

SMART COMPLAINT MANAGEMENT SYSTEM FOR CITY DWELLERS

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project/internship titled “**Smart Complaint Management System for City Dwellers**”, submitted by Masudul Hasan Shawon, Morium Mostary Liza and Suvrota Kapali ID No: 142-15-3719, 142-15-4051 and 142-15-3591 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 13th September 2017.

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Zahid Hasan Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree.

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ABSTRACT

The main aim of the project is to develop an Android app which may able to collect complaints with description and photograph of the situation or various problem of a city. The module will enhance good Interaction / communication facilities between the citizens and city corporation Administrator. The app containing pages about a user has to be dynamically created based on the user id and password and information collecting pages.

As Dhaka City Corporation began it's quest for the development or digitalized the whole city, Smart Complaints Management app will help to serve some issue in daily life of the city. This system is working for the better management of the constructing site or managing waste of a city and reduces man power also.

This system is working for the better management of the constructing site or managing waste of a city and reduces man power also. For this system it's not mandatory to have many administrator to maintain it. Citizens and Administrator all are satisfy to having a system like this.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Smart Complaint Management System for City Dwellers project satisfies the needs of the citizens of a city corporation or a city to manage city for a better purpose (upholding several problems in the city to the concern of the authority like waste on the road, construction of road, gas problem, electricity problem etc..), SCMS is a combination of systems and processes that connect citizens with city corporation authority through this software. Every city corporation has their authority to maintain or fix the problems that citizens face in their daily life. But sometimes it's not possible or doesn't happen that the authority goes in every road or area. So it's difficult for them to know all the problems in their city area.

1.2 Motivation

SCMS can develop a good communication and flexibilities between the citizens and city corporation authority. Citizens can be able to access this app from any location of the city and can also post their problems with photograph, description, and location of the affected area through the internet. For this reason City Corporation authority will be able to achieve citizen's satisfaction by solving those problems.

- In this system a citizen can be able to complain about the problems they face in their daily city life.
- Authority (admin) has the capability to check and change the current status (if it's solved or not) of their posted complaints.
- Users can also view his/her profile, his/her posts, and the status of the posts if it's solved or not by the authority.
- Admin will add the NID of the citizens of respective area.
- User can register and login only if his/her NID is in the system given by admin.
- Admin can also change the status of any posts and he/she will be able to view the number of posts a user had been posted and the details info of a user.

1.3 Objectives

The objective of Smart complaint management system is the development of a city. The main aim of the project is to collect condition of a city from crowd posts by the user and build a relation between the authority and the citizens. This will also help to establish an online system that is more efficient, reliable and user friendly. The management of the city as well as the citizens of concerned city also finds communication between the two parties easy and time saving. Users are provided the facilities of upholding their problems to the concern of the concerned authority. Where the authority is also can concerned about the basic problem from root to top of his/ her area by collecting the information from this crowd. Smart Complaint Management System is to maintain effective communication with citizens. The user can able to post his/ her problem in the city with locations, description with photograph. And admin has all the power to control all the things. Create a database system which can be accessed by admin and user can stores their posts to that database.

1.4 Expected Outcome

As our country is a developing country now, our city corporations are also going to be developed and digitalized. Dhaka city corporation (both North & South) is gradually going to developed & digitalized more. So our aim is to create software that helps communication between citizens and authority easily via Internet. SCMS can be able to solve the some measure problems of city like as storing wastes on road or here and there. And it will able to make a strong relationship with citizens and city corporations. Smart Complaint Management System would be able to directly influence the citizens of a city to be aware and responsible about their city. If it done properly and effectively, then the result will be in a number of positive development outcomes.

1.5 Report Layout

We describe a process for planning, designing, testing, and deploying an information system. We develop a project which is “Smart Complaint Management System (SCMS)”. We have completed our project through time separation of project with the supervision of our respectable project supervisor. In chapter 2 named Introduction we discuss about Motivation, Objectives, and Expected Outcome. In chapter 2 named “Background” we discuss about the related project of Smart Complaint Management System and comparative studies about this project. In Chapter 3 named “Requirement Specification” we discuss about the Business Process Modeling, Requirement Collection and Analysis, Use Case Modeling and Description, Use Case Descriptions, Logical Data Model, Design Requirements. In Chapter 4 named “Design Specification” we discuss about the Front-end Design, Back-end Design, Interaction Design and UX, Implementation Requirements. In Chapter 5 named “Implementation and Testing” we discuss about the Implementation of Database, Implementation of Front-end Design, Implementation of Interactions, Testing Implementation, Test Results and Reports. In Chapter 5 named “Conclusion and Future Scope” we discuss about the Conclusion and Scope for Further Developments. Then Discuss On Appendix.

CHAPTER 2

BACKGROUND

2.1 Introduction

Smart Complaint Management System for City Dwellers, It's a mobile application that the people in a city can carry out many problem and activities. The role of complaint management in a city corporation is to organize citizens so that they can effectively attend in the development activities of a city. This method viewing people as the auditor of a city, not costs to the organization. Looking at people as assets is part of contemporary city management and developing purposes of their city life. To make the resources as an asset, SCMS keep records to evaluate their performance and the area of improvement needed to make the city more develop. In some cases, SCMS act like a data store as they have to keep the user data, Post Title, Post Images, Description, Location, User NID and some others report recommended by the authority.

Considering the problems on existing process, I am interested to develop e-SCMS software which will give all the necessary information of an effected area within a fraction of minutes. Here users have to input all the necessary information of the affected area like mentioning what is the problem, simple photograph of that area, putting some description and adding location of the mentioned area etc. and users can view the posted details information from the software and admin can view it from website at a few time.

2.2 Related Works

Collecting information from citizens through online and offline and auditing the city corporation area by their official representative has been commonly used for about the last few years. Prior to that, the field was generally known as "Gana Songjog." This was an offline process. Recently Dhaka City Corporations provided an app for citizens where there were a simple complain box, which is not more effective and detailed as it has just a simple title and description box.

Complaint section in City Corporation Management Systems provide a means of acquiring, storing, analyzing and distributing information to authority in order to take action. In abroad there are complaint boxes both online and offline, for submitting complains by citizens continuing from more years ago. As per Digitalization city corporations are also trying to be more digitalized and more actionable and caring about to solve problems. In order to keep pace with modernism and became up-to-date and to do more welfare for citizens, Mayors of DCC both North and South are taking different types of action from 2015 to provide more easy and comfortable daily life to the citizens. As a result, they provide online site for the citizens where there was complaint box [1] too. Later DSCC launched ‘Amar Dhaka’ [2] an online application about a year ago in 2017 (just for DSCC), was largely concerned the digital supports for citizens in order to know and apply for different kinds of city corporation and national forms under city corporation. Where there was a functionality named ‘ovijog’ (complaint box) on that app.

2.3 Comparative Studies

E-SCMS is online software where authority of city corporations will do paperless work by keeping record of complaints with photograph in line. Any concern of the city corporation are can login the software with prior approval as they have to validate themselves by their NID, and can know the details record and current conditions if it was done or not of their posted complain. With the improvement of Information technology sectors, organization can save their time and cost by using E-SCMS. Small city authority like ‘Pouroshova’ can manage their complaint information with papers, but it is too difficult to manage the complaint data of medium and large organization accurately. Whatever the company size, E-SCMS is reliable software to get the ultimate output and store huge information data in database by fraction of time. Management will get the error free data in any time by using this Software. There are many City Corporation like, City of London Corporation, Dhaka South City Corporation etc. who are the fruitful user of E-SCMS.

2.4 Scope of the Problem

SCMS provide the accurate information about people's complaints to the authority when it needed. We have to know the required information which need to record to submit a complaint. If organization wants to view all the posts to select alarming problems to be solved first, which factor needs to consider making a view of all posts? In case of solved problems, how can we distinguish them separately by report? We have to know, how they manage their complaint sections, what types of information have to record. In case of solving evaluation, what factor should consider? We need to know the complaints record system and what types of complaints City Corporation expects.

