Cross Platform Application for Canteen Food Ordering System

Anusha Kailas Kogta.

Abstract- Presently practically all Canteen across different colleges follow an extremely essential paper based or token-based framework to take orders from their staff/students. To make the framework increasingly productive and blunder free Canteen Automation System with cross stage application is proposed. The proposed application can be utilized by staff/students to put orders from anyplace independent of the stage on their gadgets. It empowers the clients to enlist on the web, see and select food things from the accessible menu and request food by simply choosing the food that the client needs to have utilizing the application in simple manner. The backend database will be refreshed subsequent to choosing the ideal food item from the menu card and it will be shown straightforwardly on the dashboard screen. The user will have a username and a secret key, by utilizing which he/she can sign in to the framework. Installments for the requests put should be possible online through the application. When the food is prepared the users will get a warning about the equivalent. The novel application decreases time utilization, administrative work, and human blunders as it is completely automatize. The online food requesting application sets up a food menu on the web and clients can undoubtedly put in the request according to their desire. Likewise with a food menu, clients can without much of a stretch track the requests. This application additionally gives a criticism framework where client can rate the food things. Additionally, the proposed application can suggest food, in view of the appraisals given by the client, the staff will be educated for the enhancements alongside the quality. The installment can be made on the web or pay-on-conveyance framework. For more made sure about requesting separate records are kept up for every client by giving them an ID and a secret key.
Keywords: Cross-platform application; Flutter; Android app, AES.

I. INTRODUCTION

The online food ordering system sets up a food menu on the web and customers can without a very remarkable stretch present the solicitation as per they like. Also with a food menu, online customers can without a very remarkable stretch track the solicitations. The organization keeps up customer's database, and improve food transport organization. The Restaurant the officials structures rouses us to develop the system. There are various workplaces given with the objective that the customers of the system will get organization sufficiently. Furthermore, the system considers Restaurants similarly as Mess office to the customers.

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Again, the idea comes that for the most part mess customers are person who are moved for various clarification in new urban regions. Thusly, they are interrelated. Extending use of cutting edge cell phones is similarly considered as a motivation, with the objective that any customers of this structure get all assistance on single tick. Another motivation can be considered as the structure will be planned to keep up a key good ways from customers doing dangerous goofs, customers can change their own profile, customers can finish their food things GPS, customers can give info and proposition and can give evaluations, it will give appropriate reactions to Restaurants/Mess authority associations. As a result of nonappearance of a full fledge application that can fulfill the customer essentials by giving him food from bistros similarly as from mess organization, there is a prerequisite for the structure. This proposed structure will be used by the people who keep moving from urban territories to urban networks. Similarly as, it will be important for the understudies moving in different urban networks. The proposed structure will give the flexibility to the Customers/Users to organize from either Restaurants or Mess. Extent of proposed framework is legitimate in light of the fact that in huge sum people groups are moving to various urban communities so wide scope of individuals can utilize proposed framework. The framework/interface will take contribution from the client. The framework isn't just for client yet additionally for supplier who gives food administration. This framework is for making proficient correspondence among shopper and maker of the food framework which will at that point prompts the perfect and powerful framework.

1.1 Background

In present day days' use of PDAs has been expanded quickly and a great deal of android applications have been created for overseeing college every day exercises which decreases deferral of time and multifaceted nature which gives ease and adaptability. The present container framework is a paper based framework. All the tasks must be performed physically. The installment procedure takes a great deal of time as the client needs to pay the sum and hang tight for the bill. After that a coupon is given to the client which ought to be appeared at the counter while taking their request. The container director needs to store all the records in the registers. Additionally, the staff needs to go to the container to request and afterward hold up till the request is prepared. This procedure is tedious. To defeat these issues looked by the staff just as flask workers, in this framework food can be requested by this cross-stage application from anyplace. This application permits various routes like morning snacks, lunch, and so on.

