



AMERICAN INTERNATIONAL  
UNIVERSITY – BANGLADESH

# Rental Property Management System

SOFTWARE DEVELOPMENT & PROJECT MANAGEMENT -- **FINAL PROJECT**

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## **Project Title: RENTAL PROPERTY MANAGMENT SYSTEM**

### **Introduction:**

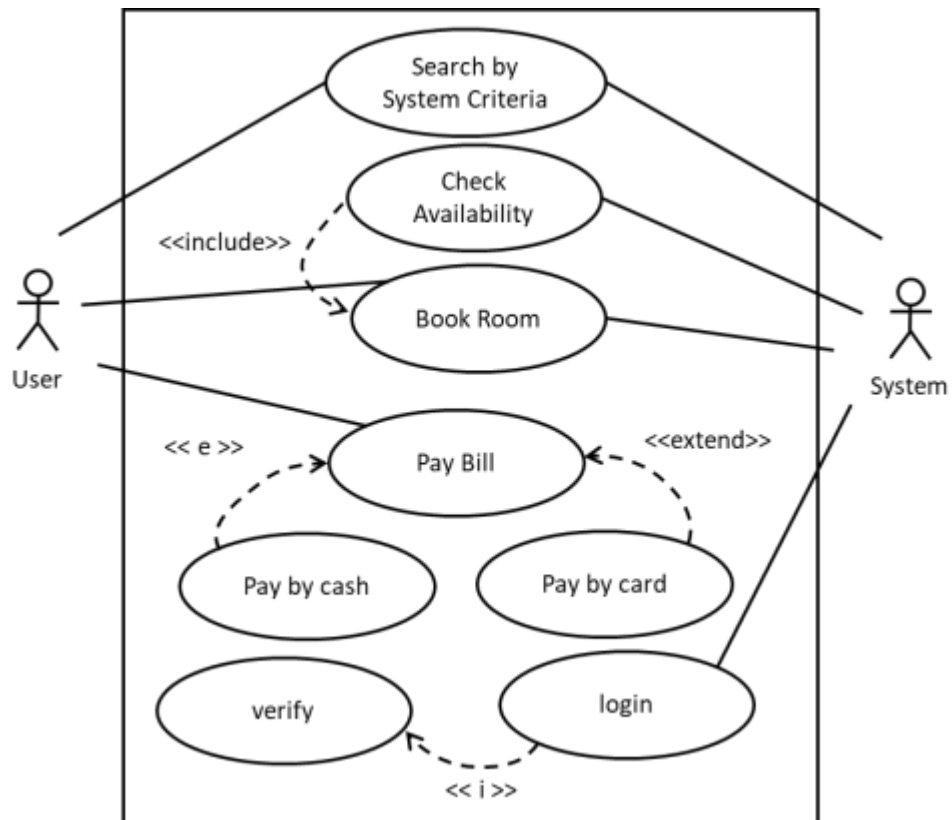
Rental property management system is a software that enables rental property owners and admin to execute essential property related programs, including managing and tracking tenant information, accounting and billing, maintenance and posting vacancies online to help all operations run smoothly for the property. As housing is a major problem in the city area so this project will play a great role in the modern city. The seller will give all the flat/house details if buyer wants to buy a flat then he/she will contact with the seller

### **Objectives:**

The following are our project objectives:

- Construct Software Requirement Specification document of the system.
- To develop a system that allows the users to add, edit, search and delete data from the database.
- To develop a system that allows the users to add, edit, search and delete data from the database.
- To study and analyze the requirement specifications of the rental house management system.
- To develop a system that allows the users to add, edit, search and delete data from the database

## System Preview:



## Stakeholder Analysis:

Project stakeholders may be internal or external to the project, they may be actively involved, passively involved or unaware of the project & affected either positively or negatively by the cost, time, scope, resources, quality, or risks of your project.

- **Primary Stakeholder:**

A positive stakeholder: Positive stakeholders help the project management team to successfully complete the project. Such as Rental Project management team-(directly involved in project management activities), Sponsors –provide financial resources

Internal to the project team: Project Manager, System Analyst, Developer, tester, analyst under the direct managerial control of the project leader,

- **Secondary Stakeholder:**

External to the project team but in the same organization: Rental management system project information management group , User (Admin ,Buyer ,Tenant ,Seller), Customers/users, Negotiator

## Feasibility study:

From a business point of view this project is technically feasible. The feasibility of an individual project is evaluated

