Chapter1

Introduction of whole project process

This chapter will provide a brief understanding about background of the study, definition of the project problem statement, its objectives, scopes, project justification, risks, project deliverables and project budget and schedule

1.1BACKGROUND OF THE STUDY

A home is a dwelling-place used as a permanent or semi-permanent residence for an individual, family, household or several_families_ in a tribe .You rent a room in your home that is always available for short-term occupancy by paying customers. This room is used solely as a hotel or similar establishment and is not a dwelling unit.

Home is one of the basic needs for human being. From the four need of human being as its need people who have no home may live through paying rent for other people who have more houses. But here what we have to understand is that the relation between the person who rented house and the renter. There are different renters who have different behavior that show different characteristics on rented people. Some renters may have a positive relationship others may not. Here those renters who have bad behavior may show unpleasant or bad behavior on rented peoples. But here what we have thought is that how those rented people for renter that have bad behavior we live together.

Renting of home may have advantage as well as disadvantage. Advantages of rented person from that particular house are renter may work other kind of work with the time of constructing that house, he/she may not repair if that house deprecates etc. on the other hand the rented may get difficulties or disadvantage from that particular house are payment of period calls may enter

into bankruptcy, the renter may ask him to leave his house with an expected time. He/she may not have full freedom to wonder in the compound of that particular house, even he/she may not have right to enter after passing of the entrances time. The rented person may consume match time to get with the renter; he /she pays commission for the intermediate. Protects human being from the harmful things. Home is a necessity, and for some people support is a necessity too .social homing is rented homing provided for people who cannot afford to buy, or to pay private rented sector rents. Our system considered this problem and solve in the available time.

1.2 Statement of the problem

Wolkite city doesn't have online home rental management system for who wants to rent home get a lot of trouble to find home even the home is available.

There is no properly allocate home and the system is not easily arranges according to their user interest. And also the home rental management system almost is done through the manual system.

The administrative system doesn't have the facility to make home rental management system through online and the most time the work done through illegal intermediate person without awareness of the administrative and this make more complex and more cost to find home for the customer. This leads to customer in to more trouble, cost, dishonest and time wastage.

The problem found in the current system:

- Complexity of finding home is not easy and more tedious.
- And also Extra money to find home.
- The system needs more human power.
- The user cannot get information about home when they need.
- There is too match time consumption find home

- Complexity of the system for payment.
- An emergency repair is required when something in the rental unit has broken and the health or safety of the tenant is in danger or the building or property is at risk until repairs can be made.
- Management has become difficult because of issues that include:
  - **i) Data growth:** Data increase day to day. Storing and maintaining all data manually is very difficult
  - **ii) Lack of computerized system** Currently most landlords/property managers use the manual system in recording and maintaining their property and customers data
  - **iii) Data security is not assured** In a manual way, data is recorded on books/papers which may easily get damaged leading to loss of data.
  - **iv) There is no database to store information** Potential of data loss or damage is very high because data is stored on tangible files.

Lack of these crucial requirements makes management of the tenants and houses very difficult as some tenants may end up not paying rent.

1.3 Objective

1.3.1 General objective

The main objective of the system is to develop online home rental management system for wolkite city

1.3.2 Specific objectives

In order to attain the general objective, the following are the list of specific objectives:

- To facilitate home record keeping for who wants home and for administrative management system.
- prepare an online home rental system for the home finders

- Allow for the admin to view home finders.
- To provide a fully functional automated home Rental Management System that will be an online system.
- To provide a complete organized and reliable system with least possibility of any errors.
- Customer can easily register at any point of time sitting in their homes to rent the home.
- A central database has been designed which will help in removing the problems associated with the existing manual system and also will keep the records safely.
- It will ensure data accuracy using database.
- Customers can also cancel home rent easily according the rule and terms of the country
- Minimum time needed for the various activities in the Home Rental management system.
- It will provide better Service for home rent finder.

1.4 **Scope** and limitations of the project

1.4.1 Scope of the project

There are several motivations to develop the new web-based Home Rental Management system and one line home rental:

- The proposed system is concerned searching a home rental, Payment and account controls in online way
- The system will remove the tedious task of customers for searching home for rental.
- The system will help to the home administrative staff i.e. the Home rental to keep the daily and the history record details of the customers need in proper Database.
- Will generate proper available home for customers at the time.

- ❖ The costumer will allow remote access to home rent from the database only for customer and make rent home as they need.
- ❖ The customer can also give feedback.

1.4.2 Limitation of the project

When there are many advantages of a system there is also many problems also with the system. In performing this project there may face many constraints like lack of availability of enough secondary data and it may be inconsistent with the project.

- The error may occur if the transaction cancels or if the server is down.
- Lack of adequate time in order to get the additional secondary data.
- Lack of resources like Hardware and Software
- Lack of reference materials
- Lack of proficiency person in the product management system

Our system could:

1, electric dependent

2, if there is no internet service our system can't operate.

1.5. System Development Methodology

Methodology specifies the method and technology used to develop the web application system such as, the methods used to gather data, approach used to design the software system, software and hardware requirements used to implement the system.

1.5.1. Data Gathering

Interview

We interviewed about the problem that they are facing on not having a computer based system of the home rental.

