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MOBILE APP FOR APARTMENT ACCOUNT MAINTENANCE (MAAAM)

M.Pushpavalli*, S.Murugan**
*Assistant Professor, Sathyabama University, Chennai.
**PG SCHOLAR, Birla Institute of Technology & Science Pilani, Rajasthan.
Email:pushpa.murugan@gmail.com

Abstract

People are living in most of the cities in a gated community / apartment based flats. In this life style, they can do their work by making a group which can be an association and adding office barer into the association with various roles and responsibility to resolve their problem or serve their daily needs. There may be several challenges to maintain their account maintenance in a small size of apartments, they can't be spent more money by investing for a computer, office room and etc to maintain the small petty cash. Such case, this mobile based application will be more helpful and communicable to maintaining their account effectively. Main feature of this application is that the app is a role based application and it can be accessed by only the registered users which are preloaded in the cloud by Administrator. Also, this App is allow a Treasurer of the housing societies to maintain the apartments account on their own or delegate it to other member of the societies. One or two click in the app will generate an e-Receipt and it would be instantly send to the respective owner of the flat by SMS and email. Also it will send a reminder notification to respective members about if they have any due. In case of payment made then the app will send a notification to all members about the expenditure details with Payment e-voucher. Also, it will have a feature to generate report and it will send to all society members periodically.

Keywords: Mobile App for Apartment Account Maintenance (MAAAM), Android.

Introduction

Now a day, people are moving towards digitalized environment everywhere and the smart phone will be the major contribution for the digitalization in this world. Using the smart phone, we can instantly share the information, documents etc., and it can be easier and faster. It is necessary to facilitate the management of these societies on an online

cloud based which is user friendly platform [1]. These days android based mobiles phones are very popular because it affords a large number of utilities for hand-held devices through which it acts as a computer in a pocket. Because of its open-source nature a large number of utilities has been developed and android operating system is getting used in many mobile phones. As Android is open source and having flexible and customizable user interface, thus one of the most popular mobile operating system [2]. There are several accounting application are available in the market which is specific to retail / whole sale business and there are no specific Accounting application for small / medium size Apartment Management. Some of the applications are mostly suitable for large community Apartments with running dedicated staffs to manage the account. Unlike the Medium and small size apartment are making association and taking responsibility of each among them and serve. So that to maintain the account is more challenge and complex. Sometimes this may lead to large misunderstanding happening between the neighbors. The feasibility of the project is analyzed in this phase and business proposal is make effort with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the users. For feasibility analysis, some understanding of the major requirements for the system is essential.

System Implementation: This Mobile app is developing to resolve all account related problem in any type of apartment / society of people who maintain their apartments using collected fund from each flat members. Receipt is the income of Money to the apartment, mostly it will be a monthly maintenance amount and Payment is the outgoing fund from the apartment for various activities like, Labour charges, Electrical Charges, Common EB Meter charges, wages for security and other common amenity workers. Instant notification on receipt / payment and also workflow based approval process for payment is the unique selling point in this application. This Mobile application has developed with main major roles like, Admin, Treasurer and member.

A. Administrator Role

Administrator will be the president / secretary of the apartment association can do the below activities from this application.

- Add/Edit/Delete the new member
- Rented house will be maintained with both owner / tenant details.
- Role can be provided for each user.

- Communication mode will be configured.

- All the complete modules of the app will be accessible by the Administrator.

- Create New Meeting Request and send notification about the meeting.

- Group Announcement / News can be published and configured users get the notification.

- Upload any event details with photos into cloud drive which can be viewable by all members.

  B. Account Manager

Account Manager will be the Treasurer of the apartment association can do the below activities from this application.

- Add/Edit/Delete Account Header details.

- Enter Receipt / Payment details against each income / expenditure amount.

- Generate Income Exp/Ledger/Trail Balance/Balance Sheet statement and send it to all users.

  C. Flat Members

Flat member will be the other Flat owners or tenant of the apartment association can do the below activities.

- Update their profile details.

- Raise their concern / complaint against common amenities to Admin.