2.5 Challenges

The first challenge is to know the current manual managing procedure of the organization accurately and collect the necessary data to be automated in software. Adding huge number of NID is also a challenge for the authority. Another challenge is the proper storage of data that no one can destroy in any way. SCMS use various types of data, this is a big challenge I have faced to input in software for a complete required report. Data should validate. The current condition of post should be providing in real time.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

A Business process Model for Smart Complaint Management System focused on the quality of Software Development. Business process Modeling (BPM) is a discipline including any combination of modeling, automation, execution, control, measurement and optimization of business activity flows, in support of enterprise goals, spanning systems, employees, customers and partners within and beyond the enterprise boundaries. Data Flow Diagram shows the sequence of events of a business operation. A company must be focused on benefit from software. Smart Complaint Management System business process model is broadcasted and issued in the City Corporation by stingy of the both Android and Web Model. BPM achieved goal is to developed the settlement and accuracy of the specific role and distribute the consumer with an explicit and clear interface definition

3.2 Requirement Collection and Analysis

3.2.1 NID

Admin will add the NID number of the voter of the city corporation area to the database of the system. After this data entry, people can register themselves by providing the NID in the registration requirements.

3.2.2 Posts

Users will be able to make a posts by providing the required information such as title, description, photographs of the problems and providing locations that is user-friendly design.

3.2.3 Counting Posts per User

Number of posts from a user will be shown to admin in besides of their user email. And admin can search him with this email from user info section.

3.2.4 View of Posts

This function will show all the list of all posts a user posted, with a current view of action taken against their posts. There's also a posts view in web which is for admin only. Users can also view all the posts from their app.

3.2.5 Admin

In this Function only Admin (Authority) can access and view posts. At first admin will add NID no. of the citizens of his/her respected area. Admin can change the current conditions (status) of posts submitted by the users. This part is in a webpage. Admin can access this from that page. All the data, details of users, Number of posts by a unique user will be shown in webpage, made for admin.

3.2.6 New User

In order to use the application a person should have to be registered. A user will able to register in this system if his or her NID remains in the database of the system. If anyone is registered under the database, he/she can access the rest process by log in. If they aren't registered, they have to go through registration process and have to be registered first.

3.2.7 User

After a successful registration a person will be called a user of this system. Then they can access the app by log in.

Registration: Users can register themselves if he/she is the part of the following city corporation as their NID number will be stored in the database of the system.

Login: Users can login into the SCMS system by username and password. If Information is correct then they can Login Successfully.

Logout: Users can logout from the SCMS system.

Registration failure: If the NID number of a user doesn't match during registration, it will show an error message.

Login failure: If a user doesn't give correct information and the information is not registered it will be show an error message.

3.3 Use Case Modeling and Description

The use case diagram shows how the users of the system interact with the Software. The user browses the application, and the application has Login option. As a new user they have to register first, and then they can login or access the system. After that the use case of the system shows only the main functionalities of the system. The act or involves is the user/citizens. The use cases showing the functionalities are as follows:

- User Registration and Login
- Post a Complain.
- View Complaints.
- Admin Login.
- Storing NID of users.
- Changing Status of posts.

Use Case Diagram:

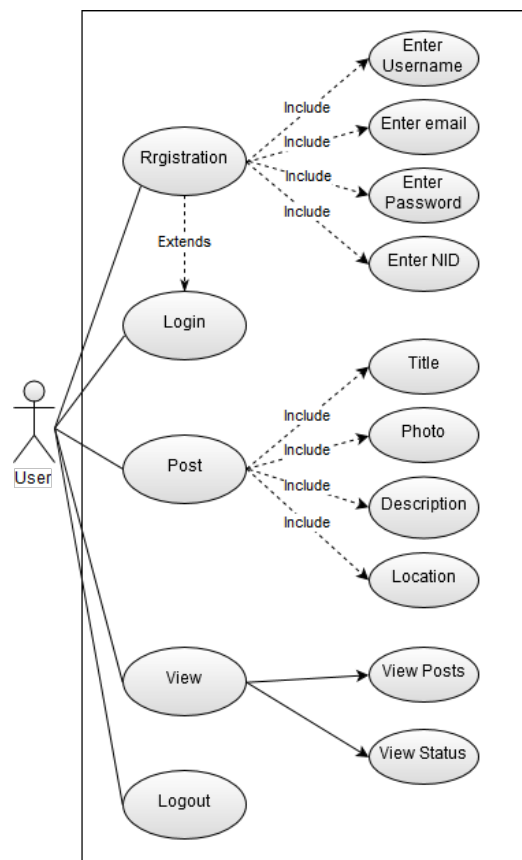


Figure 3.1: Use Case Diagram for User in mobile application

In figure 3.1, A user can access the application by login only if he/she is registered before. User can create an ID for login by providing the require information asked in registration page. Then they can post a complaint by providing the information of required fields. User can view the posts and the current status of posts.

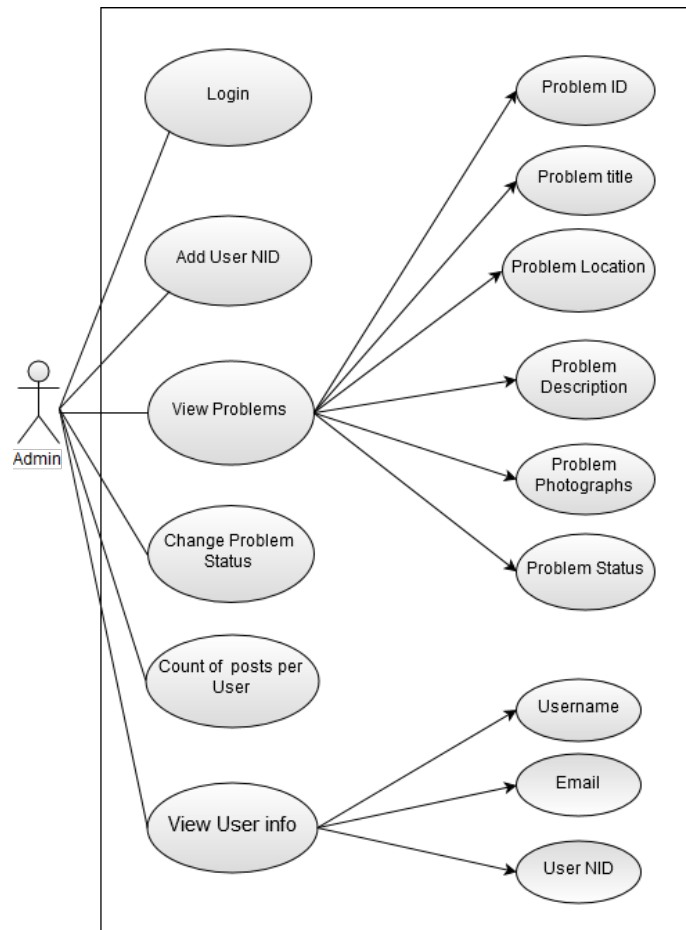


Figure3.2: Use Case Diagram for user in web

In figure 3.2, Admin can Login the web page of the system. He will able to stores the NID number of the citizens of his/her area. He/she can change the status of posts if the complaint has been solved and can also view the posts and statuses too. He/she is able to view the count of posts per user and also can view the user info.

3.4 Logical Data Model

This section describes attributes of database objects and relationship between them with a data table dictionary and tables to overcome confusions. These data objects are made under the consideration. The SCM System consists of three main database groups. First one is storing information about Users NID, second one stores Complaint's data module and the third one is for storing Users registration data module. In Logical Data Model a system represents data logically, which stored in a Database.

3.5 Design Requirements

Design is the step after requirement and Specification in the development. Once the software requirements have been analyzed and specified the software design involves three technical activities - design, coding, implementation and testing that are required to build and verify the software. The design activities are of main importance in this phase, because, decisions ultimately affecting the success of the software implementation and its ease of maintenance is made. These decisions have the final bearing upon reliability and maintainability of the system. Design is the only way to accurately translate the customer's requirements into finished software or a system. Design is the place where quality is fostered in development. Software design is a process through which requirements are translated into a representation of software. Software design is conducted in two steps. Preliminary design is concerned with the transformation of requirements into data.