Observation

We used observation as a tool of gathering information of the existing home rent system, we choose the observation technique since this is the cheapest and highly advanced in providing information about the existing home rent system.

1.5.2. Approach

Our system designing is on the bases of object –oriented system approach.

Why we use object oriented is: Among the different methodologies available we plan to use the object oriented design methodology for the development of our system. Because it is best way to construct, manage and assemble objects that are implement in our system, and the composition of objects and collaboration between objects on the system. Object oriented design methodology has two phases:-

Object Oriented Analysis (OOA): During this phase we will look at the problem domain, and with the aim of producing a conceptual model of the information that exists in the area which will be analyzed. And this Model the functions of the system (use case modeling), the objects and also the relationship between them and finally model the behavior of the objects.

Object Oriented Design (OOD): During this phase Model object interactions and behaviors' that support the use case scenario, and finally update object model to reflect the implementation environment. And also transforms the conceptual model produced in object-oriented analysis to take account of the constraints imposed to our system format, so that we will use this phase to refine the use case model to reflect the implementation environment.

1.5.3. Software requirement tools

Hardware and software requirement

Activities	**Tools**
Documentation	MS word 2013,2010

Design	Edraw Max for UML standard design
Editing	Paint, Macro media flash 8,Adobe.Photoshop.CS4
Script languages	PHP, JavaScript, CSS, HTML bootstrap
Web server	xamp server
Data base Server	MySQL database
Device	Pc,flash, CD and Memory 2GB RAM

Significance of the Project

The new web based application is very important for both user/customer and for home administrative by solving complex data recording and data storing system problems, since the new system is very flexible, easy and user friendly web application to use related with home rental system for customer. The first significance of the system is to make easier the home rental. For instance, the online home rental system starts to serve who needs to rent home easily without any kind of confusion, wastage of time and interruption.

Our project generally have the following significances

1. Fast development
2. Integration with existing
3. Secure payment services
4. Reduce need of man power
5. Enhance system performance
6. Reduce require of resources(minimize need of cost)
7. Enhance the speed of the system procedure
8. Manage all data of the organization in the central database.
9. Tenant landlord of the agency.

10 Worker also can get benefit by supporting by secure their data.

Feasibility Study of the System

The feasibility study is the preliminary study that determines whether a proposed system project is financially, technically and operationally. Feasibility study is essential to evaluate the cost and benefits of the new system. The alternative analysis usually include as part of the feasibility study, identifies viable alternatives for the system design and development.

Operational Feasibility

The system to be developed will provide accurate, active, secured service and decreases labor of workers and also it is not limited to particular groups or body. The system will easily operational, as it doesn't affect the existing organizational structure and support the current system. So the system will be operationally feasible.

Technical Feasibility

The system to be developed by using technologically system development techniques such as PHP, Java script, CSS and MySQL database without any problems and the group members have enough capability to develop the project. Our focus is to develop well organized dynamic web site that is technically efficient and effective for managing the Online Trade interaction system. Therefore, it can be concluding that the system is technically feasible.

Economic Feasibility

The system to be developed is economically feasible and the benefit is outweighing the cost. Since this project already computerizes the existing system and more advanced than the current system reduces and change the labor force to computerize system. Reduces the cost of the material used.

Legal and Contractual Feasibility

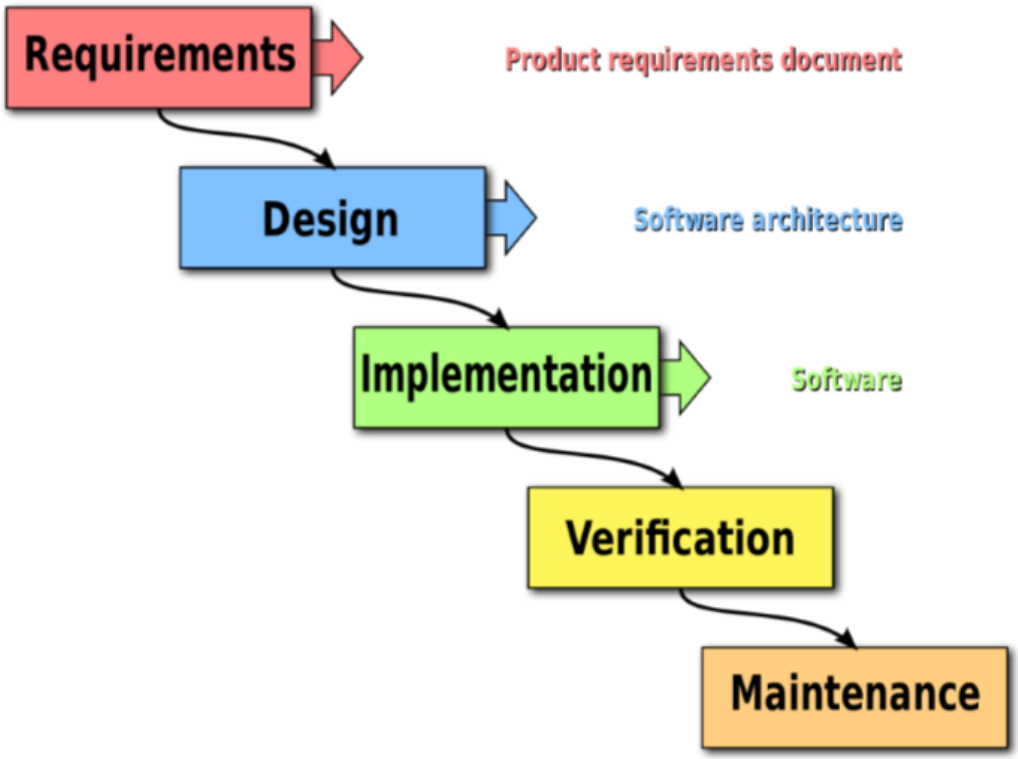
The system is free from any legal and contractual risks

