SRS DOCUMENT FOR E-BILLING SYSTEM

Computer Science and ENgineering (APJ Abdul Kalam Technological University)

Adi Shankara Institute of Engineering and Technology

COURSE PROJECT

CST309
MANAGEMENT OF SOFTWARE SYSTEMS

SRS DOCUMENT FOR E-BILLING

SYSTEM

Submitted
By:
Jayakrishnan.M
Jemiyah Lijo
Jerrit Jaison
Jobin Jose
Jonathan Jobby

Submitted To
: Asst. Prof. Rosemary
Varghese CSE Department,
ASIET

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1. Introduction

a. Purpose

The purpose of this document is to present a detailed description of the Billing System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do and the constraints under which it must operate. This document is intended for both the customers and the developers of the system. This SRS will allow for a complete understanding of what is to be expected of the BS to be constructed. The clear understanding of the BS and its' functionality will allow for the correct software to be developed for the end user and will be used for the development of the future stages of the project.

b. Scope

This Billing System facilitates three main sections ie.Electricity, telephone and water billing systems. The main goal of introducing this system is to benefit the customers so that all the bills could be paid with ease.

c. Overview

The description is divided into two main sections. The first section gives the overall requirements and the second function deals with the specific requirements of the system .

2. Overall Description

a. Product perspective

The BS is a new system which is different from the existing systems as it merges various billing systems as one single unit and provides a reliable service to the customers with all the required functionalities. This product is totally self contained.

b. Product functions

There are three main sections in the BS and their functions are as follows:

i. Electricity Billing Section:

- This section deals with all the electric bills
- Based on the total units used, it calculates the total bill per month.
- It displays the last date for payment
- Adds a fixed amount of due for the monthly bill after the last date exceeds.
- Each user is provided with a unique user id, so that a user can log into the system and view his account.
- The system produces the bill, which is stored in the users respective accounts in the form of a password protected files
- Offline users can go in for paying through cash, if this software is used by a government organisation and the online users can pay the bills online.
- After every payment, the account is updated.
- The administrator can make changes in the basic functionalities and deal with the databases.

ii. Water Billing Section:

- It provides similar functionalities as that of the EBS.
- The user can operate all the billing sections using a single user id, which is the speciality of this software.

- The unit cost is set by the administrator and altered when required.

iii. Telephone section:

- Once the user has logged in, he can maintain all the billing accounts in a single user account.
- It provides information about various service providers, and their tariff.
- This section provides the bill details of a particular user and the user can pay the bill online.
- It also displays various offers provided by different service providers.
- It gives two options for the customers regarding the billing:

Pre-paid and Postpaid

- The Post-paid recharge would calculate the bill using the total usage details, where as the pre-paid system would work in accordance with the pre defined offers specified by the SP.

c. User characteristics

The user doesn't need to have any experience of using the BS software. Little technical expertise is sufficient to operate the software.

d. Assumptions and dependencies

It is assumed that the user will be a registered user and will be provided with a username and password.

3. Specific requirements

a. External Interface requirements

It uses the standard Input output devices of a computer, which include:

- Monitor
- Keyboard
- Mouse
- Printer

i. User interfaces

The user interface would include the following features:
Log In: Username and Password
Sections: Shows the EBS, water and telephone billing system.
Bill payable: Shows the amount to be paid by the user in all the three sections.
Recharge: In the telephone billing section, it provides two options.

Prepaid/Postpaid:
View balance: For pre-paid users, an option to view their account balance is given.
Payment: Provides the option for online payment or to pay through cash
Update info: Add or update customer information
Administrator:- Update tariffs for various billing sections.

Reports: View or delete documents
Help: It helps the user to contact the administrator and send queries.

ii. Hardware interfaces

- The system can run on any Windows based system

iii. Software interfaces

- The system shall interface with a database

iv. Communication Interfaces:
- This system is a stand-alone product and does not interface with any other communication device.

b. Functional requirements
- This software could be used either by an organization to carry out the billing transactions or by any user who can avail online services and can make online payment.
- The system shall provide three billing sections: EBS, water and telephone billing section
- All the three sections provide similar functionalities. The user can register and he will be provided with a log-in id. Thus he can manage his account through a secure password.
- The sections keep a track of the unit cost of their respective sections, which is updated or altered by the administrator.
- Based on the total usage, the system shall calculate the amount payable and thus produce the bill.
- The system shall provide an option for online payment or payment through cash.
- The telephony section provides certain special recharging offers. It updates from time to time,the tariff of various service providers and the offers they provide for prepaid users.
- The system shall provide a bill as a password protected document for the online users.
- The system integrates three billing sections in a single user's account
- The calculation method for the total bill is embedded in the software. The system also gives the last date for payment as set by the standards. It later adds on the fine amount per day for delayed payment. Those users' accounts that have not paid the bill for more than a specified time are deactivated or deleted and their account is reported to specified authorities.

