L. S. Ho, "Visualization of restaurant information on web maps," The 5th International Conference on New Trends in Information Science and Service Science, 2011, pp. 270-272.