

CUSTOMER CARE REGISTRY



NALAI THIRAN PROJECT BASED LEARNING

Submitted by

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1.INTRODUCTION

1.1 Project Overview:

Online chat may refer to any kind of communication over the Internet which offers an instantaneous transmission of text-based messages from sender to receiver; hence the delay for visual access to the sent message shall not hamper the flow of communications in any of the directions. (Andrews 2010) Online chat may address as well point-to-point communications as well as multicast communications from one sender to many receivers. Interest in customer service chat for use on e-commerce websites has grown significantly in recent years. It is viewed as a cost-effective way to reduce purchasing risk through increasing social interaction, responsiveness to consumer questions, and personalization of the shopping experience.

1.2 Purpose:

Several researchers have addressed the effectiveness of e-mail as a customer support tool (Millar 2001) and (Kannan 2011). Other has discussed online (not real-time) customer support such as filling out a form or browsing help menus. But very little research was found to discuss the effectiveness of "Live Customer Support Chat" (Lindsay 2009), although it is an important new trend in online customer service because it solves customers' problems and concerns instantly on the spot. This research project tries to fill out this research gap by examining this new type of online customer service (Live Customer Support Chat). This is a type of service that is newly implemented at some E-commerce web sites that bypasses traditional customer service types such as telephones and e-mails. We are in an era that customers are more demanding requesting their questions, problems and concerns to be solved instantly on the spot, rather than waiting to receive a replay.

2 LITERATURE SURVEY

2.1 Existing problem

- I. Customer Care Application features a desktop-based admin panel, a web application, and an Android application that make it simple for users to file product complaints, check the status of their complaints, and check the status of their warranties online. In the website or Android app, users can file complaints about the products they are now using without having to make the time-consuming trip to the relevant office. The issue will then be resolved by the appropriate department. This technique seeks to lessen a complainant's frustration and is highly helpful in today's hectic world. Customers can lodge complaints through an Android application, a Web application, and a desktop-based admin panel, which are all included in the Customer Care Application.
- II. Customer care employees (CCEs) are a great source of concepts for brand-new, improved customer services. CCEs can identify patterns in unmet and undermet needs because they serve a large number of clients. CCEs are able to make recommendations that expand on already-existing skills because they are internal to the company as opposed to being external, which produces ideas that are simpler to put into practise. Employee suggestion gathering has been the subject of extensive research and practise, but very little of this work has explored how CCEs might be gathered into a transient online community to cocreate unique ideas. When using CCEs for internal collaborative crowdsourcing, a general framework, consequences, and future research paths are laid forth based on the findings.
- III. Online clinical feedback system was all about providing feedback. For Kampala International University students who couldn't physically visit the university clinic, it built safer and better ways for them to consult on health issues online. The goal of this project was to help the Kampala International University students. This study focused on the fact that college students who got stuck in long lines at the university clinic could get free online consultations. In this study, interviews, field observations, and a review of the available documents were employed as the data collection methods. The study provided an overview of the various hardware and software tools available for developing a feedback system for the clinic at Kampala International University to monitor customer service issues.
- IV. Live Customer Support Chat as a new type of customer service implemented for E-commerce websites. This study fills a critical research need in comparing the efficiency of the new live customer care system to the conventional sorts of non-real-time support like email and online forms. The research employed two well-known theoretical frameworks (such as the Service Quality Model and the Technology Acceptance Model) and established a new metric for evaluating the quality of electronic services based on system performance, system dependability, system accessibility, accuracy of the information, reliability of the services, and online client comments to create a fresh theoretical foundation for live chat customer support. The research introduces the e-service quality dimensions and includes them in the new framework.
 - V. In recent years, there has been a substantial increase in interest in using customer support chat on e-commerce websites. By fostering greater social engagement, being more receptive to customer

inquiries, and customising the shopping experience, it is seen as a practical strategy to lower the risk of making a purchase. There isn't any proof, though, that this customer service solution enhances the convenience of online purchasing, lowers perceived purchase risk, or lowers the percentage of abandoned shopping carts. To assess its viability as a customer service solution, operational issues, and if a positive experience using customer service chat affects online shoppers' propensity to purchase, a usability research of five e-commerce websites that offer customer care chat was done. The study finds that the overall experience and the complexity of customer service conversation are higher.

