User Requirement Specification (URS) for an Electricity Bill Management System

1. Introduction

1.1. Purpose: The purpose of this document is to outline the user requirements for a new electricity bill management system. This system will streamline billing, payment processing, and customer complaint handling for a utility provider.

1.2. Scope: The system will manage customer data, meter details, bill generation, payment tracking, and customer complaints. It will not include real-time power grid management or advanced analytics beyond standard reporting.

1.3. Target Audience: The system's users will include:

- **Customers:** To manage their bills and complaints.
- **Administrators:** To oversee all system functions and generate reports.
- **Technicians:** To handle and resolve customer complaints.

2. Functional Requirements

2.1. Customer Module:

- FR-C1: The system must allow customers to view their meter details and historical bill data.
- FR-C2: The system must enable customers to view the payment status of each bill (e.g., Paid, Unpaid, Overdue).
- FR-C3: The system must allow customers to submit a new complaint.
- FR-C4: The system must provide a secure interface for online bill payment.
- FR-C5: The system must allow customers to view their payment history.

2.2. Administrator Module:

- FR-A1: The system must automatically generate new bills at the end of each billing cycle based on meter readings.
- FR-A2: The system must automatically update a bill's status to 'Overdue' if the due date passes without payment.
- FR-A3: The system must provide administrators with the ability to manage tariff rates.
- FR-A4: The system must be able to generate reports on revenue, power consumption trends, and the status of open complaints.

2.3. Technician Module:

- FR-T1: The system must allow technicians to view a list of complaints assigned to them.
- FR-T2: The system must enable technicians to update the status of a complaint as it progresses from 'Pending' to 'Resolved'.

3. Non-Functional Requirements

3.1. Performance:

- NFR-P1: The system must load customer bill history within 5 seconds.
- NFR-P2: Payment processing must be completed within 10 seconds.

3.2. Security:

- NFR-S1: The system must protect all customer personal data from unauthorized access.
- NFR-S2: All online payments must comply with industry-standard security protocols.

3.3. Reliability:

- NFR-R1: The system must be available 99.9% of the time.
- NFR-R2: In the event of a system failure, data must be recoverable with a maximum data loss of one hour.

3.4. Usability:

- NFR-U1: The user interface must be intuitive and easy for all user roles to navigate.

4. Constraints

- C-1: The meter reading data is assumed to be accurate.
- C-2: The database will be implemented using a relational database management system (RDBMS) like MySQL.
- C-3: All data manipulation and retrieval will be performed using SQL.