[Chapter 4: Requirements and Specifications](#_Toc3302)

[4.1 Introduction:](#_Toc14498)

**Purpose:** This document outlines the requirements and specifications for the development of a biometric attendance software system. It serves as a blueprint for the project, ensuring that all stakeholders have a shared understanding of the system's goals, functionalities, and constraints.

**Scope:** The software will be used to track employee attendance, calculate shifts and overtime, generate reports, and send notifications. It will integrate with biometric devices, allowing for accurate and efficient attendance recording.

**Target Audience:** The primary users of the software will be administrators, who will have the ability to manage employee information, configure settings, and generate reports. Employees will use the system to clock in and out, view their attendance records, and receive notifications.

**Overview:** The biometric attendance software will provide a centralized platform for managing employee attendance data. It will offer features such as real-time attendance tracking, shift scheduling, report generation, and integration with biometric devices. The system will be designed to be user-friendly, efficient, and secure.

## System Overview

The biometric attendance software will consist of several key components:

* **User Interface:** A web-based interface that allows users to interact with the system.
* **Database:** A database to store employee information, attendance records, and system settings.
* **Biometric Integration:** Integration with biometric devices to capture attendance data.
* **Reporting Module:** A module for generating various reports, such as daily attendance summaries, shift schedules, and overtime calculations.
* **Notification System:** A system for sending notifications to employees, such as reminders for clocking in or out or alerts for absences.
* **Admin Panel:** A dashboard for administrators to manage user accounts, configure settings, and view system performance.

The system will be designed to be scalable and flexible, allowing for future enhancements and customization.

[4.2 Requirements identification :](#_Toc19286)

[4.2.1 Functional requirements:](#_Toc30883)

**Core functionalities:**

* **Attendance Tracking:**
  + Real-time attendance tracking using biometric devices
  + Clock in/out functionality
  + Shift scheduling and management
  + Overtime calculation
* **Reporting:**
  + Generate various reports (e.g., daily, weekly, monthly attendance summaries, shift schedules, overtime reports)
  + Export reports in different formats (PDF, Excel)
  + Customizable report templates
* **Notifications:**
  + Send notifications to employees (e.g., absence alerts, reminders for clocking in/out)
  + Customizable notification templates
* **User Management:**
  + Create, edit, and delete user accounts
  + Assign roles and permissions
* **Integration:**
  + Integrate with biometric devices
  + Integrate with HR systems (if applicable)

**Specific use cases:**

* **Employee:** Clock in/out, view attendance records, receive notifications, request time off.
* **Administrator:** Manage employee information, configure settings, generate reports, view system performance.

[4.2.2 Non functional requirements:](#_Toc28404)

* **Performance:**
  + The system should be able to handle a large number of users and transactions without significant performance degradation.
  + Response time should be minimal.
* **Security:**
  + Protect sensitive employee data from unauthorized access.
  + Implement strong authentication and authorization mechanisms.
  + Comply with relevant data privacy regulations.
* **Reliability:**
  + The system should be highly reliable and available.
  + Minimize downtime and ensure data integrity.
* **Scalability:**
  + The system should be able to accommodate future growth and increased user load.
* **Usability:**
  + The user interface should be intuitive and easy to navigate.
  + Provide clear instructions and helpful tooltips.

[4.2.3 domain requirements:](#_Toc10994)

* **Biometric Technology:**
  + Support various biometric modalities (e.g., fingerprint, facial recognition)
  + Ensure accuracy and reliability of biometric data
* **Attendance Policies:**
  + Adhere to company-specific attendance policies and regulations
  + Implement rules for shift scheduling, overtime, and time off
* **Legal and Regulatory Compliance:**
  + Comply with local labor laws and regulations
  + Ensure compliance with data privacy regulations (e.g., GDPR, CCPA)
* **Integration Requirements:**
  + Define the specific requirements for integrating with biometric devices and HR systems.

[4.3 Use case diagram:](#_Toc16137)