- **Technical Assessment:** It will be desktop based application . It will suitbale for different user groups to be connected. So it is technically feasbile.  
Consists of required functionality against the hardware and software available also aimed at providing a consistent hardware/software infrastructure, is likely to limit the technical solutions considered.
- **Cost-Benefit Analysis:** Identified all of the costs and benefits of carrying out the project.
  - ❖ Costs are :
    - Development Costs:
      - Salaries and other employment costs of the staff involved in the development project
    - Setup Costs
      - Costs of any new hardware and ancillary equipments
      - Costs of file conversion
    - Operational Costs
      - Costs of operating the system once it has been installed
  - ❖ Benefits are :
    - Direct Benefits
      - – These accrue directly from the operation of the proposed system
    - Intangible Benefits
      - Indirect benefits, which are difficult to estimate, are sometimes known as intangible benefits
      -

We can Evaluate Cost-Benefit Evaluation by ***Return On Investment (ROI) technique:***

Year	Rental Property Management System	Calculate ROI for <b>Rental Property Management System</b>
0	-100000	• <u>Average annual profit</u> = 50,000/5 = 10,000
1	10000	
2	10000	
3	10000	
4	20000	• <u>ROI = (average annual profit/total investment ) X 100</u>
5	100000	= (10,000/100,000 )X 100
Net Profit	= 50000	= 10%

## System Component:

The screenshot shows two side-by-side forms. The left form is titled 'Rental House Management System' and 'Login'. It has input fields for 'Username' and 'Password', a 'Login' button, and a link for 'Forgot Password? Create an Account!'. The right form is titled 'Register'. It has input fields for 'Username', 'Email', 'Password', and 'Re-enter Password'. Below these are radio buttons for 'Register as a Admin' (selected) and 'Register as a Tenants'. There is a 'CREATE ACCOUNT' button and a link 'Have an Account? Login'.

### Registration Activity Task:

In “log in” page user to enter their required information and click on “check” button to verify their identification. This page will ask if the information is not in the database then redirecting to “Register” page. If the User as already registered then system will show an alert message that user is already registered. If Identification No exists in the database then the system will display the basic details of the User and proceed as below.

### Admin Module:



### ‘Dashboard’ module:

From Dashboard admin choose to select option among  
‘Porperties & Building’  
‘Tenants & Units’  
‘Expense & Income’  
‘Expense & Income’

### Tenants Module



### “Dashboard”:

Tenants ‘s dashboard.

#### **“Properties & Building”:**

Admin select property from allocated area and add, update Buildings, Properties(id, type, address, owners name, phone, email, additional information, area allocated manager name)

Name	Room Number	Monthly Rate	Outstanding Balance	Last Payment	Action
...	...	...	...	...	...
...	...	...	...	...	...

#### **“Tenants”:**

List of Tenants allocated area.

#### **“Units & Tenants”:**

For more specific, admin can add building’s each unit owner’s lease start and end session.

#### **“Income & Expense Transactions”:**

Admin can keep account of transaction

#### **“Alerts and Reminders”:**

Admin can get to see payment details upcoming payment due from client .



## Effort Estimation :

**Cocomo (Constructive Cost Model)** is a regression model based on LOC. It is a procedural cost estimate model for software projects and often used as a process of reliably predicting the various parameters.

Cost Drivers	Very Low	Low	Nominal	High	Very high
<b>Product attributes</b>					
• Required software reliability extent			1.00		
• Size of the application database			1.00		
• The complexity of the product		0.85			
<b>Hardware Attributes</b>					
• Run-time performance constraints					1.30
• Memory constraints				1.06	
• The volatility of the virtual machine environment				1.15	
• Required turnabout time		0.94			
<b>Personnel attributes</b>					
• Analyst capability				0.86	
• Software engineering capability				0.91	
• Applications experience			1.00		
• Virtual machine experience			1.00		
• Programming language experience				0.95	
<b>Project attributes</b>					
• Use of software tools				0.91	
• Application of software engineering methods				0.91	
• Required development schedule				1.04	

The Intermediate COCOMO formula now takes the form:

$$E = (a(KLOC)^b) * EAF.$$

Multiply all the above values,

Effort Adjustment Factor(EAF),

$$= 1 * 1 * 0.85 * 1.30 * 1.06 * 1.15 * .94 * .86 * .91 * 1 * 1 * .95 * .91 * .91 * 1.04$$

$$= 0.81$$

Consider, **KLOC = 8000**, and the project is organic

For, **Organic Software Project**,

$$a = 2.4$$

$$b = 1.05$$

Software Projects	a	b	c	d
Organic	2.4	1.05	<b>2.5</b>	<b>0.38</b>
Semi Detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