- View their Maintenance Payment details.

Solution Design: UML is simply another graphical representation of a common semantic model. UML provides a comprehensive notation for the full lifecycle of object-oriented development. The Advantages of using UML are to represent complete systems (contrary to the software part) applying object oriented concepts. To provide an explicit coupling between concept and executable code. To take into account the scaling factors that are essential to complex and critical structures. The application model sights the work units We are using below diagram to represent this Mobile application system

  A. Use Case Diagram

  B. Class Diagram

  C. Sequential Flow Diagram

  D. Activity Diagram

A. Use Case Diagram

Use case diagrams overview the usage requirement for system. They are useful for representations to management and collaborators, but for absolute development you will find that use cases provide extremely more value because they describe "the meant" of the actual requirements. A use case describes a sequence of action that provides something of measurable value to an action and is drawn as a horizontal ellipse.
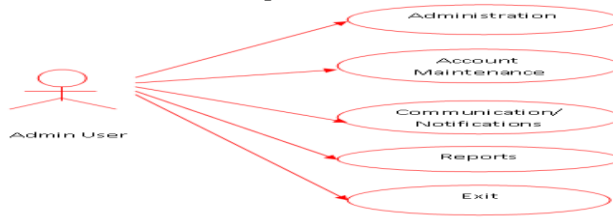
Figure 1: Use Case Diagram for Home Page.

B. Class Diagram:

Class diagram provides an overview of the largest by describing the object and classes inside the system and the relationship between them. It provides a wide variety of usages; from modeling the domain-specific data structure to enumerated design of the target system. Among the share model proficiency, you can rework your class model in the interaction diagram for modeling the detailed design of the dynamic behavior. The form diagram confess you to accomplish diagram automatically with user-defined scope.
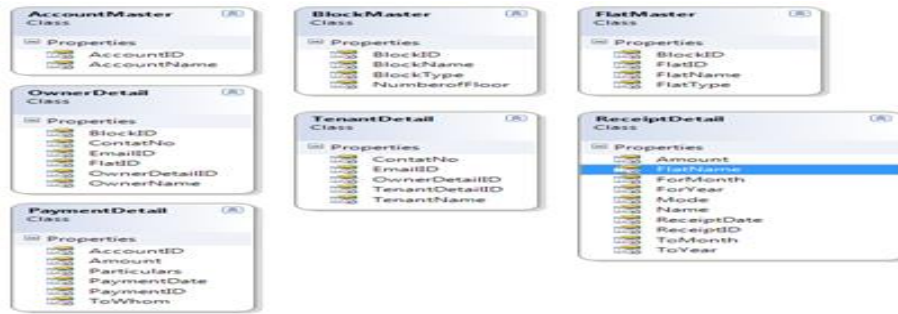

Figure 2: Class Diagram.

C. Sequence Diagram

Sequence diagram model the flow of logic within your system in a visual manner, enabling you both to document and validate your logic, and commonly used for both analysis and design purpose. Sequence diagram are the most popular UML artifact for dynamic modeling, which focuses on identifying the behavior within your system.
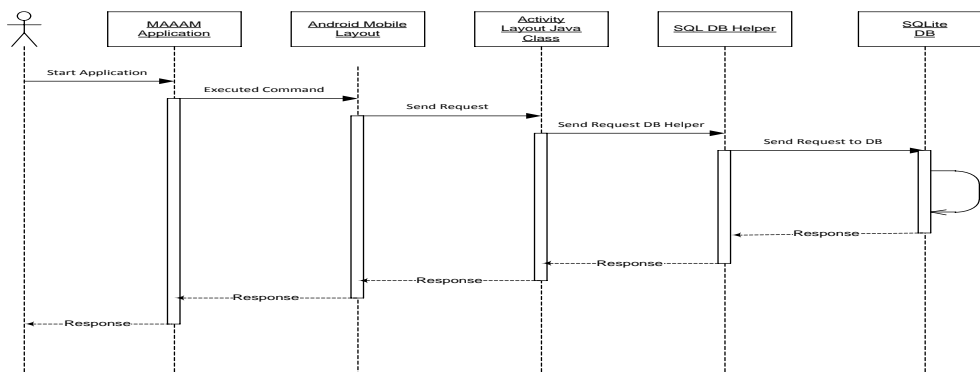

Figure 3: Sequence Diagram.