Clients can choose from assortment of accessible choices and its amount. The arranged food will be noticeable in the flask end and once the food is prepared a warning is sent to the staff. The cross-stage application oversees different container exercises, for example, taking requests, creating bills and making installments. They can simply submit their requests from anyplace in college. It lessens the remaining burden of the container staff and it is likewise efficient.

1.2 Motivation

The motivation for arranging this application came considering the way that I am significantly more fascinated by modest food Business and I for one couldn't care less for keeping things under control for long in the store or to need to call store to present a solicitation especially during the zenith lunch or dinner hours. PCs have become some bit of the life for getting to for all intents and purposes any kind of information. Life in the 21st century is overflowing with imaginative progress and in this mechanical age it is difficult for any relationship to get by without utilizing development.

1.3 Problem Statement

The online Canteen food mentioning structure sets up a food menu on the web and customers can without a very remarkable stretch put in the solicitation as per they like. Also, the online customers can without a very remarkable stretch track their solicitations. The organization keeps up customer's database, and improve food transport organization.

1.4 Objectives

1. To order food rapidly
2. To make it convenient for people who have limited time
3. To focus on Cost reduction
4. To reduce paper work and developer cloud based application.
5. To develop Computerized Oder and billing system with more security using AES algorithm.

1.1 Related Work

Consequently, to light up this issue, what I propose is an "Online Canteen Food Order System, at first planned for little extension proficient College Cafeterias, Fast Food bistro or Take-Out, anyway this structure is comparably as relevant in any food movement industry. The rule bit of room of my structure is that it altogether unravels the mentioning methodology for both the customer and the bistro and moreover massively soothes the weight on the restaurant's end, as the entire technique of taking solicitations is automated.

II. LITERATURE REVIEW

2.1 Conceptual Background

1. Paper-Based System

The current framework is paper based framework. It is the most generally utilized framework. Since the current framework is paper based all the computations must be done physically and the information can be effectively controlled. Notwithstanding, this framework is bothered with different issues. In paper based framework paper is utilized for taking request, creating bill and records are put away in registers subsequently there is a danger of papers getting lost or harmed. The installment and charging process is very tedious. Request records must be put away in the registers for totaling and confirmation reason. On the off chance that they are lost it gets hard to follow paper records. A lot of labor is required in this framework and human mistakes must be viewed as when taking requests. Because of these issues the manual framework is less effective.

2. Personal Digital Assistants Based System (PDA Based System)

PDA based frameworks were created to robotize the flask framework. PDA frameworks are a decent swap for paper based frameworks however they are not a compelling arrangement as they increment the café consumptions. It likewise has certain downsides, for example, countless PDAs were required during top hours and it doesn't give appropriate criticism among clients and the café. Perhaps the greatest hindrance of PDA frameworks is the cost which incorporates the buying, redesigning and upkeep cost. They are anything but difficult to deal with however hard to keep up. PDA's are delicate and sensitive gadgets. PDAs don't give clients the office to arrange from any area, the client must be available in the eatery to put request. The UI isn't exceptionally alluring. It contains just literary data.

2.2 Review of Literature

In [1] a motorized food mentioning structure is proposed which will screen customer organizes competently. Basically, they executed a food mentioning structure for different sort of bistros in which customer will make solicitation or make custom food by a solitary tick figuratively speaking.

In [2] Customer using a Smartphone is considered as a major doubt for the structure. Exactly when the customer approach to manage the diner, the saved solicitation can be asserted by reaching the Smartphone.

In [3] there was an undertaking to structure and execution of mechanized eating in restaurants using android development. This system was a basic amazing database utility structure which brings all information from a brought together database. Capability and precision of bistros similarly as human goofs were improved by this simple to utilize application.