- VI. The design of web-based customer care application for power distribution company is presented with Power Holding Company of Nigeria (PHCN) Owerri business unit as the case study. The technology was created to address the issues of subpar customer service encountered as a result of PHCN's manual method. The system offered a web-based volunteer information system for gathering, organising, and sharing consumer data as well as for handling customer complaints and bill payments. In order for the system to gather and interpret spatial data on customers and PHCN facilities, it also includes mapping functionality. The development of web applications uses a modified waterfall methodology. The modified waterfall paradigm involves tasks including requirement engineering, planning, designing, programming, testing, integration, and deployment. PHP is used as the server side scripting language for the web application, Java is used for the client side scripting language, and MySQL is used for database administration.
- VII. The health insurance market is flooded with large firms vying for market share. Because of this saturation, the goal of health insurance firms has shifted from acquiring new clients to keeping their existing ones. The necessity for SMS, telephone, and email helplines stems from the requirement for a more comprehensive approach to customer relationship management. Since there is no SMS-enabled customer relationship management product available in the health insurance market, its players have yet to benefit from the advantages offered by the aforementioned technology. The use of a GSM modem and KANNEL for WAP-based communication with a PHP web application built with CodeIgniter could demonstrate the necessity for an SMS-enabled CRM solution.
- VIII. The idea of collaborative Web-based customer service and our experience creating a proof-of-concept product for a real-world client. The requirements for collaborative customer care are discussed in the paper, along with the system's characteristics. Due to changes in users, tasks, and goals, as well as the context of use, they are different from the requirements for work-group collaboration. We also go over the design approach, with an emphasis on how certain design tasks revealed crucial requirements for integrating collaborative customer care into the organisational and information technology infrastructures of the firm. For identifying the design requirements for this new technology, we discovered that the usage of concrete procedures and artefacts was a useful methodology.

2.2 References

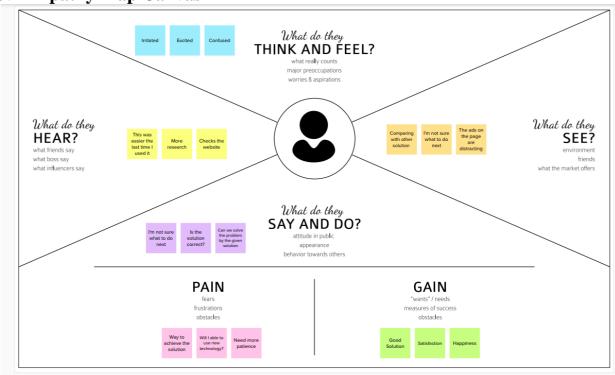
- 1) Promotion: (Ali, Evi, et al., 2018), (Prihartono & Ali, 2020), (Richardo et al., 2020), (Mappesona et al., 2020), (Sulistiorini & Ali, 2017a), (Hairiyah & Ali, 2017), (Ali, Narulita, et al., 2018a), and (Brata et al., 2017).
- 2) People: (Djoko Setyo Widodo, P. Eddy Sanusi Silitonga, 2017), (Agussalim et al., 2016), (Novansa & Ali, 1926), (Elmi et al., 2016), (Novansa, Hafizh, Ali, 2017), (Limakrisna et al., 2016), (Octavia et al., 2020), and (Anggita & Ali, 2017).
- 3) Brand Image: (Ali et al., 2016), (M & Ali, 2017), (Ali & Mappesona, 2016), (Ali, Narulita, et al., 2018a), (Novansa & Ali, 1926), and (Toto Handiman & Ali, 2019).
- 4) Brand Awareness: (Toto Handiman & Ali, 2019), (Novansa, Hafizh, Ali, 2017), (Ali, 2019), and (Sivaram et al., 2020)
- 5) Customer Selection: (Indarsin & Ali, 2017), (Ali & Mappesona, 2016), (Ali, Narulita, et al., 2018b), (Mulyani et al., 2020), (Sulistiorini & Ali, 2017b), (Mansur & Ali, 2017).