D. Activity Diagram

Activity diagram are graphical representations of workflows of stepwise activities and behaviors with support for choice, repetition and concurrency. The activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. Activity diagram consist of Initial node, activity final node and activities in between. Three Activity Diagrams can be drawn for this application. Activity Diagram for Registration, Amount Payment and report Generation.
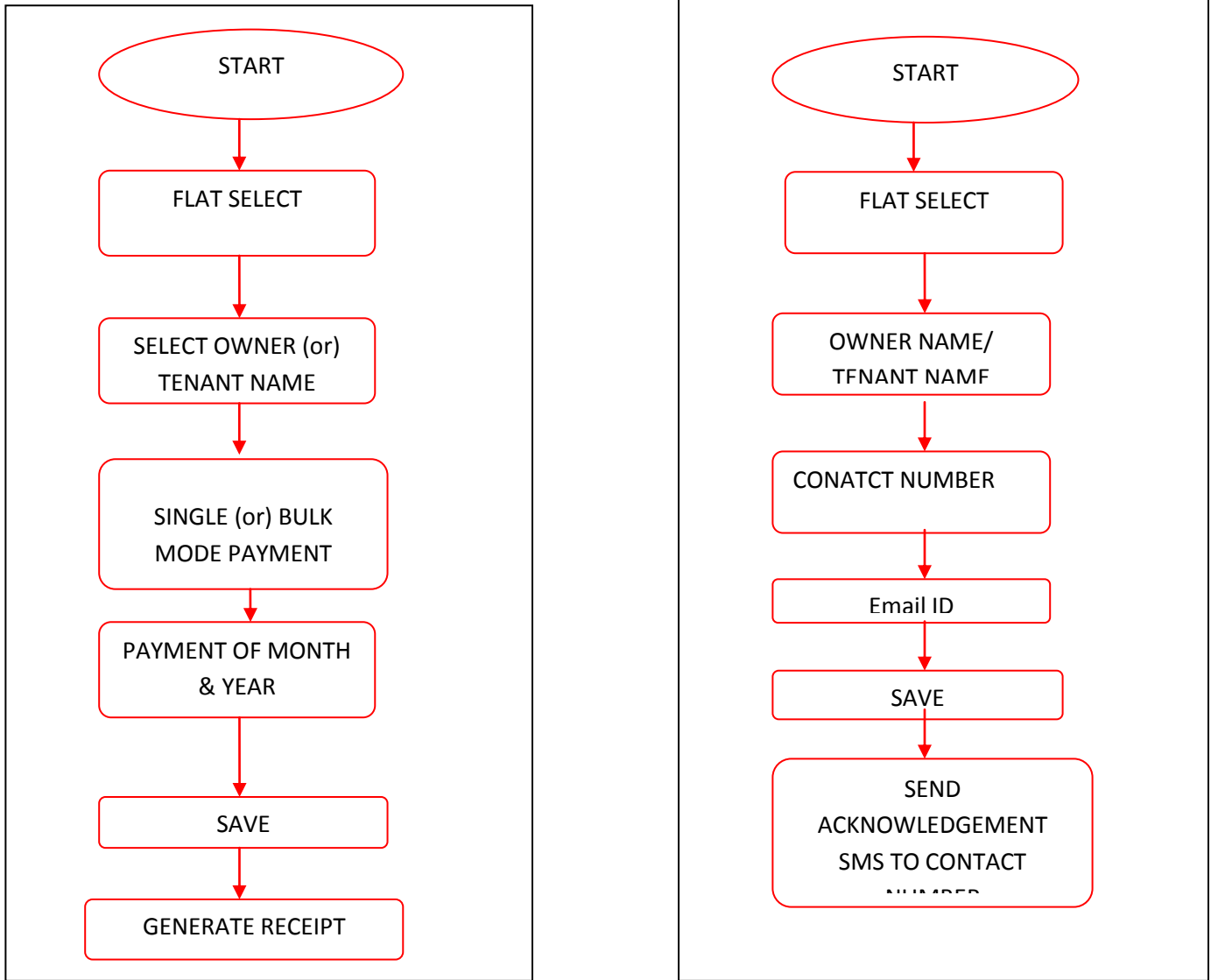