So,

$$E = (a(KLOC)^b) * EAF$$

$$= (2.4 * (8000/1000)^{1.05}) * 0.81$$

$$= (2.4 * (8)^{1.05}) * 0.81$$

$$= 17.93 \text{ man-months}$$

The constant values a,b,c and d for the Basic Model for the different categories of system:

$$\text{Time} = c(\text{Effort})^d$$

$$= 2.5 * (23)^{0.38}$$

$$= 8.22 \sim 9$$

$$= 9 \text{ months}$$

We know that,

$$\text{Required no. of people} = ST = PM/DM$$

$$= 18/9$$

$$= 2$$

Here per developer salary per working hour=1020 taka.

Working day per month = 20 days and 8 hours working hours in day

Our ,estimation time for project is = 9 months= $9*20*8$

So,total working hours is = 1440 hours.

Total developer salary= $1020*1440=1,72,800$  Taka

For requirement analysis,

Time 1 month= $20 \text{ days} * 8 \text{ working hour}$

=160 working hour

Hourly wage of 1 requirement analysis person= 500 taka

Total cost=  $500*160 = 80000$  Taka

Transport cost for 9 months= 9000 Taka

Utility cost in 9 months, 15000 Taka

Hardware Expenses= 75,000 Taka

Maintenance cost= Required time 20 hours

Per hour cost 1000 taka

Net total cost= $1000*20=20000$  Taka

Total estimation cost= $172800+80000+9000+15000+75000+20000$

=3,71,800 Taka

Profit:

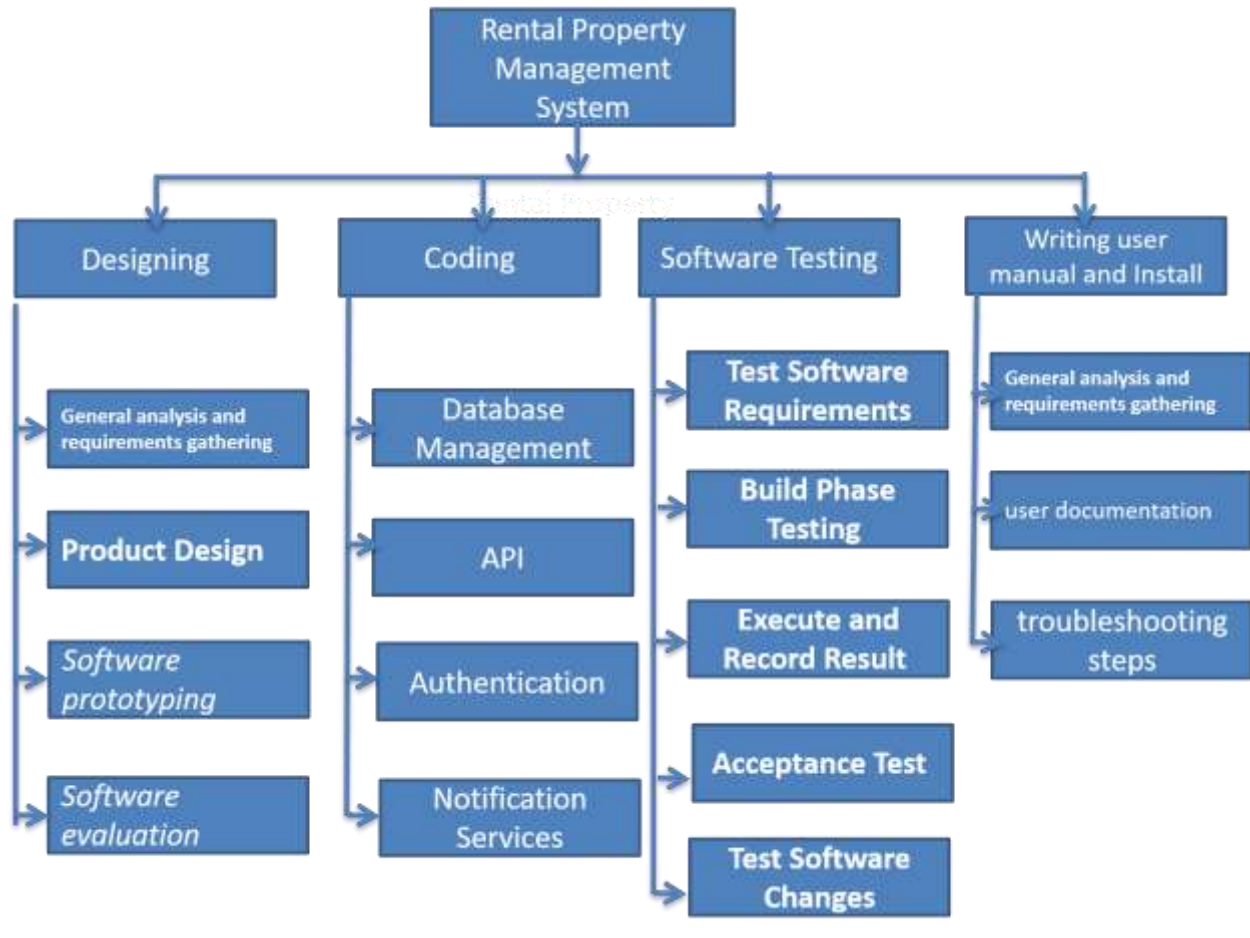
20 % of total estimation cost= $3,71,800*20\%$