2.3 Problem Statement Definition

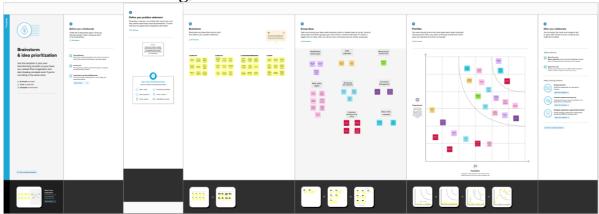
Problem Statemen t (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A Shopkeeper	Develop my shop with good profit.	My shop resides in a location where people rarely visits the departm ent.	Insufficient knowled ge about how to develop the shop and not knowing how to advertise about the shop.	Mentally low and unable to know how to attract the customers.
PS-2	An Educator	Teach the students and gain them knowledge.	I don't know how to make the students to understa nd the subject.	Have no experienc e before.	Low self-esteem due to inability in effectively teaching the students.
PS-3	A Farmer	Maximize the production of crops, protect it from pests and make profits.	My field is easily affected by the	Insufficient knowledge about how to treat crops.	effectively treat the diseased plant makes

3 IDEATION & PROPOSED SOLUTION

3.1Empathy Map Canvas



3.2Ideation & Brainstorming;



3.3 Proposed Solution:

i. PROBLEMSTATEMENT:

The Customer have many issue and don't have idea of how to solve the issue on their own.In this situation they need an external help.The Admin must assign an agent to solve the issue.The Agent should solve the problem in lesser time.

ii. IDEA/SOLUTIONDESCRIPTION:

The idea for the problem stated above can be solved by customer care registry that recommends the solution to its customers. The solution can be recommended by comparing the current issue uploaded by the customers. An agent is assigned to solve the issue. The Admin will take care in assigning the agents to solve the issue

iii. NOVELTY/UNIQUENESS:

The solution to be developed will have a super-fast response when compared to the other applications on the web today. Getting solution will be easy if the customer raised the same issue which was solved earlier.

iv. SOCIAL IMAPACT/CUSTOMER SATISFACTION:

The application will be a major assistance for all people in different field For ex: There is a statistic that accounts on more than 15 Million downloads for an app. The level of customer satisfaction will simply be immeasurable as the solution given soon increases and the automated work together provides an utmost customer satisfaction.

v. BUSINESS MODEL:

Customer satisfaction is the main motive of the every business so by this application business will be developed and attracts many customers so revenue will be improved.

vi. SCALABILITY OF SOLUTION:

The solution proposed can be used only to solve the issue. The Agent will be assigned as soon as the issue is raised by the customer and the issue will be solved.

3.4 PROPOSED SOLUTION FIT

5.AVAILABLE SOLUTIONS 6.CONSTRAINTS 1.CUSTOMER SEGEMENTS The user can upload their issue in the The people from any field, who needs · Insufficient knowledge about how to portal. guidance of the agent to solve their issue. Example: An Educator who had no use the application. Admin will view the issue and assign The Customer needs to wait an agent to the issue. previous experience need the guidance patiently till their issue is solved. Agent will solve the issue as soon as about how to solve the issue in while using possible and provide the best solution. online applications for their educating purpose. 2. JOBS TO BE DONE/PROBLEMS 9.PROBLEM ROOT CAUSE 7.BEHAVIOUR Users can use the software application One of the reasons that this problem A Shopkeeper who needs to develop their exists is because of the poor functionalities and get the mail when shop has insufficient knowledge and an Agent is assigned to solve the issue. advertise the shop needs the guidance. knowledge as they cannot find a clear Thereby finding the necessary features solution for the issue An Educator who had no previous in the application is significant. experience wants the guidance from the The <u>users_adapt</u> to the application to find the solution for the issues in experienced. A Farmer who is trying to maximize the their daily life. production of crops and protects it from pests may have insufficient knowledge about how to treat it. 3.TRIGGERS 8. CHANNELS OF BEHAVIOUR 10. YOUR SOLUTION If any user deals with the issue and have no idea to solve that may become stressed and urge to solve it. This triggers the user to solve the problem by using the application The Customer have many issue and don't The Customer have many issue and don't have idea of how to solve the issue on their own. In this situation they need an external help. Application helps the customer in processing their complaints. An agent is assigned to solve the issue . The Admin will take care in assigning the agents to solve the issue of the customers. Application helps the customers. Application helps the customers in processing their complaints. An agent is assigned to solve the issue . The Admin will take care in assigning the agents to solve the issue of the customers. 8 1 ONLINE Users get the alert through mail when an agent is assigned to solve their issue. Apply the solution in real life time.
 User gets analysis of their expenditure in graphical forms. 4. EMOTIONS: BEFORE / AFTER Before <u>Low</u> self Esteem ,Depressed.