SYSTEM DEVELOPMENT AND METHODOLOGY

System development methodology is a technique that is used to show how the proposed system will be developed. In this case, the methodology used will be a waterfall model.

Waterfall Model

It is comprised of the stages that the developer will use when developing the system. It is a sequential model hence, the name waterfall. The developer has to finish with one stage before going to the next one. It comprises of the feasibility study, analysis phase, design phase, coding phase, testing phase, implementation phase and finally the maintenance phase. It is a simple model and easy to use and understand. With waterfall development based methodologies, the analysts and users proceed sequentially from one phase to the next. The deliverables from each phase are voluminous and are presented to the project sponsor for approval as the project moves from phase to phase. Once the phase is approved by the sponsor it ends and the next phase begins.



1.7. Time schedule Gant chart

Task name	Start	Finish	Duration	March				April				May			
				1 w	2 w	3 w	4 w	1 w	2 w	3 w	4 w	1 w	2 w	3 w	4 w
Proposal															
System analysis															
System Design															
Implementation															

1.8 Budget scheduling

For this project the estimated budget plan from the beginning to end of the project is described on the table below.

NO	Materials	No of Quantity	Price in birr	Total price
1	Pen	1 dozen	50.00	50.00
2	Paper	2 ream	120.00	240.00
3	Taxi	-	500.00	500.00
4	CD	6	10.00	60.00
5	Paper Copy and print	-	500.00	500.00
6	Coffee and tea	-	400.00	400.00
7	Laptop or PC	1	15000.00	15000.00
Total				16750.00

Chapter two

Description of the Existing System

2.1. Introduction of Existing System

Currently the most property managers manage property and tenants details on papers. Once customers finds a vacant house, they can call or email manager of the houses indicating the size of the house they would like rented to them.

The property manager can email them back giving them all the details about the house they are requesting.

The details include;

- Rent per month
- Deposit paid
- Terms and conditions to follow acceptance

2.2 Users of Existing System

The users of existing system are:

- Renter
- Tenant
- broker

Chapter three

Proposed system

1.1 Introduction

The proposed system that we are going to implement has interactive user interface to use and has capability to avoid most of the problems in the current system by having:

1. There is prescheduled user input text boxes to fill home records
2. A specific ID number or any other primary key to search to a specific home record. This makes easy and fast data access.
3. To allocate home the system easily arranges according to their order to be registered.
4. The system avoids data lose by using relational databases. For examples home allocation table has relation with resource allocation table in order to avoid data redundancy by using one primary key and relate both tables and easy data access is implemented.

The system upload photos of home with available information and the user can see the photos about home he/she need.

1.2. Product overview

1.3. User class and characteristics

It entailed user involvement and statements of facts and assumptions that define the expectations of the system in terms of mission objectives, environment, constraints and measures of effectiveness and suitability. Basically the users:

i) A system that improves on the efficiency of information storage and retrieval.
ii) A system that is easy to learn and use
iii) A system that is fast in processing transactions
iv) A system that is flexible, safe and convenient

REQUIREMENTS ANALYSIS

Requirement analysis involved defining customer needs and objectives in the context of planned customer use, environments and identified system characteristics to determine requirements for system functions.

1.4. Functional Requirements

This is a necessary task, action or activity that was accomplished. The proposed system is able to:

i) Allow administrator to add a houses, tenant and defaulters details
ii) Allow the administrator to delete houses, tenants and defaulters details
iii) Allow the administrator to search data in the database
iv) Allow the administrator to edit data in the database

Actor	**Function**
Tenant	✓ Advertise the house

	✓ Adding information about the house
Renter	✓ Search the house ✓ Select the house they wants ✓ Register to rent the house
Agent	
Administrator	✓ Edit data in the database ✓ Delete data in the database ✓ Update data in the database ✓ Delete tenant, agents and renters

3.4.1 Performance requirements

The system should respond within a short period of time. It depends on the performance of the hardware environment such as RAM and processor.

3.4.2 Process requirements

3.4.3 Input related requirements

3.4.4 Output related requirements

3.4.5 Storage related requirements

1.5 Nonfunctional requirements

The official definition for a non-functional requirement specifies how the system should behave: "A non-functional requirement is a statement of how a system must behave, it is a constraint upon the systems behavior." Non-functional requirements specify all the remaining requirements not covered by

the functional requirements. They specify criteria that judge the operation of a system, rather than specific behaviors.