In [4] an utilization of blend of housing the officials systems by web organizations advancement is presented. Mentioning System Kitchen Order Ticket (KOT), Billing System, Customer Relationship Management structure (CRM) are held together by the Digital Hotel Management. In [5] explore work hopes to structure and develop a remote food mentioning system in the bistro. Particular assignments of Wireless Ordering System (WOS) including structures building, limit, requirements and recommendations were presented in this structure. In [6] nearby customer contribution for a bistro a structure and execution of remote food mentioning system was finished.

It engages bistro owners to course of action the structure in remote condition and update menu presentations with no issue. In Paper [7], the purpose behind this assessment was to examine the parts that sway the mindset of web customers towards online food mentioning in Turkey among understudies. A Technology Acceptance Model (TAM) made by Davis in 1986 was used to look at gathering of Web condition for food mentioning. Trust, Innovativeness and External Influences are added to the model as major factors nearby TAM. In Paper [8], the investigation work plans to motorize the food mentioning process in restaurant and besides improve the devouring experience of customers. Plan utilization of food mentioning system for restaurants were discussion about in this paper.

[9], this investigation works on tries taken by restaurants owners moreover to get information and correspondence progressions, for instance, PDA, remote LAN, over the top multi-contact screens, etc to improve eating experience.
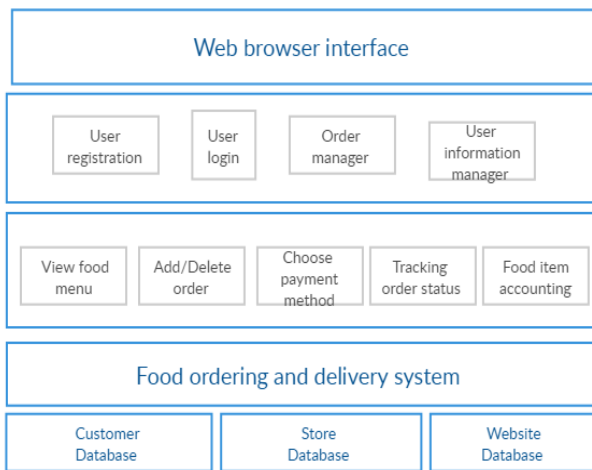
III. PROPOSED WORK

Figure 01 Proposed System Architecture

To defeat the restrictions of the above framework, we propose this cross-stage application for flask food requesting framework. It is a financially savvy arrangement. Clients can essentially put orders from anyplace in college and the request will be gotten at the bottle end. At the point when the client opens the application, they are given an intelligent menu. In the wake of making a choice, the thing is then added to their request, the client can survey the subtleties of their request whenever. The arranged food will be obvious in the flask end and once the food is prepared a warning is sent to the client. As the entire procedure is mechanized, it diminishes the heap on the container representatives. This framework performs and deals with all the bottle exercises, for example, putting request, creating bill and making installments. It permits bottle workers to submit the requests rapidly and set up the individual requests with negligible deferral. This framework deals with all the subtleties of food things, for example, its name, depiction, picture, cost, and so forth. Clients have an alternative of paying the sum month to month. The pending sum will be appeared to the clients in their record. The container administrator can see all the requests and the status of the request will be refreshed in the bottle database. Clients can check their equalization, request history and pending sum. Flask director can ascertain the month to month deals effectively with no manual work.

3.1. Working

At first, the clients need to enlist themselves by giving their own subtleties. After enrollment, the client can login/logout whenever. The bottle administrator oversees and refreshes the flask database as required. Client can see the menu and add things to their truck, see their profile, see exchange history and give proposals or input. Installment should be possible through e-wallet or through money to the supervisor. When the client affirms the request, the flask database will be refreshed consequently and their separate requests will be gotten at the container end alongside the client's data. The predefined sum will be deducted from their record and a bill is created. Clients will get a warning when their request is prepared. In the wake of getting the notice, the client can come and gather his request from the counter.