- Use case Diagram
- Sequence Diagram
- The ER Diagram
- The State Diagram

3.5.1 The E-R Diagram

The E-R Diagram describes inter-related things of interest in a specific domain. It composed of entity types and specifies relationships that can exist between instances of those entity types. This is E-R diagram for this system.

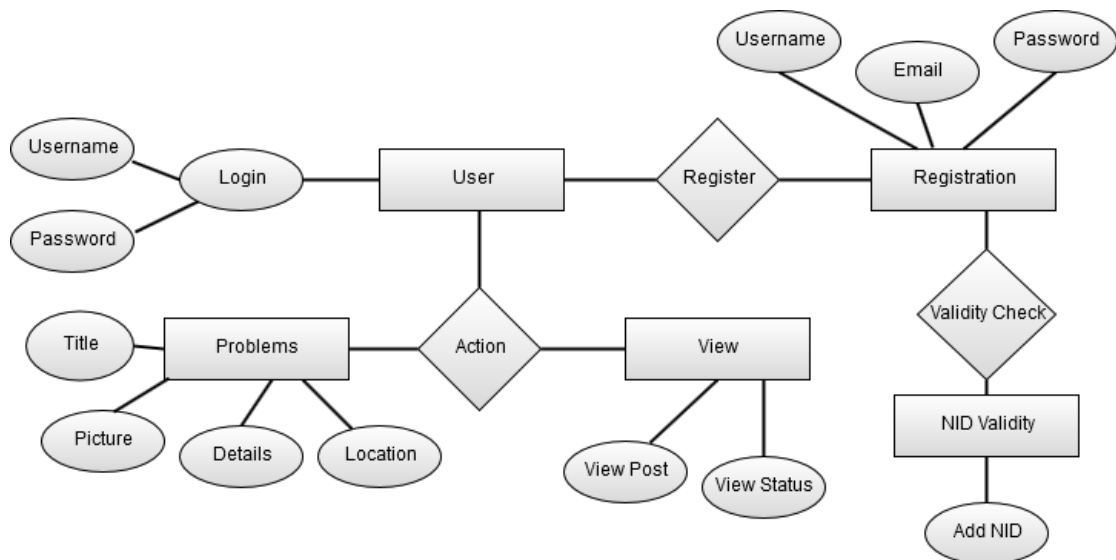


Figure 3.3: The E-R Diagram for User in Android Application

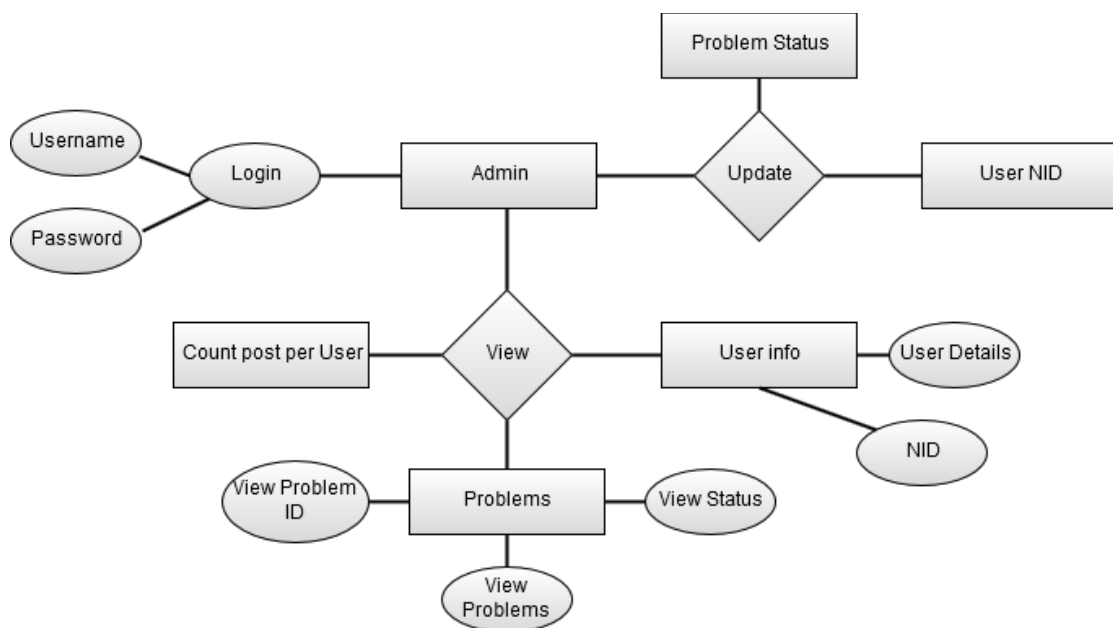


Figure 3.4: The E-R Diagram for User in Web

3.5.2 Sequence Diagram

A Sequence diagram interacts between Admin and user .It is maintaining communication sequence step by step. That is why it is sequence chart. Sequence diagrams are sometimes called event diagrams or event scenarios.

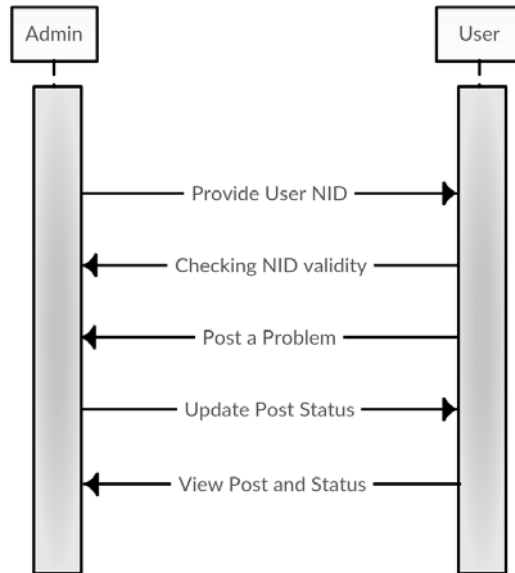


Figure 3.5: The Sequence Diagram

3.5.3 State Diagram

This is the state diagram for SCMS system.

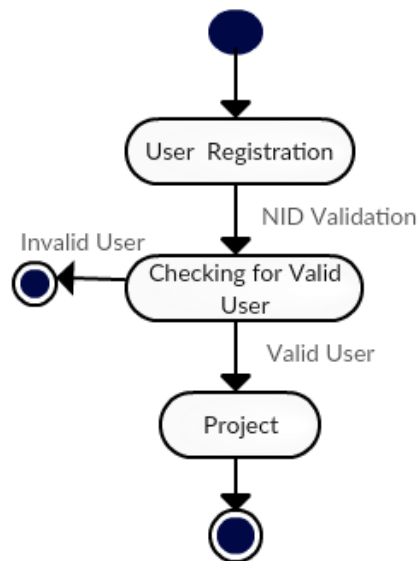


Figure 3.6: The State Diagram

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

The front-end is everything include with what the user sees, including design and some languages like Android, HTML, CSS, MySQL etc. In Front end Design now a days there have used html, CSS, Html is used for create a simple design of a website and CSS is used for maintaining the layout of Web page. JavaScript is used to client-Side behavior. Web designer designs website. He/she don't need to touch the code. Android is used in Application. Android is a commonly used language to make application. And here Android XML is for UI design in app.

4.2 Back-end Design

Server side is basically representing back-end site. SQL for Structured Query Language is a Relational Database. There are many type of server like as SQL, MYSQL SQL has many versions and it run in Visual Studio Software. SQL works by data update, Delete, Insert etc. Back end development need to create a dynamic Web Site. For android, developer work with android programming language as they need to work with something the database understands. And for website, web developer work with programming languages like PHP, since they need to work with something the database understands. The code they write communicates with the server and then tells the application what to use from the database.