Figure 4: Activity Diagram for Registration & Amount Payment

Android Mobile Design

This Mobile app is developing to resolve all account related problem in any type of apartment / society of people who maintain their apartments using collected fund from each flat members. Receipt is the income of Money to the apartment, mostly it will be a monthly maintenance amount and Payment is the outgoing fund from the apartment for various activities like, Labour charges, Electrical Charges, Common EB Meter charges, wages for security and other

common amenity workers. Instant notification on receipt / payment and also workflow based approval process for payment is the unique selling point in this application.

This Mobile application has developed with main major roles like, Admin, Treasurer and member.

Below are the Screen Designs of the current development in-progress Apartment Account Maintenance Mobile Application.
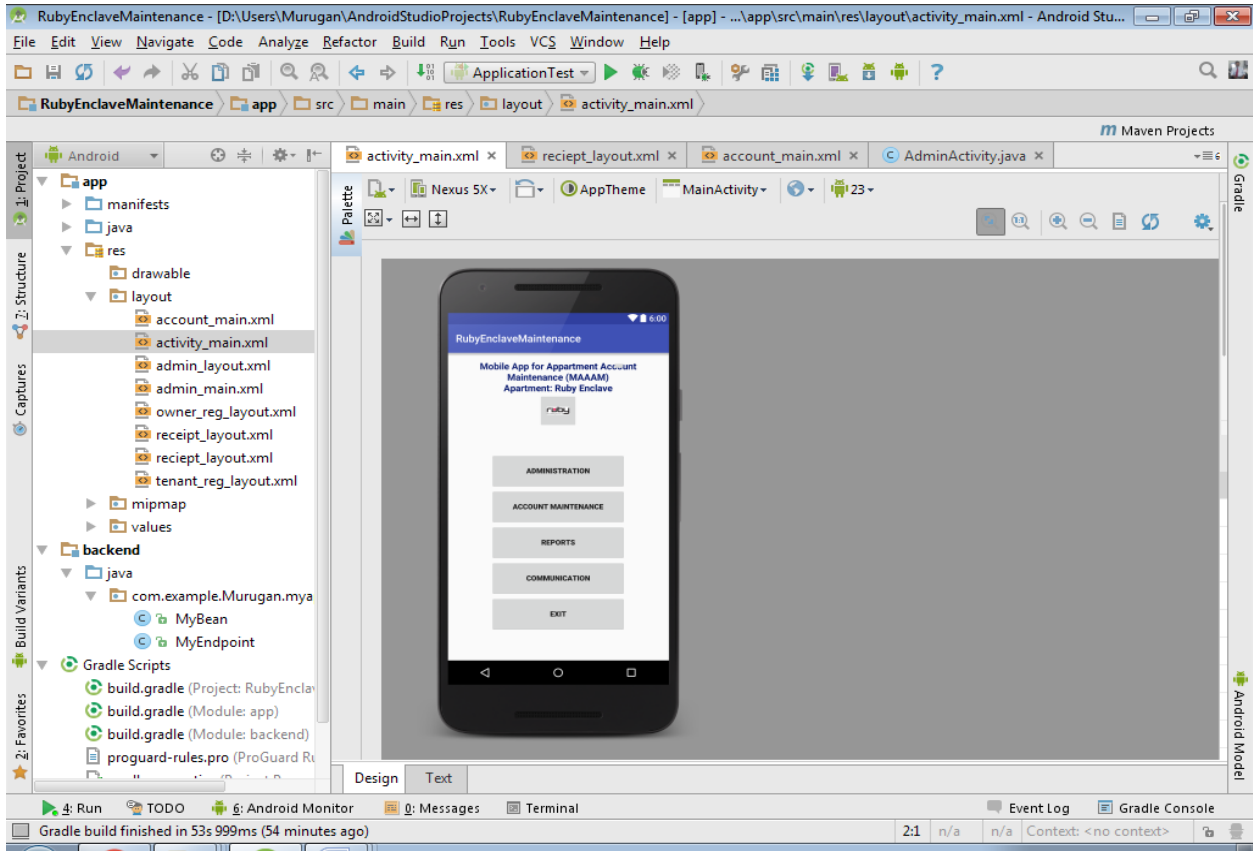