3.2. Technology Used

Google has built up an open-source which is additionally a cross-stage portable improvement system called Flutter. A solitary codebase can make superior Android and ios applications alongside high constancy. Ripple applications are in Dart, a language which looks recognizable to Java. Dart language has extraordinary highlights like hot reloading, in which new forms of the documents that were altered at runtime can be infused in a running application. Ripple utilizes Firebase. Firebase is an application advancement stage. It gives backend administrations, for example, distributed storage, ongoing database, validation, crash revealing and facilitating for your static records. Information is drawn out locally on the gadget when there is no web association and constant occasions keep giving responsive experience to the end client. At the point when the gadget gets association with the web, the ongoing backend database is naturally synchronized with nearby information changes.

3.3 Module details

Administrator:

•Add Food Items: Admin can include food things subtleties like name, Photo, Description/Ingredients, Price and Category and so on.

•View/Edit (Price, Enable/Disable)/Delete Items: Admin can see, alter the food things subtleties just as Enable/Disable food things as indicated by season or accessibility.

•View Orders: Admin can follow live requests and Status Update for specific food conveyance.

•View Transactions: View past exchange by date search and aggregate sum at end.

•View Users: Admin can see the client's subtleties which are given during enrollment.

User:

•Register: User need to enlist with basic subtleties for food requesting framework.

•Login: User need to login with their certifications to get to food requesting framework.

•Menu List: Different food things with separate classifications distinguishable to client.

•Item Details: User can see food things subtleties and purchase the item by doing on the web installment.

•View Cart: User can see their truck subtleties, erase food things from truck, update amount and so on.

•View Orders and Status: User can monitor their requests with conveyance status.

IV. RESULTS AND DISCUSSION

4.1 Cloud Computing

To overcome the drawbacks of standard system and to give the customer powerful container mentioning structure, we propose this structure using the Cloud Computing technique. Circulated figuring gives us strategies for getting to the applications as utilities over the web. It grants us to make, mastermind and adjust the applications on the web. Appropriated processing suggests controlling orchestrating and getting to the hardware and programming resources remotely. It offers online data accumulating, system and application. Conveyed figuring offers stage independency, as the item isn't required to be presented locally on the PC. Thusly, the conveyed registering is making our business applications Mobile and network [5,6].

4.2 Algorithms

1. Algorithm for setting the priority of food items

STEP 1: Start

STEP 2: Create array „a‟ of size 10

STEP 3: Give input „x‟

STEP 4: for(i=0; i<=4 ; i++)

a[i] = x print sequence = i i++

STEP 5: do{

switch(sequence)

case 0 :count++

case 1:count++

case 2:count++

case 3:count++

case 4:count++

}while(i=4)

2. Advanced Encryption Standard: (AES)

The more well-known and generally embraced symmetric encryption calculation liable to be experienced these days is the Advanced Encryption Standard (AES). It is found at any rate multiple times quicker than triple DES. A substitution for DES was required as its key size was excessively little. With expanding processing power, it was viewed as defenseless against comprehensive key pursuit assault. Triple DES was intended to conquer this disadvantage however it was discovered moderate.

Operation of AES

AES Algorithm for Encryption.
Input:
128_bit /192 bit/256 bit input (0,1)
Secret key (128_bit)+plain text(128_bit).
Process:
10/12/14-rounds for-128_bit /192 bit/256 bit input
Xor state block (i/p)
Final round:10,12,14

Each round consists:sub byte, shift byte, mix columns, add round key.
Output:
Cipher text (128 bit)

4.3 Mathematical Model

Let us consider S as a system for Online Canteen Food Ordering System.
S=
INPUT:
Identify the inputs
F= f1, f2, f3 ....., FN— F as set of functions to execute commands.
I= i1, i2—I sets of inputs to the function set
O= o1—O Set of outputs from the function sets,
S= I, F, O
I = Input given by the user.
O = Output i.e. Order Placed
F = Functions implemented to get the output
Space Complexity:
The space complexity depends on Presentation and visualization of discovered patterns.
More the storage of data more is the space complexity.
Time Complexity:
Check No. of patterns available in the datasets= n
If (n(1)) then retrieving of information can be time consuming.
= Failures and Success conditions.
Failures:

- Huge database can lead to more time consumption to get the information.