4.3 Interaction Design and UX

Interaction Design is very important part for user experience. It is some useful Model. Mainly Interaction Design means a user Interface Design of a Android app and web page. When that Interface design of android app. or web page is causes user friendly that is basically said UX that means User Experience design. In UX design is used in front end development. It defined how people use a app/site and then make changes through testing by a developer. It ensures user satisfaction by developing the usability and accessibility.

4.4 Implementation Requirements

After end of designing step we started to implement our Software. To implement software at first required an android supported device and front web browser with internet connection, for Front-end design we use Android programming language in App forms and HTML in Web form, since it. We also use CSS language for designing web. We have used Photoshop for clear image processing. For Android we use Android Studio and for HTML and CSS we use Notepad++ software. For Back-end development we use MySQL. Microsoft SQL Server is a Structured Query Language (SQL) based, client/server relational database. These are Software Requirement. For Hardware Requirement we have need an android supported device like Mobile phone and one computer that are connected near of local server. We work in windows 7 operating system.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

Data storage is a critical component of most information systems. All information systems create, read, update, and delete data. Data can be stored in a file and database. But keeping data in the file has numerous disadvantages. Database design is the process of translating logical data model (ERD in structured design) into physical database schemas. A database schema is the physical model for a database based on the chosen database technology. Database architecture is built on a Database Management System (DBMS). Today Relational Database Management System (RDMS) is used to support the development and reengineering of the overwhelming number of information systems. Relational database stores data on a collection of tables that are related via foreign keys.

In designing database for Object-Oriented Technology Object-Oriented Database System is the first candidate for the database implementation of the objects analyzed. But the Object-Oriented Database is still a new concept and is not commercially used. So the Relational Database is the recommended choice for database implementations of the objects because of the following advantages. In my design performances I have used Relational Database because of its numerous advantages as follows.

- The database is protected from system failure, transaction failure and software failure.
- Multiple users can access the database and can read and write the same database at the same time.
- It provides integrity to the data stored in the database.
- The data in the database are protected against unauthorized read and write operations.

Table 5.1 :

Table	Action	Rows	Type	Collation	Size	Overhead
NID	Browse Structure Search Insert Empty Drop	8	InnoDB	utf8_unicode_ci	16 KiB	-
Problems	Browse Structure Search Insert Empty Drop	15	InnoDB	utf8_unicode_ci	16 KiB	-
Register	Browse Structure Search Insert Empty Drop	11	InnoDB	utf8_unicode_ci	16 KiB	-
3 tables	Sum	34	InnoDB	utf8_unicode_ci	48 KiB	0 B

Table 5.1: Implementation of Database

Table 5.2 :

+ Options
NID
0
123
12345
3719
1234051
3591
37194051

Table 5.2: NID Saving Table

Table 5.3 :

Name	Email	Password	NID
pp	12	12	12
qq	qq	qq	qq
qqqq	qqqq	qqqq	qq
qq	qqa	aa	ll
qq	qa	qq	123
shawon Saad	saad.s@gmail.com	1234	123
Shawon saad	saadi@gmail.com	1234	3719
Shawon Saad	saad123@gmail.com	1234	3719
Shawon Hasan	shawon123@gmail.com	1234	1234051
Shawon Saad	saadi.s1@gmail.com	1234	3719
Shawon Saad	saad3719@gmail.com	1234	37194051

Table 5.3: Registration data saving Table

Table 5.4 :

ID	Email	Title	Description	Location	Image	Pending
101	NULL	rf	NULL	NULL	NULL	Pending
102	NULL	q	q	q	q	q
103	NULL	12	12	South Atlantic Ocean	Pic/images/5adfa3ecbfb4.png	Pending
104	NULL	whjsj	wjksks	13 Mirpur Rd, Dhaka 1205, Bangladesh	Pic/images/5adfa7e972f81.png	Done
105	NULL	test	test	Dhaka 1205, Bangladesh	Pic/images/5adfe4953be58.png	Done
106	NULL	Another test from Emulator	Emulator test	South Atlantic Ocean	Pic/images/5adff3d830ff2.png	Pending
107		q234	3q4	South Atlantic Ocean	Pic/images/5ae476a46cea5.png	Pending
108	12	12123	123	South Atlantic Ocean	Pic/images/5ae476f23f1cf.png	Pending
109	qq	213	123	South Atlantic Ocean	Pic/images/5ae4773db4d87.png	Pending
110	saadi.s1@gmail.com	ab emulator	Emulator Description	South Atlantic Ocean	Pic/images/5ae4acce17704.png	Pending
111	saadi.s1@gmail.com	ab emulator	Emulator Description	South Atlantic Ocean	Pic/images/5ae4accf9d91d.png	Done
112	saadi.s1@gmail.com	abcd	dfndslknf	South Atlantic Ocean	Pic/images/5ae4acfb9821.png	Pending
113	saadi.s1@gmail.com	Test title	Test description	Dhaka 1205, Bangladesh	Pic/images/5ae4b3a36abf9.png	Pending
114	saad3719@gmail.com	test title	test description	Dhaka 1205, Bangladesh	Pic/images/5ae60fcc36a3.png	Done
115	saad3719@gmail.com	Final Test	Description data passing	South Atlantic Ocean	Pic/images/5ae6ee8038c20.png	Pending

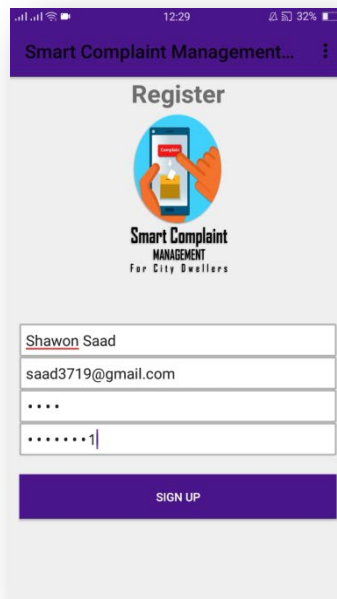
Table 5.4: Post Saving Table

5.2 Implementation of Front-end Design

Another name of front-end web development is client-side development. Client-side development is a practice of making HTML, CSS and JavaScript for a website or web application and android xml for Android application. So that a user can realize and relate with them quickly. The challenge associated with front end development is that the tools and techniques used to create the front end of a website and an android app change constantly and so the developer needs to constantly be aware of how the field is developing. The objectives of developing an app is to ensure that when the users open up the app they can get the information in a format that is easy to understand and relevant and so far same for the web pages. This is further complicated by the fact that users now use a large variety of devices with varying screen sizes and resolutions thus forcing the designer to take into consideration these aspects when designing an app and a site. They need to ensure that their devices may be various types version and for website, site comes up correctly in different browsers (cross-browser), different operating systems (cross-Platform) and different devices (cross-device), which requires careful planning on the Side of the developed.

Step 1:

- In step 1, figure 5.5, Users can register themselves as a user of the app by proper NID validation.

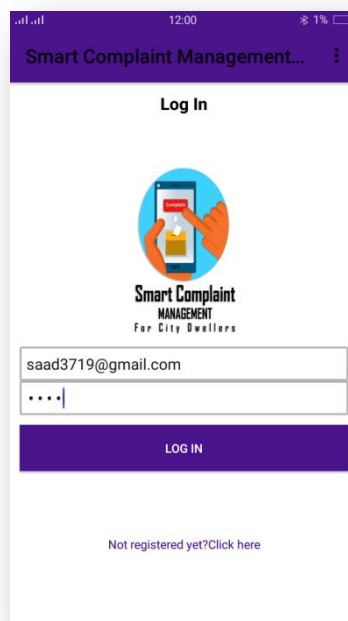


The image shows a mobile application registration page. At the top, the status bar displays signal strength, Wi-Fi, time (12:29), and battery (32%). The app title is "Smart Complaint Management...". The page has a purple header with the title "Register". Below the header is a logo featuring a hand holding a smartphone with a complaint icon, and the text "Smart Complaint MANAGEMENT For City Dwellers". The registration form consists of four input fields: a name field containing "Shawon Saad", an email field containing "saad3719@gmail.com", a password field with four dots, and a confirmation password field with seven dots and a vertical cursor. A purple "SIGN UP" button is located at the bottom of the form.

