SOFTWARE REQUIREMENTS SPECIFICATION

For

Hospital Appointment Scheduler

1. Introduction

Purpose

The purpose of a **Hospital Appointment Scheduler** is to manage the scheduling of appointments between patients and healthcare providers. It is a tool that helps hospitals and clinics to manage their appointments efficiently and effectively. The scheduler can be used to book appointments, reschedule appointments, and cancel appointments. It can also be used to send reminders to patients about their upcoming appointments. The scheduler can be integrated with other hospital systems such as electronic health records (EHRs) to provide a seamless experience for patients and healthcare providers. There are many appointment scheduling software available in the market that hospitals and clinics can use to manage their appointments.

Document Conventions

- Entire document should be justified.
- Convention for Main title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 14
- Convention for Sub title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 12
- Convention for body
  - Font face: Times New Roman
  - Font Size: 12

Scope of Development Project

The scope of the Hospital Appointment Scheduler is to provide a centralized system for managing appointments between patients and healthcare providers. It helps to reduce waiting times for patients and optimize the utilization of healthcare providers' time. The system can be used to manage appointments for various departments such as radiology, cardiology, and oncology. It can be also used to manage appointment for different type of healthcare provides such a doctor, nurses and therapists.

The Hospital Appointment Scheduler can be used to generate reports on appointment scheduling, patient attendance, and healthcare provider utilization. These reports can be used to identify areas for improvement and optimize the scheduling process.

Definitions, Acronyms and Abbreviations

JAVA -> platform independence
SQL-> Structured query Language
ER-> Entity Relationship
UML -> Unified Modeling Language
IDE-> Integrated Development Environment
SRS-> Software Requirement Specification

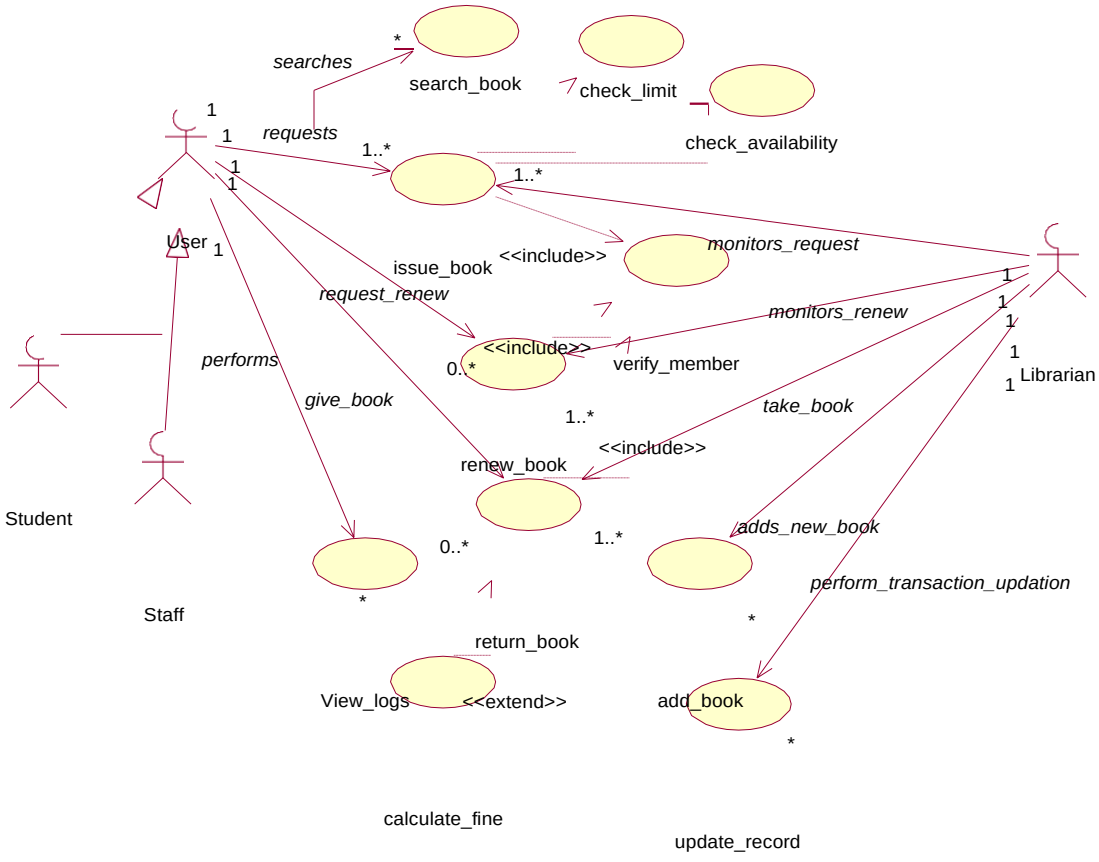
References

- Books
  - Healthcare Information Management Systems: Cases, Strategies, and Solutions" by Marion J. Ball and Charlotte Weaver
    Hospital Operations: Principles of High Efficiency Health Care" by Wallace J. .
- Websites
  - **http://www.slideshare.net/**
  - **http://ebookily.net/doc/srs-library-management-system**