- Hardware failure.

- Software failure.

Success:

- Search the required information from available in Datasets.

- User gets result very fast according to their needs.

4.4 Experimental Set Up

It will conquer the issues identified with conventional Canteen the board framework and gives versatile and solid Canteen Ordering. Likewise produces calorie report which is useful to client to know day by day admission of calorie. It gives visit requesting rundown to quick requesting. And all information will be put away on cloud. The application will have the option to make sure about sharing of the information utilizing the powerfully produced OTP (One Time Password), by executing this undertaking we are making an approach to share an information at whatever point it is endorsed by the client just, on the off chance that the information is attempted to hack by any specialist organization, at that point he will get the bait information that will be required the unscrambling utilizing 256 piece key, which is computationally take additional time than not many days. We utilized Amazon EC2 cloud. The request status subtleties will store on cloud.

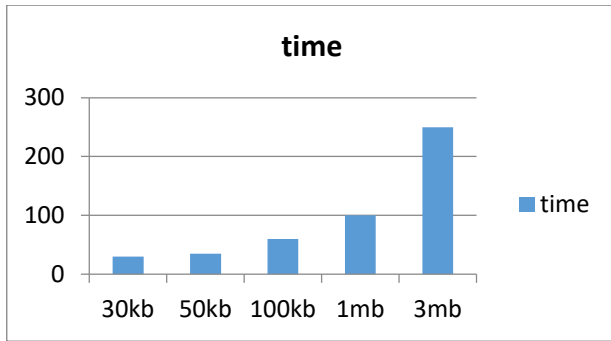It utilizes T-shading to put in the part of request status for security and wellbeing.

Figure 02 Shows file size on x axis and time (ms)to upload on Y-axis

Clarification: Graph shows size of document and time to transfer i.e request status that record in the wake of performing part and t-shading .As size of record expands the time will increment.

Table 01: Time taken to place order

ID	File size (Order Status file details)	Time to Placed Order (ms)
1	30kb	30
2	50kb	35
3	100kb	60
4	1mb	100
5	3mb	250

Above table 01 gives the information of uploading time for 30kb, 50kb, 100kb, 1mb and 3mb file size so its gives us very high performance to place an order.
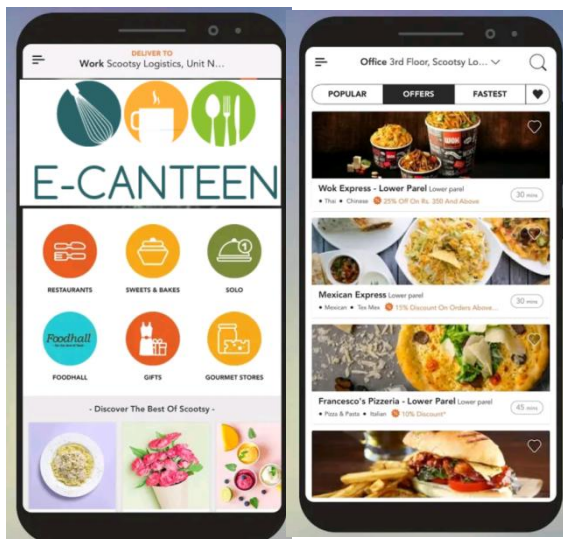
4.5 Out Put Screens