Figure 5.5: Registration Page

Step 2:

- In step 2, figures 5.6, Users can login the app.



The image shows a mobile application login page. At the top, the status bar displays signal strength, Wi-Fi, time (12:00), and battery (1%). The app title is "Smart Complaint Management...". The page has a purple header with the title "Log In". Below the header is the same logo as in Figure 5.5. The login form consists of two input fields: an email field containing "saad3719@gmail.com" and a password field with three dots. A purple "LOG IN" button is located at the bottom of the form. Below the button, there is a link that says "Not registered yet? Click here".

Figure 5.6: Login Page

Step 3:

- In step 3, figure 5.7, User can choose activity what they want to do.

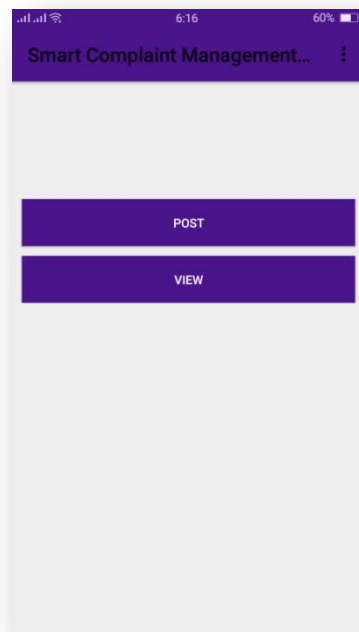


Figure 5.7: Choosing Activity

Step 4:

- In step 4, figure 5.8, Users can post a complaint by providing the info that required.

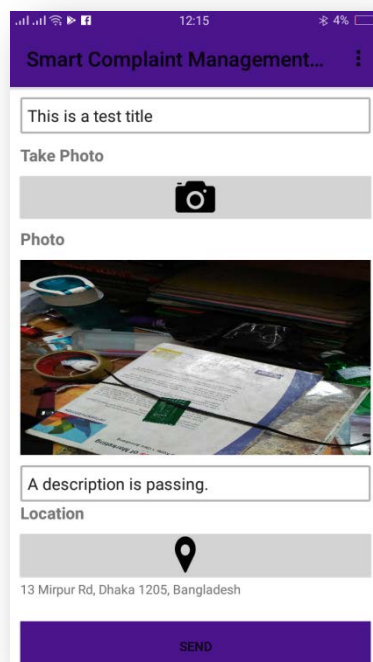


Figure 5.8: Submit a Post

Step 5:

- In step 5, figure 5.9, Users can view what they posted and current situation of posts

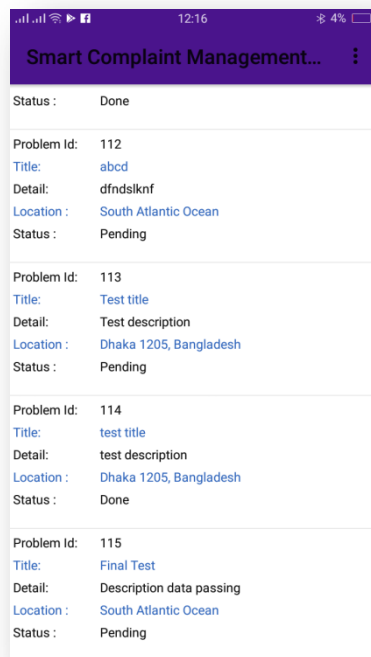


Figure 5.9: View Posts.

Step 6:

- In step 5, figure 5.10, Admin of the system will access from web and it's the web view of login.

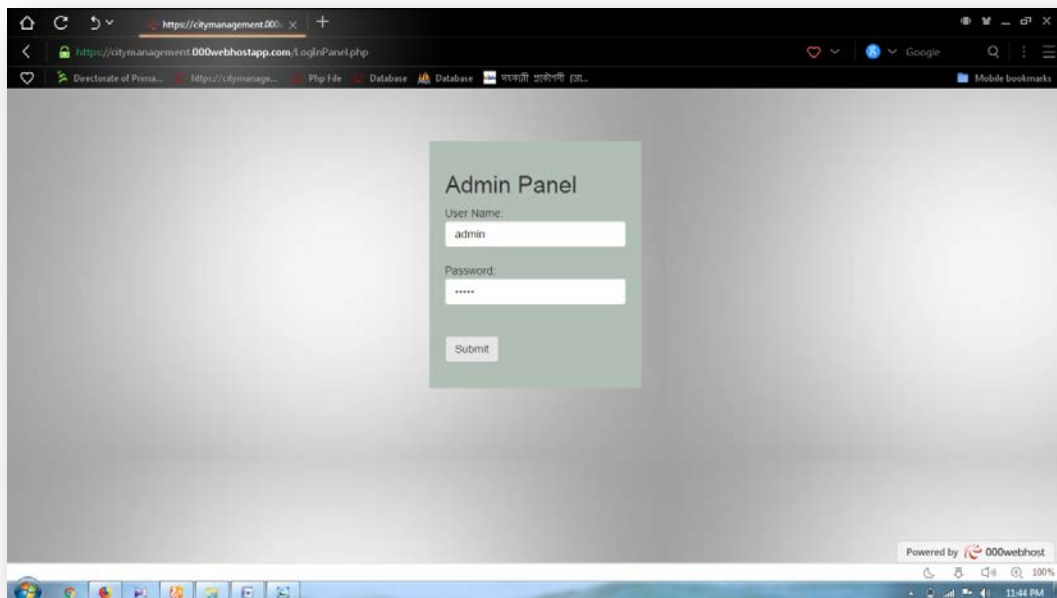


Figure 5.10.: Admin Login from web

Step 7:

- In step 7, figure 5.11, Admin will add user NID number from web in order to check user validity.

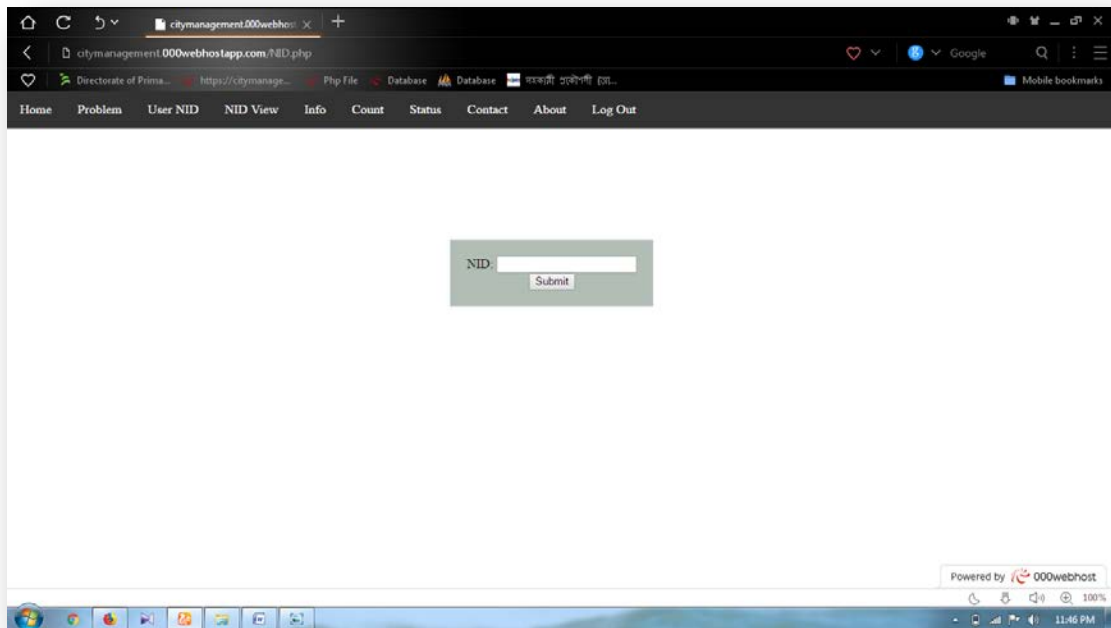


Figure 5.11: NID number adding page.