Hardware Interfaces

Hardware interfaces between all systems regardless of any pre-existing network that supports TCP/IP, since Online Trade Interaction is not web based rather it is Desktop based application.

Software Interfaces

The software interfaces between all systems will be implemented on all operating systems at which it is compatible with software frameworks:

Other Nonfunctional Requirements

I. Security Requirements

Privacy and security requirements: are concerned with keeping the information private and confidential. The Online Trade Interaction needs to provide for all the communication sessions conducted between two parties or more the complete and ultimate privacy, away from the interference of outsiders. The data and information exchanged between any two peers or more in the Online Trade Interaction are considered highly private, and some of the information is inaccessible, even for the Retailor, to look at them. Moreover, the system should only permit the parties or peers that their usernames and passwords match the ones saved in the database from logging into the system. Unauthorized peers cannot log in or access the system, as this step is called the authentication.

III. Software Quality Attributes

II. The system shall be intuitively usable.

- Input fields shall be clearly labeled with terms meaningful to a tenant, renter, agent, and administrator.
- Buttons shall be clearly labelled with terms meaningful to the tenant, renter, agent, and administrator.

III. Business Rules (Security Issues)

- Any of system users shall never log in to another system user. This secured for each system interface from accessing authorized users through authorized the database table only for those user who have a special privilege.

Hardware Requirements

i Processor 2.0 Ghz processor speed

ii Memory 2GB RAM

iii Visual Display Unit 800*600 colors

Software Requirements

i) Operating System- windows 10
ii) Microsoft Office Power point- Used during presentation
iii) Microsoft visual basic 6

Chapter Four:

System Analysis

System Models

Use Case Models

A use-case model is UML (Unified Modelling Language) which is a de facto standard for object- oriented modelling, so use-cases and Use-case–based elicitation is increasingly used for requirements elicitation. Model of how different types of users interact with the system to solve a problem. As such, it describes the goals of the users, the interactions between the users and the system, and the required behavior of the system in satisfying these goals.
A use-case model consists of a number of model elements. The most important model elements are: use cases, actors and the relationships between them

Actor identification

An Actor is something that accomplishes use cases upon a system. It is just an entity, meaning it can be a Human or other system that directly play an external role in the system.

In our system there are four actors. Those are administrator,tenants,rentors and agents.

Administrator

- User management
- Can view print all landlord-tenant agreement
- add a houses, tenant and defaulters details
- search data in the database
- edit data in the database

Tenant

- ✓ Add house and remove rented house
- ✓ Receive appointment and rent house

Renter

Firstly login into the system and search the house they wants and send the request and the agent or admin sends the appointment back to the renter. If they reaches agreement the renter will rets the house.

Agent

The agent add the house it is not rented and also receive the application, if they are agree send the appointment to the renters then confirm and rent to the renters.

Use case identification

Use case identifies the individual interaction within the system, so in our case, project we identified the following use cases: -