- The system provides access only to the administrator to view databases, update unit costs, delete accounts, etc.

c. Non-functional requirements

i. Performance requirements

- Performance requirements define acceptable response times for system functionality.
- The load time for user interface screens shall take no longer than two seconds.
- The log in information shall be verified within ten seconds.
- Queries shall return results within ten seconds.

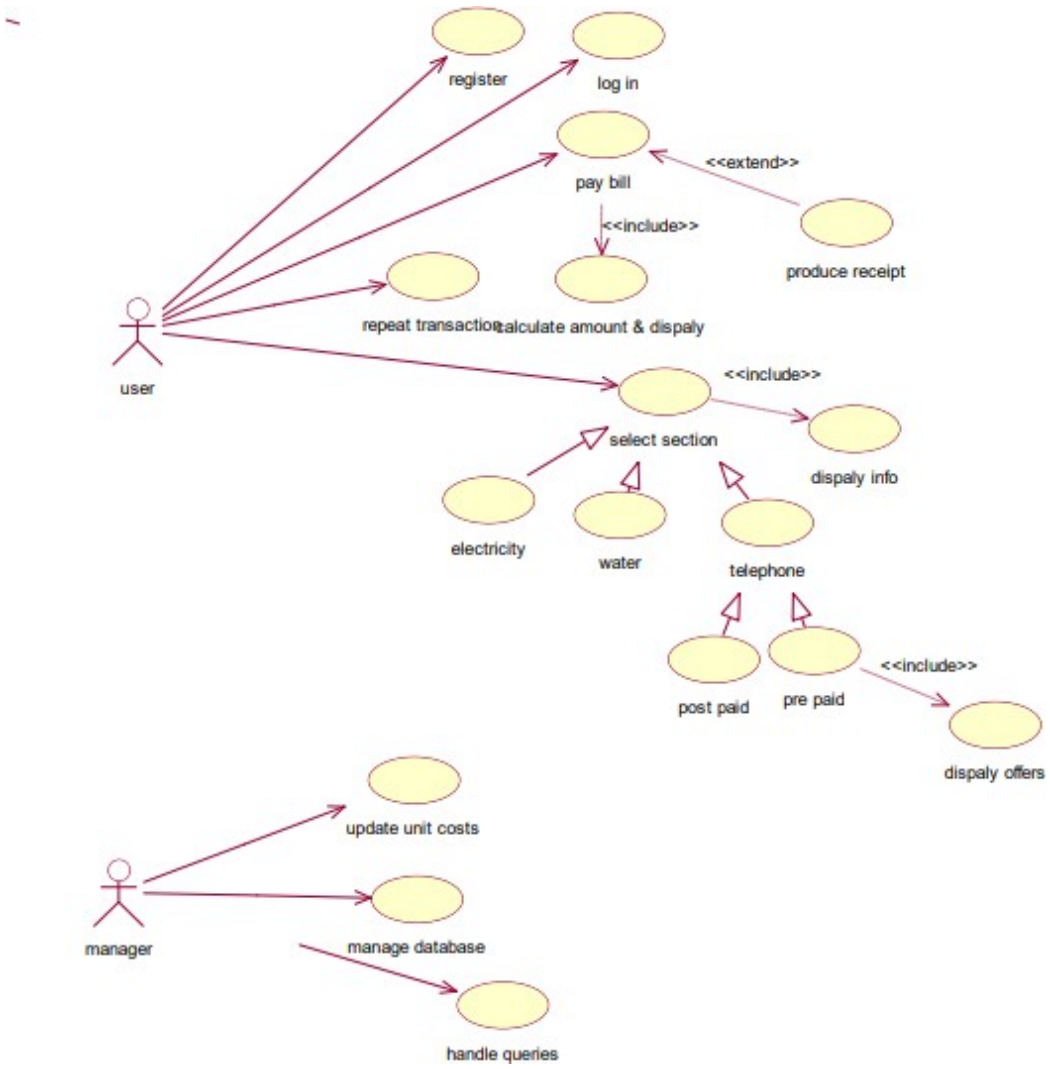
ii. Design constraints

- The Billing System shall be a stand-alone system running in a Windows environment