Step 8:

- In step 8, figure 5.12, Admin can view user NID from web.

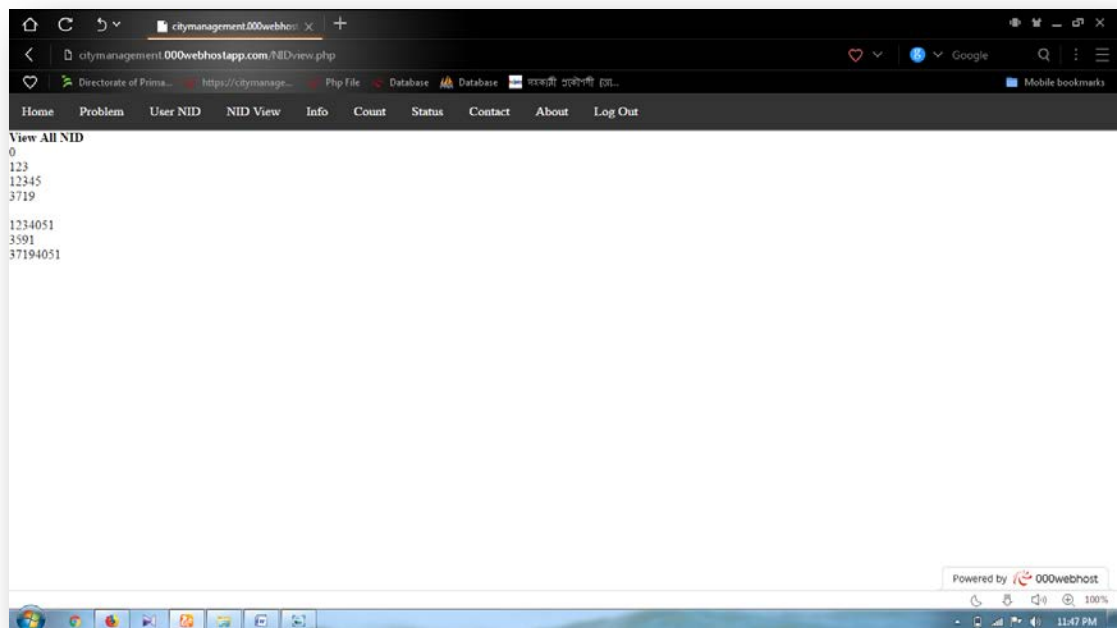


Figure 5.12: NID number view page.

Step 9:

- In step 9, figure 5.13, Admin can view all the problems posted by a user.

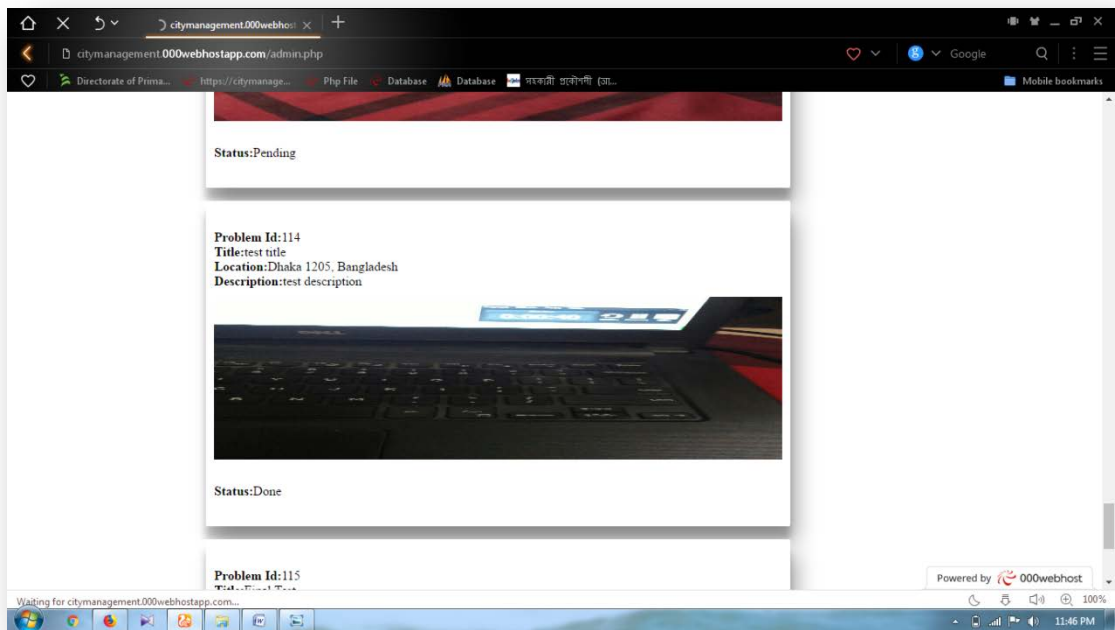


Figure 5.13: View problems posted by users.

Step 10:

- In step 10, figure 5.14, Admin can change the status of the posts if the problem solved.

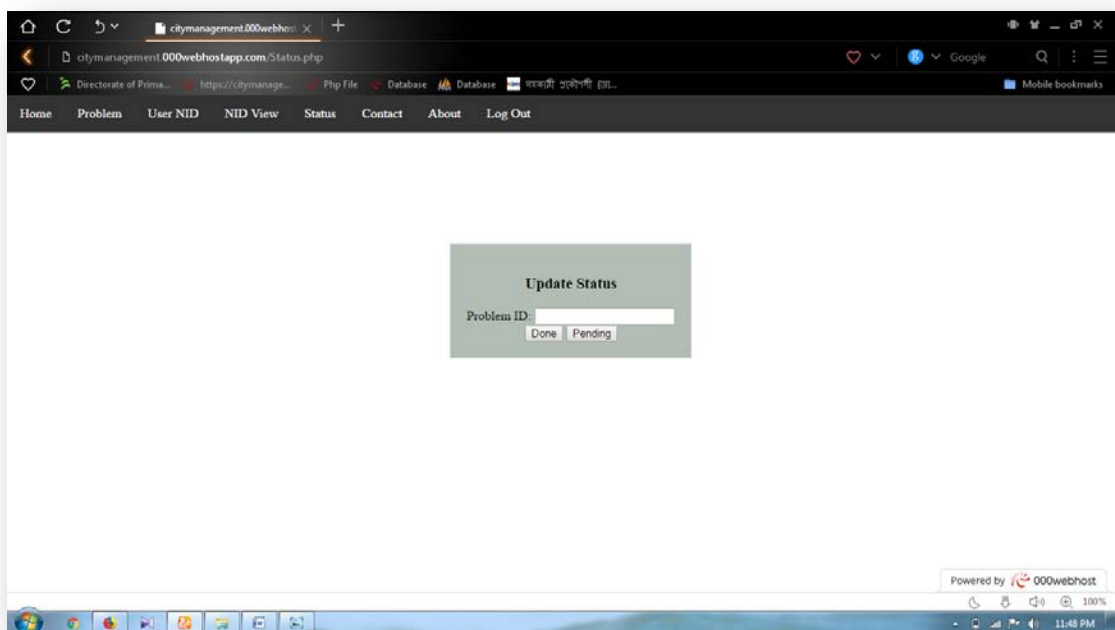


Figure 5.14: Change status of posts.

Step 11:

- In step 11, figure 5.15, Admin can view the number of posts per user email.