=74360

Total budget of project = $3,71,800 + 74360$

=4,46,160Taka

## Workbreakdown Structure :

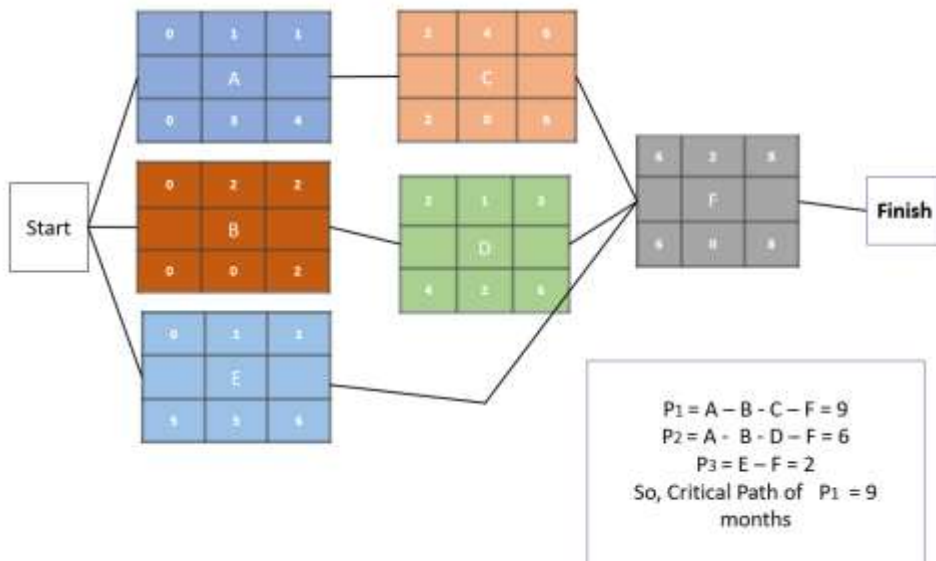


## Activity Network Diagram:

Activity	Duration (Month)	Precedents
A. Hardware Choice	1	
B. Designing	2	
C. Code	4	A
D. Software Testing	1	B
E. Write User Manual	1	
F. Install and Test System	2	D, E, C

Activity : Labeling Convention

Earliest Start (ES)	Duration	Duration Earliest Finish (EF)
Activity Label		
Latest Start (LS)	Float	Latest Finish (LS)



## Risk Analysis :

Risk	Category	Probability	Impact	RMMM
▪ Poor management of system	BU	70%	2	Receive consultation form manager
▪ Technical problems during management	TE	50%	2	Before starting the project ,listing all technical problem may aware the risk and also help find solution
▪ Environmental damage's	DE	40%	2	Check the soil conditions before building
▪ Funding lost	CU	15%	1	Secure advanced payment Frequent communication
▪ Schedule management plan	PR	60%	3	Analysis the project and do WBS may resolve this
▪ Irresponsibility of worker's	ST	20%	3	Supervised work daily
▪ Uncertain change of customer Requirement's	PS	80%	2	Use simulation to avoid those risk ,and show the client before starting actual project

## Impact values :

Catastrophic -1  
 Critical - 2  
 Marginal - 3  
 Negligible – 4

## Conclusion:

Online house rental business has emerged with a new possibilities compared to the past experience where every activity concerning house rental business was limited to a physical location only. Even though the physical search for houses has not been totally eradicated; the nature of functions and how these functions are achieved has been reshaped by the power of internet. Nowadays, renters/tenants can reserve houses online once the customer is a registered member of the website. The software of rental system has offered an advantage to both landlords as well as the tenants efficiently and effectively just with the click of a button.