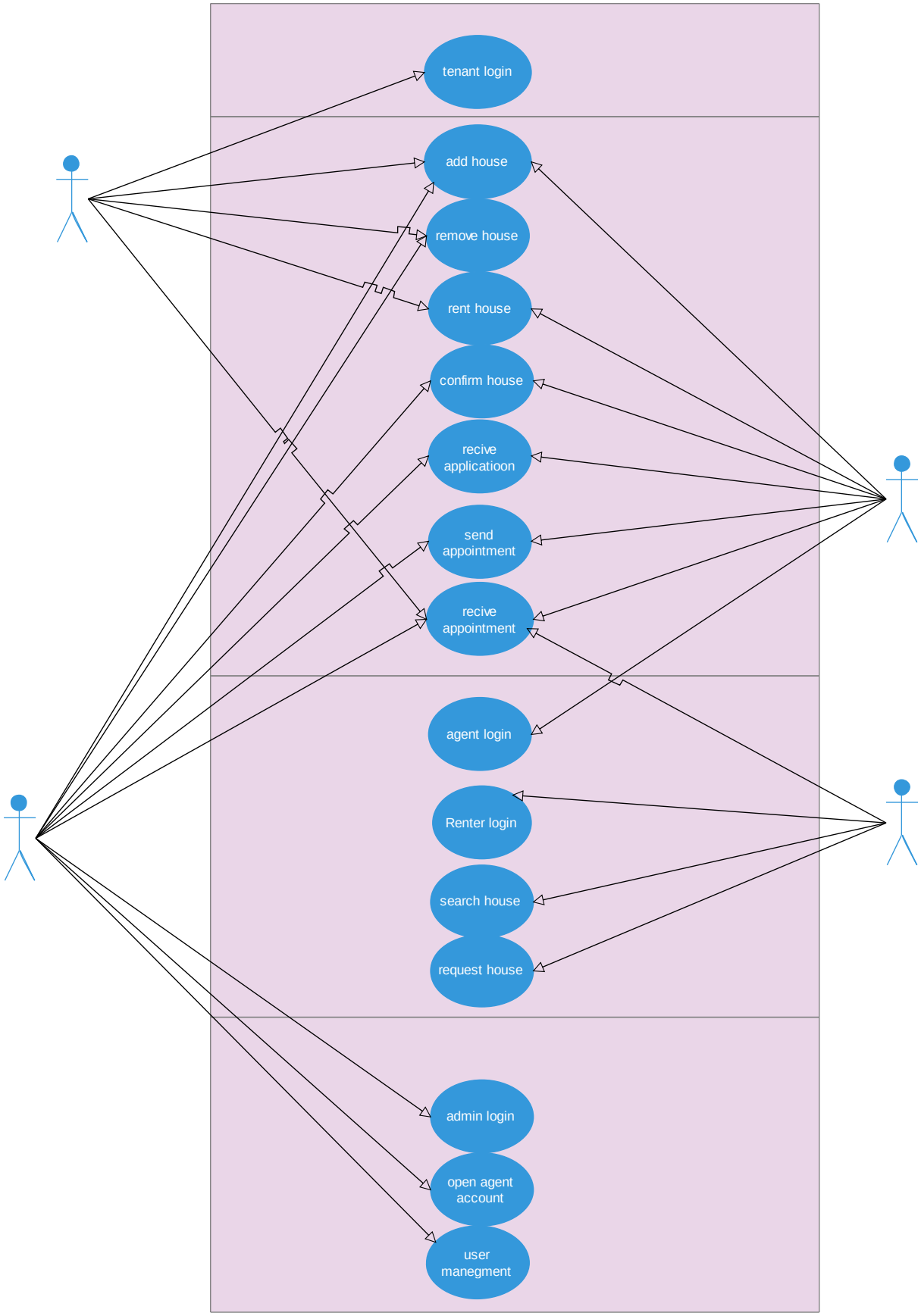
Use case diagram

- add house
- receive appointment
- remove house
- rent house
- search house
- request house
- open agent account
- user management
- receive application
- confirm house
- send appointment

Use case diagrams model behavior within a system and helps the developers understand of what the user requires. The stick man represents what's called an actor.

An actor represents an outside entity- either human or technological. In this example its human (Stick man). Notice the curved rectangle on the diagram this represents the system boundary everything inside that is part of that system, and everything outside are actors (basically not part of system).

Use case diagrams can be useful for getting an overall view of the system and clarifying who can do and more importantly what they can't do. Use case Diagram consists of use cases and actors and shows the interaction between the use case and actors


tenant login
add house
remove house
rent house
confirm house
recive applicatioon
send appointment
recive appointment
agent login
Renter login
search house
request house
admin login
open agent account
user manegment

Description 1	
Use case name	**Renter Login**
Use case number	1
Use case Description	Allows users to Add House, remove House, rent House , receive appointment
Participator actor	Renter users
Pre-conditions	The user should open House Rental Management system Website and should create an account
Flow of events	The Admin and the Agents are allowed to add house and confirm house but throw this login privilege the tenant is able to add house and the house region agent or the administrator confirms the house to be displayed in the website. The tenant is also allowed to edit remove the items he/she has add to the website.
Alternative flow of events	

Description 2	
Use case name	**Add House**
Use case number	2
Use case Description	Adding a house information to be rented
Participator actor	Administrator , agent and Renter
Pre-conditions	The users must login to the web system
Flow of events	The users Login from Home page by clicking login button to the login page

	and logs in with valid id and password. Goes to the add House choice and adds the house by providing information applying to be committed by the admin or the region agent.
Post condition	The House will be in Notification to committed in admin or Agents privilege.
Abnormal flow of events or Alternative conditions	If he/she fills the form in incorrect place the system responds with warn message, it display leave or stay message.

Description 3	
Use case name	Remove House
Use case number	3
Use case Description	Removing a house information to be rented
Participator actor	Administrator , agent and Renter
Pre-conditions	The users must login to the web system
Flow of events	The Logged in user Under his Remove menu the use is able to remove The house he has add or if it is his/her region for Agents they are able to remove. For administrator he is able to access for delete entire houses added to the website
Post condition	The House will moved to Trash House folders for restoring if we need to bring the house again
Abnormal flow of events or Alternative conditions	If he/she try to delete the house they are not participated the system promotes “Can’t delete”.

Description 4	
Use case name	Rent House
Use case number	4
Use case Description	Removing a house information from to be rented to Rented
Participator actor	Administrator , agent and Renter
Pre-conditions	The users must login to the web system
Flow of events	The Logged in user can change the status of the house to rented
Post condition	The house will not be available in to be rented house list
Abnormal flow of events or Alternative conditions	

Description 5	
Use case name	Confirm House
Use case number	5
Use case Description	Committing the House to be viewed in the website for rental
Participator actor	Administrator , agent
Pre-conditions	The users must login to the web system and should admin or agent privilege
Flow of events	When the tenant adds the House notification will be sent to the region agent for confirmation

Post condition	The house will be available in to be rented house list
Abnormal flow of events or Alternative conditions	

Description 6	
Use case name	Receive application
Use case number	6
Use case Description	Receive an application information filled by tenant
Participator actor	Administrator , agent ,Renter
Pre-conditions	The users must login to the web system and should admin, Tenant or agent privilege
Flow of events	When the Customer apply for the house the application will be sent to agent and passed to renter for confirmation .
Post condition	The tenant and the renter is ready for visit appointment.