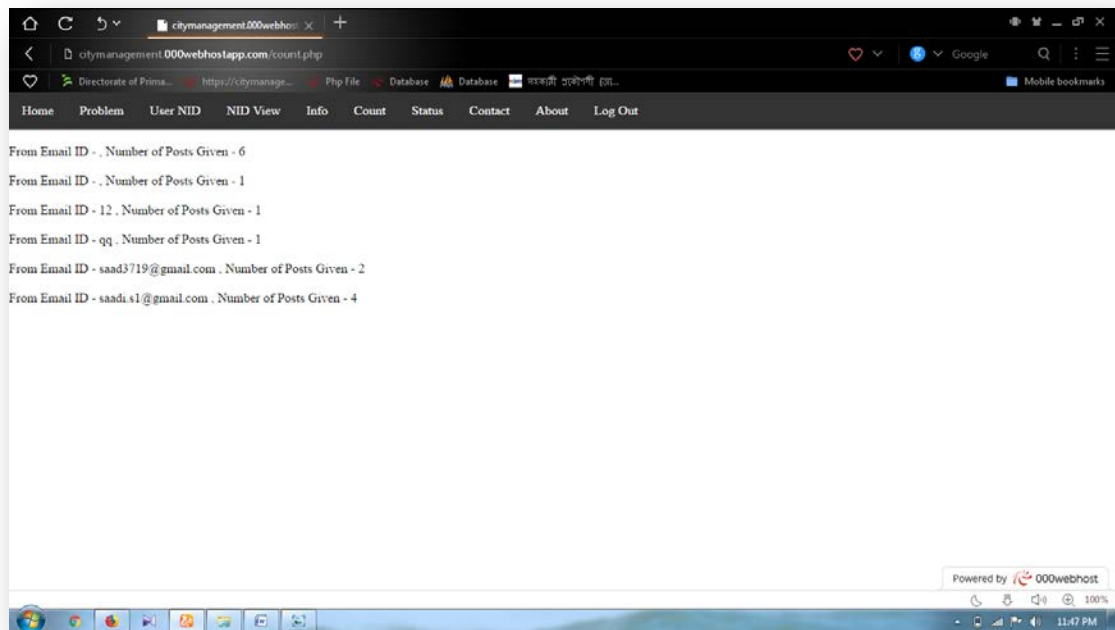


Figure 5.15: Count of posts per user email.

Step 12:

- In step 12, figure 5.16, Admin can view all the registered user info.

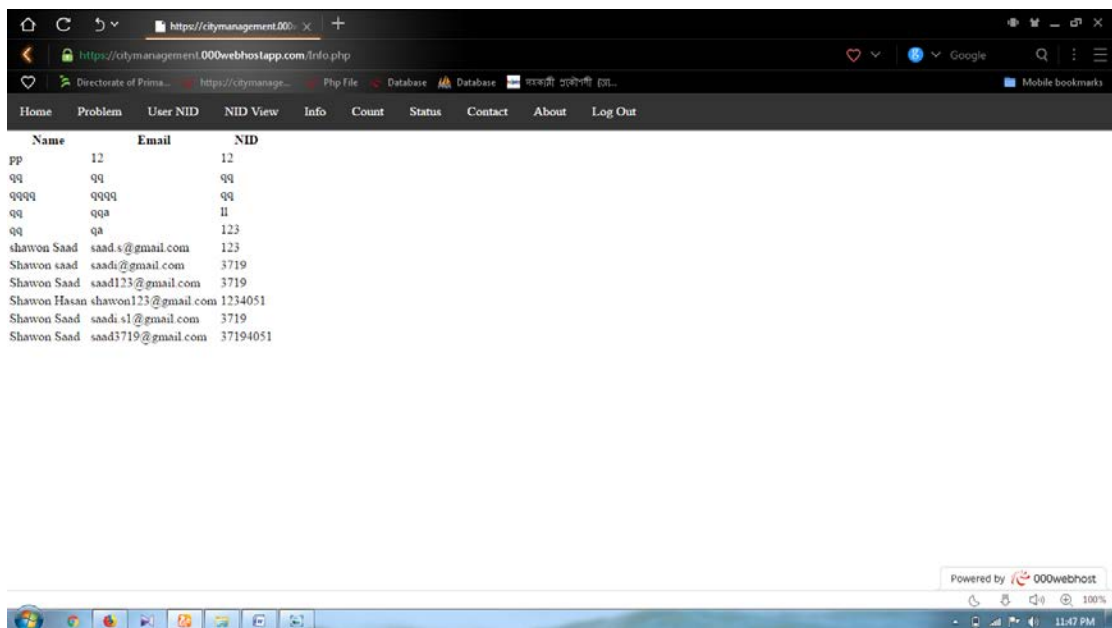


Figure 5.16: View user info.

5.3 Implementation of Interactions

Most of the creative work for a stage occurs here. Participants work together to gather additional information and refine stage inputs into draft deliverables. Activities of this stage may include interviews, meetings, the generation of prototypes, and electronic correspondence. All of these communications are deemed informal, and are not recorded as minutes, documents of record, controlled software, or official memoranda.

The intent here is to encourage, rather than inhibit the communication process. This process concludes when the majority of participants agree that the work is substantially complete and it is time to generate draft deliverables for formal review and comment.

5.4 Testing Implementation

These tasks are carried out when the systems are either finished or at the Testing stage as to suggest in some of the management methodologies. Testing and evaluation may be done concurrently but are unique from each other in terms of meaning. The two are undertaken in various ways. Prototyping is one of the most commonly used ways and in this particular project one was designed and presented to some of the others. For the way it initially functioned, failures were highlighted in some areas and they were able to be rectified in the final prototype and beside the tools to be used as well were even reconsidered. The prototyping enabled other tests to be done such as the usability test which allowed testing the product on random users. This test aims at four major aspects that is to find Out how accurate Locations are, the relevancy of the content, the presentation layout and its effects and finally the key task rate or how easy were the users able to accomplish the main tasks and in this particular project the main task being able to make a successful error free login with proper authentication.

5.4.1 Test Cases

The test cases are generated to verify if the components used in the GUI form are working accordingly or not. This is a way to ensure that a form is correctly producing its result. A test case is a set of conditions or variables under which a tester will determine whether a system under test satisfies requirement or works correctly. The

process of developing test cases can also help find problems in the requirements or design of an application. Some of the sample test cases with screenshots are as follows:

5.4.2 User Registration: Wrong NID Input

If users give any wrong NID value during registration then it will be show the same page until he/ she gives a correct NID value.

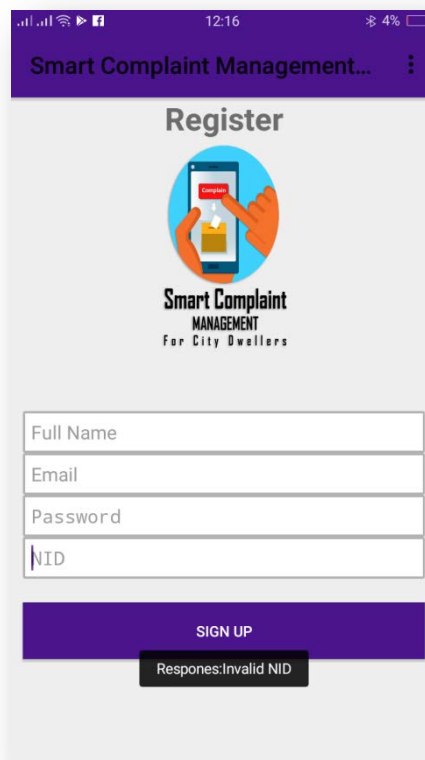


Figure 5.17: Invalid NID

5.4.3 User Registration: Success

If users give the right value of NID which already reserved in the system database can registered them successfully.

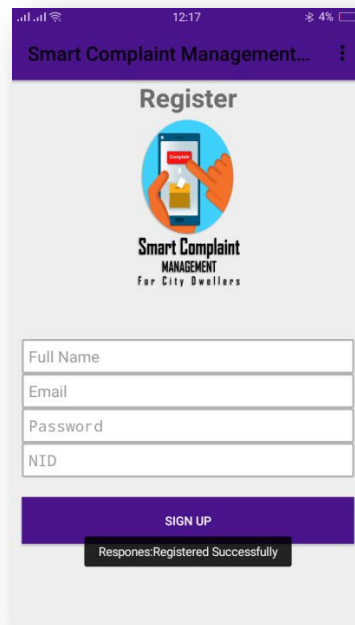


Figure 5.18: Registration success

5.4.4 User Login: Wrong User Input

If users give any wrong value then it will be show this error message.