After <u>Easy</u> to approach, quick process, Best

4 REQUIREMENT ANALYSIS

4.1Functional requirement

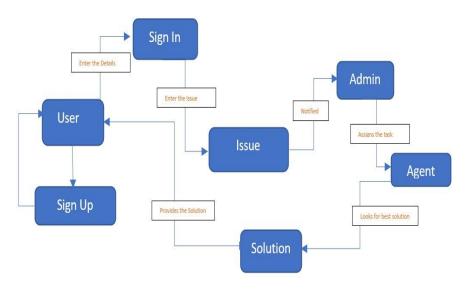
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form
		Registration through Gmail
		Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email
FR-3	Role of Customer	Customer will enter their problem in UI screen
FR-4	Role of Admin	After receiving the problem from the customer the
		admin assigns the task to the agent.
FR-5	Role of Agent	Agent will be notified after the task is assigned .
		Provide the solution as soon as possible.
		Saves the solution so that it can be used for the similar
		problem.

4.2Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The Customer have many issue and don't have idea of how to solve the issue on their own. In this case they need an external help so they can use this application to solve the issue
NFR-2	Security	Customer information will he held safe. The Registered user information will not be shared to any other user.
NFR-3	Reliability	The solution of the issue is recorded so that it can be used further if the same problem occurs there by making the system more reliable.
NFR-4	Performance	The Admin will respond as soon as possible to solve the issue so that waiting time of the customer to solve the issue is very less.
NFR-5	Availability	The application is user-friendly and easy to use so that every user can use it .Admin will provide the solution as soon as possible so that every user can understand the solution.
NFR-6	Scalability	The Agent will be assigned as soon as the issue is raised by the customer and the issue will be solved in lesser time.

5 PROJECT DESIGN

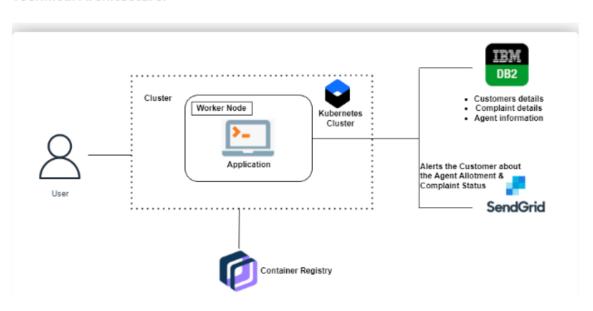
5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture

The deliverable shall include the architectural diagram as below

Technical Architecture:



S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2.	Application Logic-1	Logic for a process in the application	Java / Python
3.	Application Logic-2	Logic for a process in the application	IBM Watson STT service
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Database	Data Type, Configurations etc.	MySQL, NoSQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
7.	File Storage	File storage requirements	IBM Block Storage or Other Storage Service or Local Filesystem
8.	External API-1	Purpose of External API used in the application	IBM Weather API, etc.
9.	External API-2	Purpose of External API used in the application	Aadhar API, etc.
10.	Machine Learning Model	Purpose of Machine Learning Model	Object Recognition Model, etc.
11.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration:	Local, Cloud Foundry, Kubernetes, etc.

5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer	Sign Up	USN-1	As a user, I can Sign Up into the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
	Log In	USN-2	As a user, I can log into the application by entering the id and password.	I can access my account	High	Sprint-1
Customer	Dashboard	USN-3	As a user, I submit the issue.	I can access my dashboard.	High	Sprint-3
Administrator	Maintenance	USN-4	As an Admin, I assign the agent to solve the issue of the customer.	I can access the maintenance.	High	Sprint-3
Agent		USN-5	As an Agent, I solve the issue of the customer assigned by the Admin	I can access the dashboard.	High	Sprint-4
Customer	Email	USN-6	As a user, I can check the mail if agent solves my problem.	I can register & access the dashboard with Facebook Login	Medium	Sprint-4