Description 7	
Use case name	Send Appointment
Use case number	7
Use case Description	Sending an appointment for Visiting The house physically
Participator actor	Administrator , agent

Pre-conditions	The users must login to the web system and should admin or agent privilege
Flow of events	When the Customer apply for the house the application will be sent to agent and passed to renter for confirmation. After this the agent will send an appointment for visiting the house for renter and tenant.
Post condition	The Tenant and Renter is notified.

Description 8	
Use case name	Receive appointment
Use case number	8
Use case Description	Receive an appointment for Visitation
Participator actor	Renter and Tenant
Pre-conditions	The users must login to the web system and should Tenant or Renter account.
Flow of events	The agent send the appointment to the tenant and the renter is notified.
Post condition	The tenant and the renter is ready for visit appointment.

Description 9	
Use case name	**Agent Login**
Use case number	9
Use case Description	Allows users to Add House, remove House, rent House , receive appointment

Participator actor	Rentor users
Pre-conditions	The user should open House Rental Management system Website and should create an account
Flow of events	The Admin and the Agents are allowed to add house and confirm house but throw this login privilege the tenant is able to add house and the house region agent or the administrator confirms the house to be displayed in the website. The tenant is also allowed to edit remove the items he/she has add to the website.

Description 10	
Use case name	**Search House**
Use case number	10
Use case Description	Allows Customers to search for House
Participator actor	Customer / Tenant
Pre-conditions	The user should open House Rental Management system Website
Flow of events	Inputting in terms of price ,region, area,…. For searching.

Description 11	
Use case name	**Request House**
Use case number	11
Use case Description	Allows Customers to apply for House for rental
Participator actor	Customer / Tenant

Pre-conditions	The user should open House Rental Management system Website and create an account.
Flow of events	Opens an creates account and fill application form for the house the customer need for rental

Description 12	
Use case name	**Admin Login**
Use case number	12
Use case Description	Allows the admin to manage users , create agents account and granted agents privilege
Participator actor	administrator
Pre-conditions	The user should open House Rental Management system Website.
Flow of events	The admin inputs admin username and password for validating.

Description 14	
Use case name	**User Management**
Use case number	14
Use case Description	Allows the admin to create, remove, ban , edit ,reset any other accounts.
Participator actor	Administrator
Pre-conditions	The admin should be logged in to the system.

Flow of events	Under menu of account management admin performs any action in the description