Figure 5: Mobile Application Home Page.

Figure 6 : Administrator Home Page & Owner Registration Page Screen.

Figure 7 : Tenant Registration Page & Receipt screen.

Testing is a set of actions that can be suggested in advance and conducted consistently. For this reason a template for software testing, a set of steps into which we can place specific test case design techniques and testing methods should be defined for software process.

Testing often accounts for more effort than any other software engineering activity. If it is conducted accidentally, time is starved, unnecessary accomplishment is expanded, and even bad, errors swindler through undetected. It would therefore seem reasonable to establish a systematic strategy for testing software.

Table 1. Test case for App Testing

S.No	Function	Description	Expected Output	Actual Output	Status
1.	Admin User	Authentication	Have Authentication to access 1. Account Master entry 2. Registration 3. Reports 4. Communication	Admin User can access the following modules 1. Account Master entry 2. Registration 3. Reports 4. Communication	Success
2.	Account Manager	Authentication	Have Authentication to access 1. Account Master entry 2. Receipts	Account Manager can access the following modules 1. Account Master entry 2. Receipts	Success

			3. Payment	3. Payment	
3.	Flat Owner`/ Tenant	Authentication	Have Authentication to access 1. Receipts 2. Report 3. Communication	Have Authentication to access 1. Receipts 2. Report 3. Communication	Success

Conclusion

This Mobile based Application is developed to maintaining effectively their account of a Community / Apartments. Main feature of this application is that the app is a role based application and it can be accessed by only the registered users which are preloaded in the cloud by Administrator. Also, this App is allow a Treasurer of the housing societies to maintain the apartments account on their own or delegate it to other member of the societies. One or two click in the app will generate an e-Receipt and it would be instantly send to the respective owner of the flat by SMS and email. Also it will send a reminder notification to respective members about if they have any due.

In case of payment made then the app will send a notification to all members about the expenditure details with Payment e-voucher. Also, it will have a feature to generate report and it will send to all society members periodically.

With the advent of time, technology is advancing every day. This application will further be developed and improved. Currently this application is available for android based mobile phones, where we can download and show with all the required functionalities as specified in the requirement.

Acknowledgements

References

1. Prachi Pakhale, Shweta Shirke and Swsati Dhake, "Online Housing society Management system ," in International Journal for Research in Applied Science & Engineering Technology in Volume 4 Issue III, March 2016, ISSN: 2321-9653 .

2. Shivganga Gavhane,Swati Sonar, Jacobs and C.P. Bean, "Study of Implementation of Society Management," in International Journal of Computer Applications (0975 – 8887) Volume 132 – No.1, December 2015.

3. Henry Peter Gommans ,, George Mwenda Njiru and Arphaxad Nguka Owange, "Rental House Management System," in International Journal of Scientific and Research Publications, Volume 4, Issue 11, November 2014 ISSN 2250-3153.

4. https://android.googlesource.com/,lastaccessedonAug06,2013.

5. Google Developer, http://developer.android.com,lastaccessed onSep20,2013.

6. RetoMeier, Professional Android 2 Application Development, 2ndeditionWileyPublishing Inc.,2010.

7. J.F.DiMarziio, Androidaprogrammer's Guide, 1stedition, McGraw- HillCompanies,2008.

8. EdBurnette,Hello,Android:IntroducingGoogle'sMobileDevelopmentPlatform,3rdedition,PragmaticBookshelf,2010.