6 PROJECT PLANNING & SCHEDULING

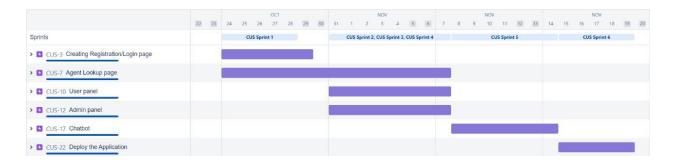
6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Durgaparameshwari K Shruthi D
Sprint-1	Verification	USN-2	As a user, I will receive confirmation email once I have registered for the application	2	High	Shruthi V Aswin T
Sprint-1	Login process	USN-3	As a user, I can login into the application by entering email and password	2	Medium	Shruthi D Shruthi V
Sprint-2	Web UI	USN-4	As a user, I need to have a user friendly interface to easily view and access the resources	2	Medium	Durgaparameshwari K Shruthi D Shruthi V Aswin T
Sprint-3	Customer services & Feedback	USN-5	As a user, I can contact to the Admin and give a review as both positive and negative	2	High	Shruthi V Aswin T Durgaparameshwari K
Sprint-4	Final delivery	USN-6	Container of applications using docker Kubernetes and deployment the application. Create the documentation and final submit the application.	2	High	Durgaparameshwari K Shruthi D Shruthi V Aswin T

6.2Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.3Reports from JIRA RoadMap:

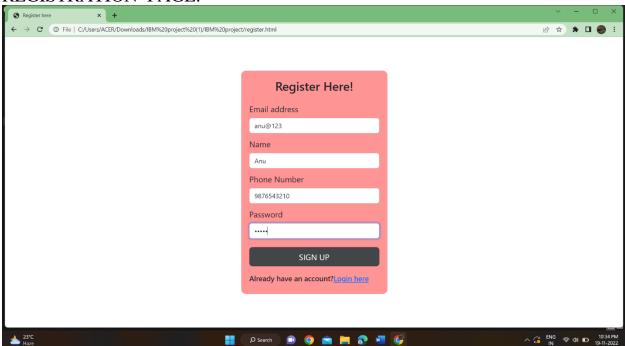


7 CODING & SOLUTIONING

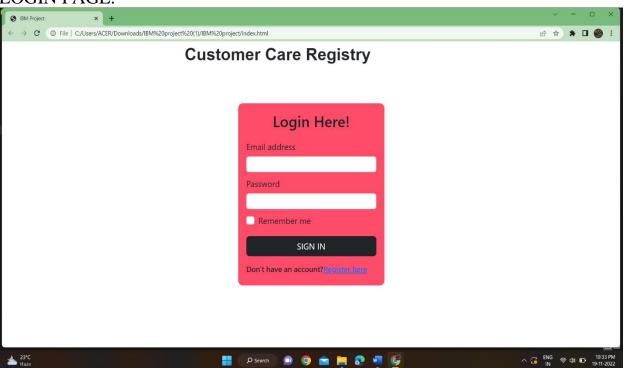
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<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
    <meta charset="utf-8">
    <title>Admin page</title>
    <link rel="stylesheet" href="css/query.css">
                                                                   defer
src="https://use.fontawesome.com/releases/v5.0.7/js/all.js"></script>
    <script
                src="https://code.jquery.com/jquery-3.2.1.slim.min.js"
integrity="sha384-
KJ3o2DKt1kvY1K3UENzmM7KCkRr/rE9/Qpq6aAZGJwFDMVNA/GpGFF93hXpG5KkN"
crossorigin="anonymous"></script>
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                                                      integrity="sha384-
ApNbgh9B+Y1QKtv3Rn7W3mgPxhU9K/ScQsAP7hUibX39j7fakFPskvXusvfa0b4Q"
crossorigin="anonymous"></script>
    <script
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                                                      integrity="sha384-
JZR6Spejh4U02d8jOt6vLEHfe/JQGiRRSQQxSfFWpi1MquVdAyjUar5+76PVCmY1"
crossorigin="anonymous"></script>
                                                       rel="stylesheet"
    ink
href="https://cdn.jsdelivr.net/npm/bootstrap@4.0.0/dist/css/bootstrap.
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crossorigin="anonymous">
  </head>
  <body>
    <section class="colored-section" id="cta">
      <div class="container-fluid">
        <h3 class="big-heading">Welcome admin.</h3>
        <a href="assignagent.html"><button class="download-button btn</pre>
btn-lg btn-dark" type="button"> View issue </button></a>
      </div>
    </section>
  </body>
</html>
<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
    <meta charset="utf-8">
    <title>IBM Project</title>
    <link rel="stylesheet" href="css/styles.css">
    <!-- CSS only -->
```