3.4.4. Dynamic Model

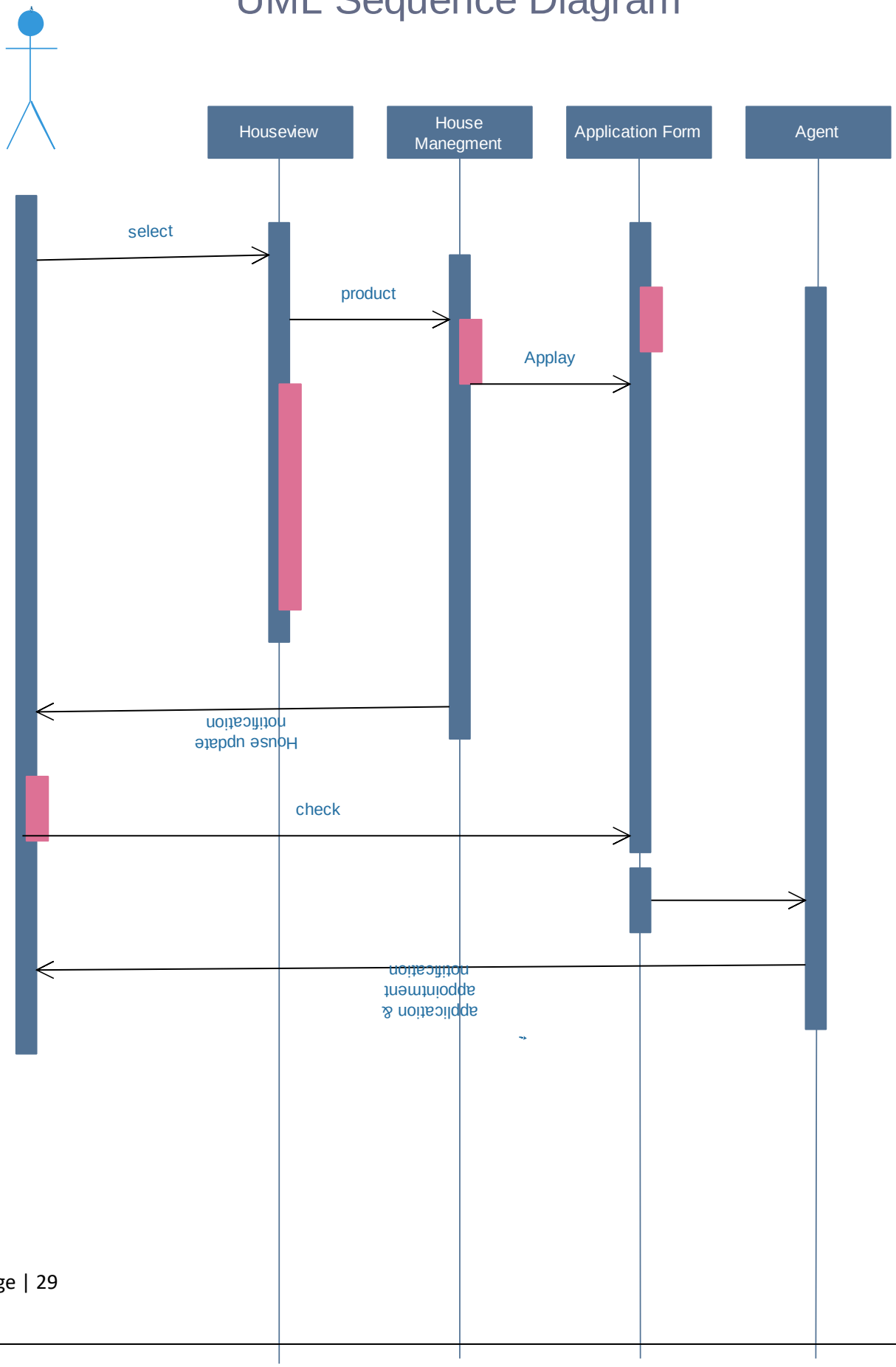
Sequence Diagram

The purpose is to show the functioning through a use case. In other Words, we call it mapping processes in terms of data transfers from the actor through corresponding objects.

 To represent the logical flow of data with respect to a process.

 It must be remembered that the sequence diagram displays Objects and not the classes**.**

UML Sequence Diagram



Class Diagram

Class diagrams are the most popular UML diagrams used by the object oriented community. It describes the objects in a system and their relationships. Class diagram consists of attributes and functions.

 This is one of the most important of the diagrams in development.

 The diagram breaks the class into three layers. One has the name, the second describes its attributes and the third its methods. The private attributes are represented by a padlock to left of the name.

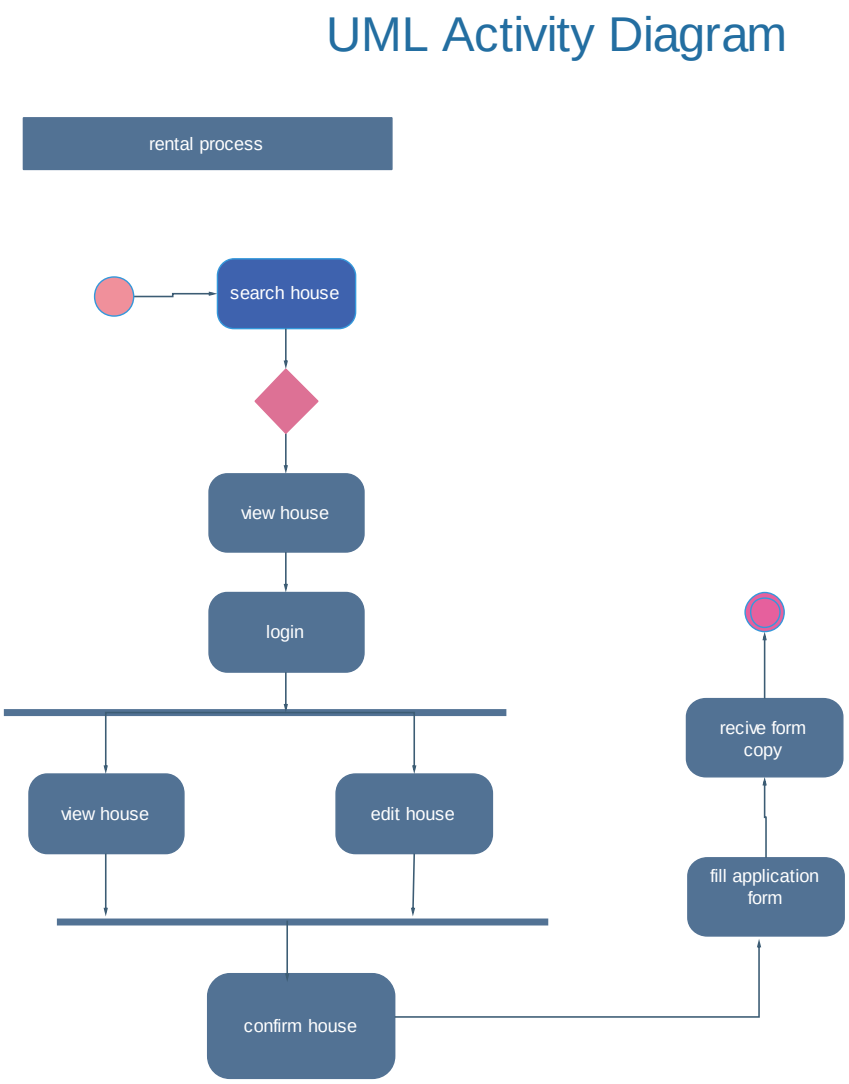
 The relationships are drawn between the classes.

 Developers use the Class Diagram to develop the classes.