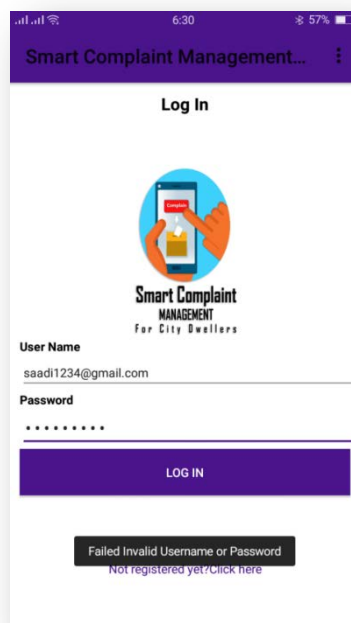


Figure 5.19: Login Error.

5.4.5 User Login: Success

If the admin give right value then entered into the dashboard then Admin Login Successfully

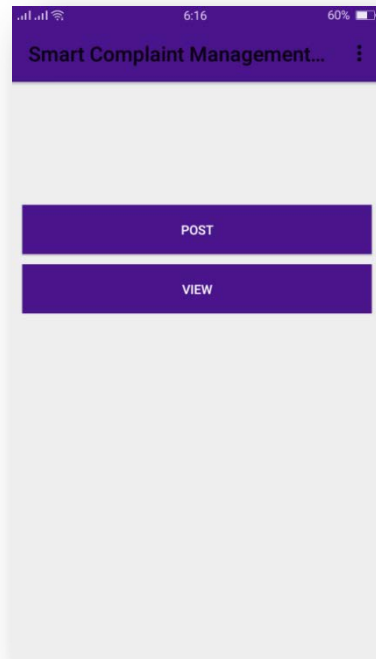


Figure 5.20: User Login Success.

5.4.6 Unit Tests

A unit test is necessary to check each module of the system is working without bug free or not. This also helps to identify if there is any logical error in the module. All the modules in the system are tested individually during the development process, so this testing has been successfully covered.

5.4.7 Integration Tests

Integration tests are usually accepted to check whether a number of modules are working together appropriately. There are several forms attached to the resources allocation process. It contains 5 forms together and every form is working parallel with one another. In other processes, the scenario is the same case like before.

5.5 Test Results and Reports

The report of a test is required to reflect testing results in a formal way, which gives an opportunity to estimate testing result rapidly. Test result is a document that records data obtained from an evaluation research in an organization manner, define the environment or operating conditions, and indicates the comparison of the test results with objectives. So at the end we can carry out the results as the benefits of usability testing to the end once we have defined the general architecture for interaction objects, the problem is then how to design the set of its instances to make them available to developers of user interfaces. In real world, interaction can found almost everywhere. Interaction is the key to make a system dynamic and attractive to user. It's very necessary to make a system interactive and we also try to. As mentioned in earlier, we also include some unique feature to interact our system.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

In this part we state about our decision and conclusion. Here we discuss about future scope and how it could have been better.

6.1 Discussion and Conclusion

In conclusion I would like to tell that this Smart Complaint Management Systems for City Dwellers has achieved its purpose. It has taken a huge task for this project to be completed. It has made an easiest operational process for Complaint to a city Corporation. Complaint receiving operations will be smoother and efficient by the use of this software. It has given a huge lift to the City Corporation Complaint Authority's operations. Whatever that has done manually has been completely shifted to the computerized process and this has enabled the CC to carry out its operation more quickly. This has also given a wider spectrum of communication to the users. Since whatever that has so far been done manually has been changed to a computerized. It has resulted in more efficient processing of data. The new system has resulted in giving numeric advantages to the Corporation authority in many ways. Some of them are given below State of negligible paper work is almost reduced. Accessing and getting data can be done at a single click. Data manipulation has become simpler and the cost factor has been reduced. It is faster and more efficient processing of data. It is less time consuming. Operations are more transparency. Communications between the users is more efficient.

6.2 Scope for Further Developments

This system has a lot of future scope to make it more users friendly. Some future Scopes are discussed in the below.

The system can perform even better if certain improvements are made:

- In this study, new software was prepared in order to help City Corporation authority professional to make their daily work easier and transparent.

- Another main aim of the application is to help establish a better complaint system in a city.
- The software prepared in the study of both a web based and an android-based application in order to the citizens and the authority can have the opportunity to communicate through these platforms.
- The system has two main uses, one of which is the administrator of the system, and the other is the user who uses the system.
- City authority can store their information of complaints and the users can post any related complaint from any place, any time via Internet.
- This application aims to provide higher problem solving efficiency assuring better quality service in shorter servicing cycles.
- We expect to use this software by android base software. Web based and iPhone application can be developed so that it can be accessed globally.
- At present the Users can register only by providing basic information. And the validity process is only NID validation process. Mobile number validation through sending 4 or 5 digit numbers will be added.
- On the other hand there is no option for uploading videos, its may added in order to get a better result.
- There's may be voting options for posts. Post which will get maximum votes from the user will get first priority.
- New user application form will be included as there are many migrated people lives in the city. In this system only the valid voter can register themselves through NID. So with this application form people can apply for including their NID in the system in order to be the user of the system.

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Appendix

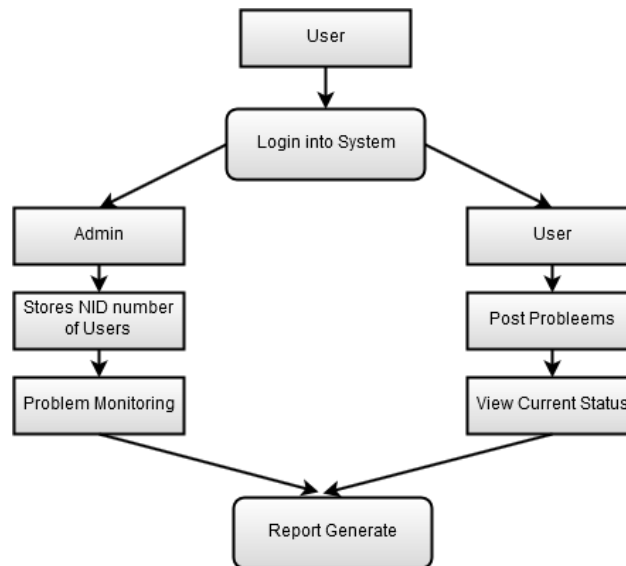
Appendix A: Project Reflection

In our project a lots of functionality to implement so that system has to be more dynamic and easily maintained all criteria. First of all, at first moment when we are starting to make system that moment we are not expert but after few month latter much more comfortable to work and our supervisor helps us lot. His guidelines help us to implement easily to handle complicated portion. Now we would like to express our experience how implement total work.

- We were facing huge problem how to decide which section actually implement because of nowadays almost all work to implement around surroundings that's why we wanted to different type of problem implement which actually huge people to face that problem
- After that our supervisor had also agree our project proposal then we started to implement our project
- We started our project work about one year ago that's why we get a much more time to implement. It is a good side our university pattern to implement project.
- At first we started complaints management system. It's a most challenging portion in our project. Specially, to adopt the citizen in our system how to use that.
- Then collection of Complaints information likes title, description, image, location and so on.
- Then we decide to expand our project to move the leave side. It's also very important part for Complaint Management system.
- It's really complicated to working Google location API correctly.

Appendix B: Related Diagrams

The purpose of this appendix is to provide an introduction to Related Diagrams (RD) and pointers to some of the foundational references. An influence diagram B is a compact graphical representation of a decision



Appendix B: Related Diagram

Plagiarism Checking Report