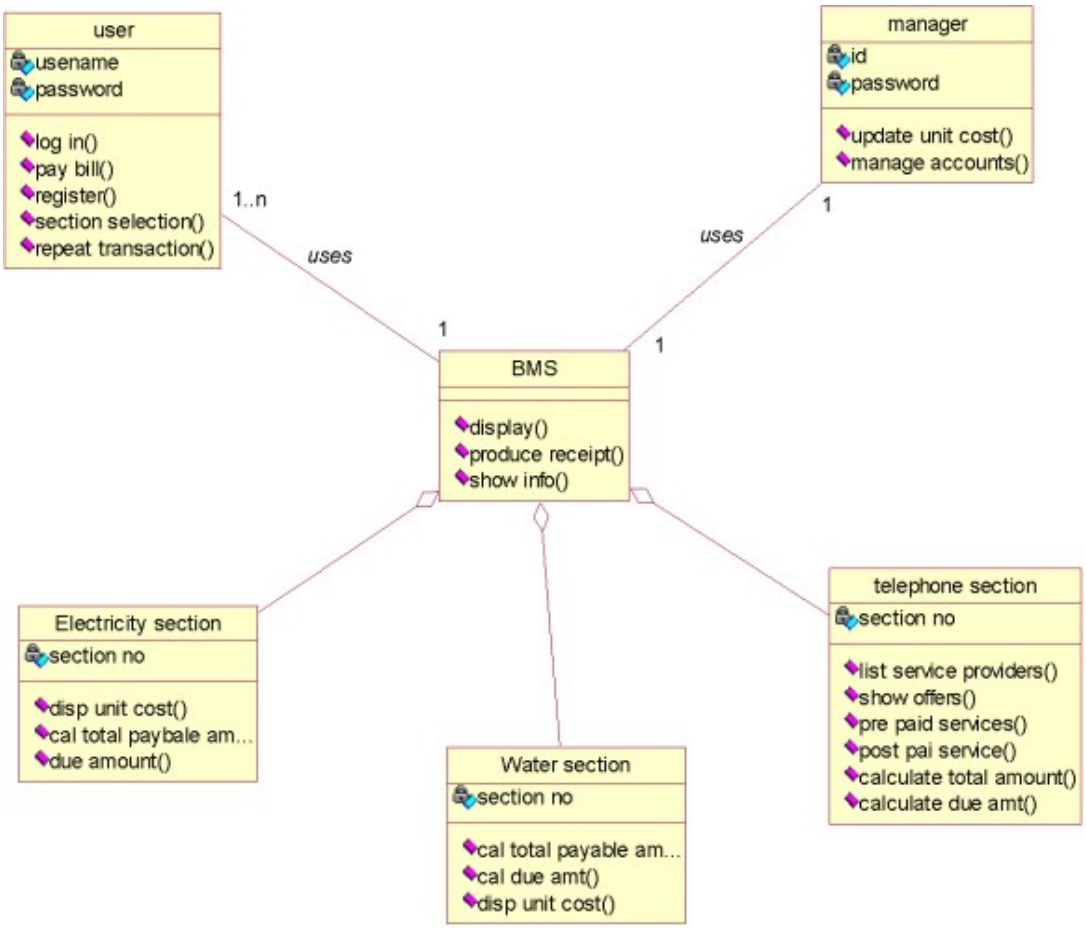
iii. Other requirements

- The system must store several databases like user information, usernames, and customer feedback, and so on.

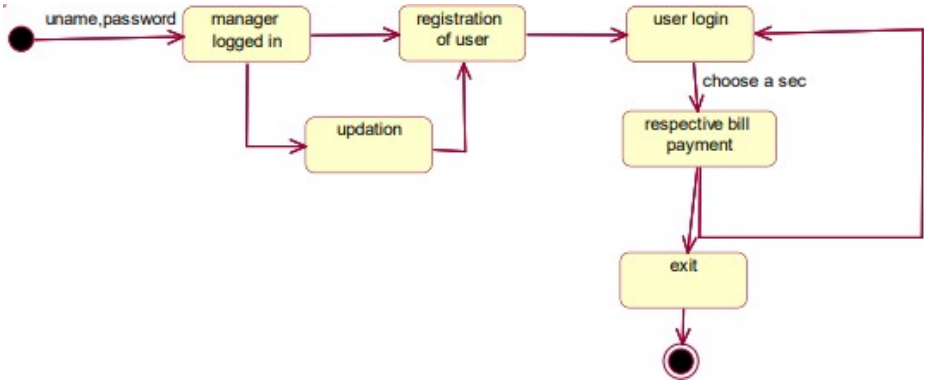
4. Use case Diagram



5. Class Diagram



6. State Diagram



7. MODULAR DESCRIPTION

1. Module Name: prepaid ()
Return type: void
Parameters: none
Description:
   - This function allows the user to avail the facility of prepaid recharging.
   - It shows the offers provided by various service providers and allows the user to choose one of them.

2. Module Name: update_cost
() Return type: void
Parameter :character
Description:
   - This function is one of the functionalities of the manager.
   - It accepts a character as a parameter and based on the received character, it updates the unit cost for different sections.

3. Module Name: cal ()
Return type: void
Parameter : int
Description:
   - This function is used to calculate the total payable bill amount.
   - It takes the unit cost as its input parameter.

4. Module Name: reg
() Return type: void
Parameter : none
Description:
   - This function is used to register the users by the manager.
   - It accepts username and password from the manager and stores it in an array.

5. Module Name: fine
() Return type: int
Parameter : none
Description:
   - This function is used by the manager to input the fine amount.
   - This function manager logged in uname,password registration of user user login respective bill payment choose a sec exit updation returns an integer value which is the fine amount.

6. Module Name: compare()
Return type: void
Parameter : none
Description:
   - This function is used by both managers and users.
   - It is used for validity checks of both username and passwords.