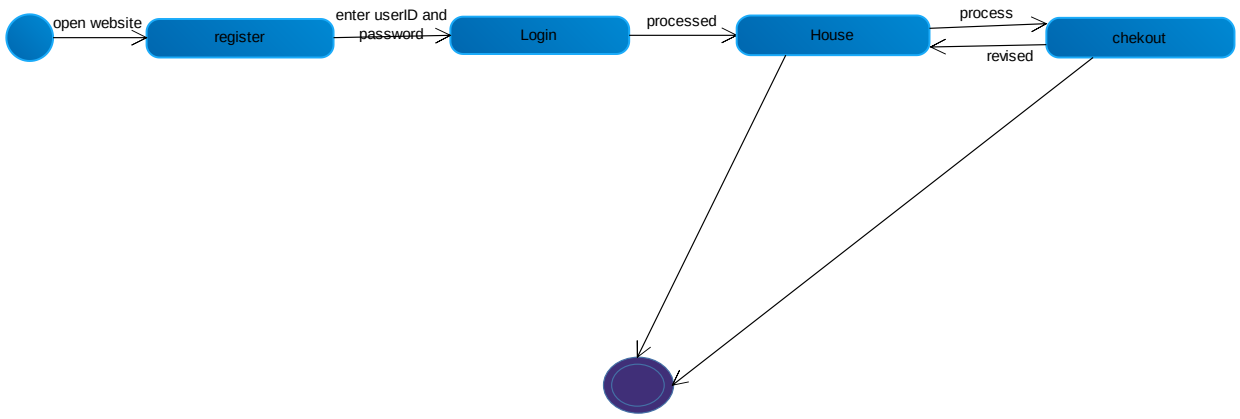
 Analyses use it to show the details of the system

Activity Diagram

It shows the control flow from one activity to another. Activity diagram is another important diagram to describe dynamic behavior. Activity diagram consists of activities, links, relationships etc. It models all types of flows like parallel, single, concurrent etc. Activity diagram describes the flow control from one activity to another without any messages. These diagrams are used to model high level view of business requirements.



State Diagrams



Chapter five

System Design

5.1. Introduction

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements.

3.2 .System Overview

The system was a visual basic system/application. The database was updated each time the administrator; add, deletes or deletes data on the system.

It's only the administrator who has access to the system to view or make changes when necessary. The system was designed to allow the administrator to view, edit, delete and add data to the database

Each time a customer comes, he/she is registered in the tenant registration table of the database with other relevant details about the tenant.

System design involved transforming the software requirements into an architecture that described its top-level structure and identified the software components and developed a product.

5. 3.Purpose

The new system of a home rental management system is an online home rental management system used to automate the current manual home rental management system. The system basic purpose is to maximize the accessibility, speed, and save the time for both home owner and the rentals.

5.4. System Design Goals

The first problem in designing a system is to define goals and specifications. Based on our requirements specification we identified the two base groups of goals: user goals and system goals. This system is designed to track the renting process starting from application to the renting house. This system will help to eliminate the needs to do filing, keeping hard copies and also for more efficient retrieval of data since all

the data are kept in centralized database. Security of this system can be ensured as different users will be given different access right to the system.

5.. Object Design trade-offs

Developing an emulator designed for digital preservation will be different from mainstream emulators. This is because the focus will be less on performance and more on durability and flexibility.

5.2.1. Development Cost versus Functionality

Online trade interaction system has different interfaces with their corresponding functionality. For each designing and additional functionalities cost is required. Without these functionalities the system is unimaginable so even though it is costly we have to concentrate on the functionalities rather than the development cost.

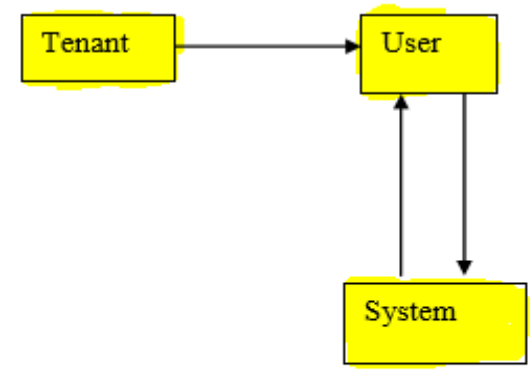
5.2.2. Understandability versus Efficiency

Understandability and efficiency have direct relationship. Because if the system is understandable and easy to implement then it will hover on our scopes. This include the data types that the user has to enter in to the text boxes, for what purpose specific input is needed and so on. So then the user will enter the valid input that the program is waiting for. Here the program will proceed soon.

5.2.3. Security versus Availability

In online trade interaction: users must be authorized to connect to the system from web, and unauthorized people should not be able to access the system. Each sub admin will be able to login to the system by using the username and password that is assigned by Administrator. And Availability is the degree to which a system or component is operational and accessible when required for use. We know that if the system is available, discussing about security is nothing. Though the system can be available but the system has money transactions so, we focus on the security part a little more than on availability.

5.5. Architecture of the System



5.6. System Decomposition

5.7. Hardware/Software mapping

Hardware/software mapping describes how subsystems are assigned to hardware and off-the shelf components. It also lists the issues introduced by multiple nodes and software reuse.

5.10. Object Design