```
ink
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.
                     rel="stylesheet"
                                                    integrity="sha384-
Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
  </head>
  <body>
<h1 class="head">Customer Care Registry</h1>
   <div class="login">
       <h1 class="text-center">Login Here!</h1>
           <div class="form-group ">
               <label
                            class="form-label"
                                                    for="email">Email
address</label>
               <input class="form-control" type="email">
           </div>
           <div class="form-group ">
                                                    class="form-label"
               <label
for="password">Password</label>
               <input class="form-control" type="password" >
           <div class="form-group form-check">
               <input class="form-check-input" type="checkbox"</pre>
id="check">
               <label class="form-check-label" for="check">Remember
me</label>
           </div>
           <button class="w-100 btn btn-lg btn-dark btn-block"</pre>
type="button">SIGN IN</button>
           <h3
                    class=reg>Don't have
                                                           account?<a
                                                   an
href="register.html">Register here</a></h3>
       </form>
   </div>
 </body>
</html>
```

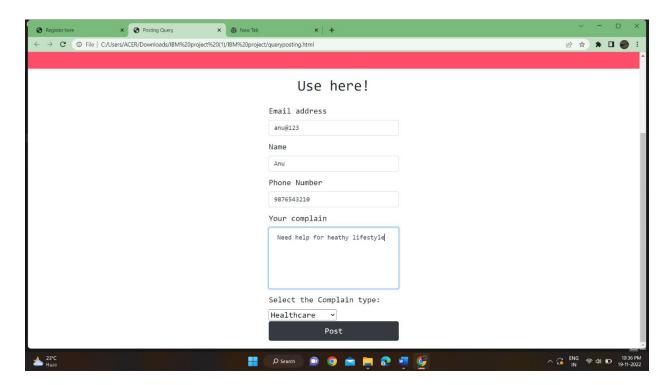
REGISTRATION PAGE:



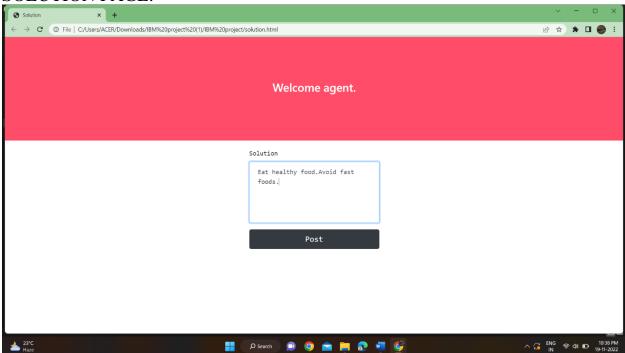
LOGIN PAGE:



USER COMPLAINT PAGE:



SOLUTION PAGE:



8 TESTING

Test Cases:

We tested for various validations. Tested all the features with using all the functionalities. Tested the data base storage and retrieval feature too.

Testing was done in phase 1 and phase 2, where issues found in phase1 were fixed and then tested again in phase2.

User Acceptance Testing:

Real world testing was also done, by giving to remote users and asking them to use the application. Their difficulties were fixed and tested again until all the issues were fixed.

9 ADVANTAGES & DISADVANTAGES

ADVANTAGE:

- It helps customers to get the solution for the issue.
- It helps the customer to get the solution in lesser time.
- No technical knowledge needed to use the application.

DISADVANTAGE:

- Customer should Raise the issue correctly.
- Uninterrupted internet connection is required for smooth functioning of application

10 CONCLUSION

Product Quality affects Customer Satisfaction. Quality of Service affects Customer Satisfaction. Product Quality affects the Level of Complaints. The quality of service affects the level of complaints. Customer Satisfaction affects the Level of Complaints.

11 FUTURE SCOPE

Based on the conclusion above, the advice is that there are many other factors that affect Customer Satisfaction and Complaint Levels, apart from Customer Satisfaction and Complaint Levels at all types and levels of organizations or companies, therefore further studies are needed to look for other factors that can affect Customer Satisfaction and Complaint levels other than those researched in this arikel such as: Prices, Promotions and Digital Services

13.APPENDIX

GitHub & Project Demo Link:

https://github.com/IBM-EPBL/IBM-Project-2138-1658463256