

**Functional Requirements Document**

**(Guide S50 Version 1.0)**

*for*

**Electricity Consumption Billing**

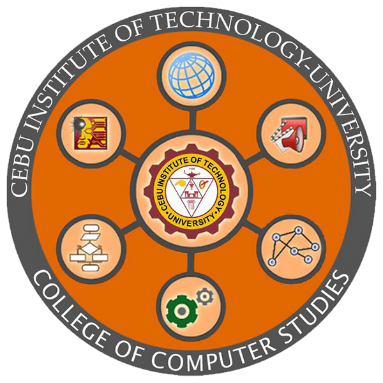
**Version 1**

*Prepared for*

**CSIT 327 – INFORMATION MANAGEMENT 2**

## Submitted to

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**System Overview**

The (ECB) Electric Consumption Billing system is a web-based application aimed at small to medium-sized utility companies. It enables the management of customer data, entry of electricity consumption readings, automated billing calculations, and provides an interface for customers to view and pay their bills. This document outlines the core functional requirements of the system, focusing on the Minimum Viable Product (MVP) version.

**Functional Requirements**

1. UserAuthentication

* Description: The system must provide secure login functionality for both administrators and customers.
* Inputs: Username, Password.
* Process: Authenticate the user by verifying credentials against stored data.
* Outputs: Access to the system for authenticated users; Error message for invalid credentials.
* Dependencies: Database for storing user credentials.

1. Customer Profile Management

* Description: The system should allow administrators to manage customer profiles, including creating, updating, and viewing customer details, linked billing accounts.
* Inputs: Customer information such as name, address, and contact details.
* Process: Store and retrieve customer data. Update customer records as necessary.
* Outputs: Customer profile created or updated; Confirmation message.
* Dependencies: Database for storing customer information.

1. Consumption Data Entry

* Description: The system must allow administrators to enter and update electricity consumption data for each customer.
* Inputs: Customer ID, meter readings (kWh).
* Process: Validate and store consumption data; Update existing records if necessary.
* Outputs: Consumption data recorded and confirmation message.
* Dependencies: Database for storing consumption data and interface for data entry.

1. Billing Calculation and Invoice Generation

* Description: The system must automatically calculate the billing amount based on the entered consumption data and generate an invoice.
* Inputs: Consumption data, tariff rates.
* Process: Calculate the total bill based on the consumption and applicable rates; Generate a detailed invoice.
* Outputs: Invoice in PDF format or displayed on the screen, Billing amount stored in the database.
* Dependencies: Billing calculation algorithm, Database for storing and retrieving rates and consumption data.

1. Payment Processing

* Description: The system should allow customers to view their bills and make payments online.
* Inputs: Payment details (e.g., credit card information).
* Process: Process payment securely through an integrated payment gateway.
* Outputs: Payment confirmation, Updated payment status in the customer's account.
* Dependencies: Payment gateway integration, Secure transaction processing.

1. Reporting and Analytics

* Description: The system must provide reporting tools for administrators to analyze electricity consumption patterns and billing data.
* Inputs: Date range, customer selection, consumption data.
* Process: Generate reports based on selected criteria, such as total consumption, revenue generated, etc.
* Outputs: Reports in various formats (PDF, CSV) Data visualization (charts, graphs).
* Dependencies: Data stored in the database, Reporting tools (e.g., charting libraries).