Figure 03 Out Put Screens

V. CONCLUSION

This paper proposes the idea of a robotized container and focuses on the administrations in a college grounds. The application can be utilized from anyplace in the grounds. All information gets to are confirmed by giving a legitimate login qualifications. This work can be additionally improved by adding some one of a kind highlights to the versatile application remotely and deciding incessant requests from the past information. Accordingly, finish of the proposed framework depends on client's need and is client focused. The framework is created in considering all issues identified with all client which are remembered for this framework. Wide scope of individuals can utilize this in the event that they realize how to work android advanced cell. Different issues identified with Mess/Tiffin Service will be explained by giving them an undeniable framework. In like manner, execution of Online Food Ordering system is done to help and deal with one of the noteworthy issues of people. Taking into account the outcome of this investigation, it will in general be done up: It helps customer in making demand viably; it gives information required in making solicitation to customer. The Food site application made for bistro and tumult can bolster diner and destruction in getting orders and changing its data and it is moreover made for overseer with the objective that it helps director in controlling all the Food system.

REFERENCES

1. Android Based Canteen Automation" published in the year 2017 by "Kalyani Dahake and Prof. A.D.Bhoi"
2. Cloud Based Canteen Management System" published in the year 2016 by "Tazeen Khan and Daniel Yunus"
3. Smart Connected Campus" published in the year 2017 by "Thota Narendrakumar and Anju S. Pillai " :
4. Design And Implementation Of Android Base Mobile App For An Institute " published in the year 2016
5. by "Reetesh V. Golhar1, Prasann A. Vyawahare and Pavan H. Borghare"
6. Cross-platform mobile development approaches" published in the year 2014 by "Salma Charkaoui ; Zakaria Adraoui"
7. Cross-platform development for an online food delivery application" published in the year 2014 by "Faisal Bin Al Abid ; A. N. M. Rezaul Karim"
8. Designing and Developing A PDA Food Ordering System Using Interaction Design Approach published in the year 2009 by "Lim Tek Yong and Alexander Johnson"
9. Automated Food Ordering System with Interactive User Interface Approach " published in the year 2010 by "YongChai Tan and KienLoong Lee"
10. Kirti Bhandge, Tejas Shinde, Dheeraj Ingale, Neeraj Solanki, Reshma Totare,"A Proposed System for Touchpad Based Food Ordering System Using Android Application", International Journal of Advanced Research in Computer Science Technology (IJARCST 2015).
11. Varsha Chavan, Priya Jadhav,Snehal Korade,Priyanka Teli, "Implementing Customizable Online Food Ordering System Using Web Based Application", International Journal of Innovative Science, Engineering Technology(IJISET) 2015.
12. Resham Shinde, Priyanka Thakare, Neha Dhomne, Sushmita Sarkar, "Design and Implementation of Digital dining in Restaurants using Android", International Journal of Advance Research in Computer Science and Management Studies 2014.
13. Ashutosh Bhargave, Niranjan Jadhav, Apurva Joshi, Prachi Oke, S. R Lahane,"Digital Ordering System for Restaurant Using Android", International Journal of Scientific and Research Publications 2013.

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14. Khairunnisa K., Ayob J., Mohd. Helmy A. Wahab, M. Erdi Ayob, M. Izwan Ayob, M. Afif Ayob, "The Application of Wireless Food Ordering System" MASAUM Journal of Computing 2009.
15. Noor Azah Samsudin, Shamsul Kamal Ahmad Khalid, Mohd Fikry Akmal Mohd Kohar, Zulkifli Senin, Mohd Nor Ihkasan," A customizable wireless food ordering system with real time customer feedback", IEEE Symposium on Wireless Technology and Applications(ISWTA) 2011.
16. Serhat Murat Alagoza, Haluk Hekimoglub," A study on tam: analysis of customer attitudes in online food ordering system", Elsevier Ltd. 2012.
17. [16]. Patel Krishna, Patel Palak, Raj Nirali, Patel Lalit," Automated Food Ordering System", International Journal of Engineering Research and Development (IJERD) 2015.
18. [17]. Mayur D. Jakhete, Piyush C. Mankar," Implementation of Smart Restaurant with e-menu Card," International Journal of Computer Applications 2015 of Smart Restaurant with e-menu Card, "International Journal of Computer Applications 2015.

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