2. Overall Descriptions

Product Perspective

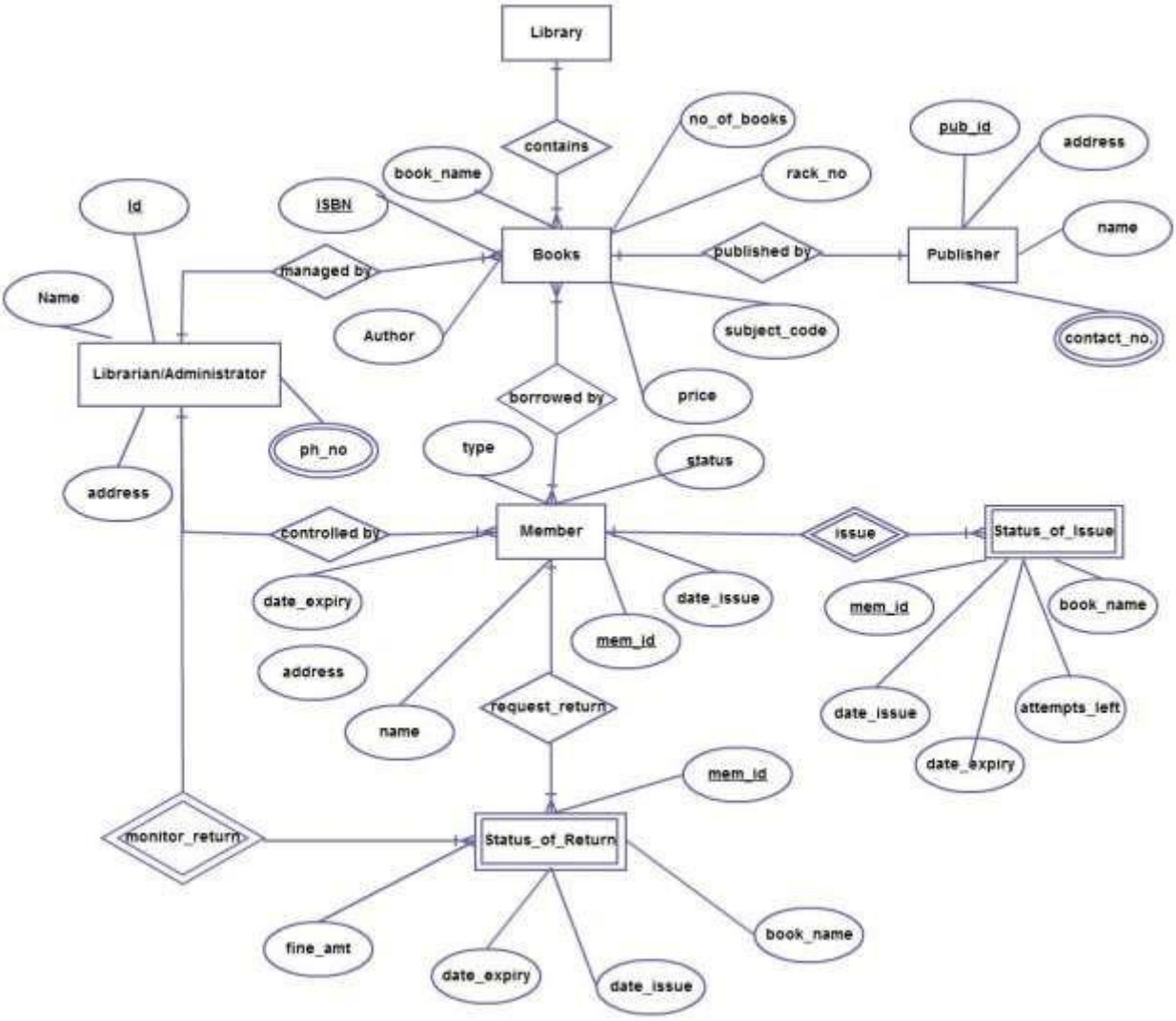
Use Case Diagram of Hospital Appointment Scheduler



This is a broad level diagram of the project showing a basic overview. The Hospital Appointment Scheduler is a comprehensive software solution designed to streamline the appointment booking process within a healthcare facility. It serves as a centralized platform that allows both healthcare providers and patients to manage appointments efficiently.

Product Function

Entity Relationship Diagram of Hospital Appointment Scheduler



The functionality of a hospital appointment scheduler is critical to its success in managing healthcare appointments efficiently. Below are key functions that a hospital appointment scheduler project should ideally include Allow different user roles such as administrators, healthcare providers, and patients. Implement secure authentication mechanisms to protect sensitive information. Set role-based access controls to restrict users to their relevant functionalities. Enable patients to register by providing essential details like personal information, contact details, and medical history. Ensure data security and compliance with healthcare privacy regulations during registration. Provide multiple channels for appointment booking, such as web portals, mobile apps, and a dedicated call center. Ensure a consistent and seamless experience across all channels.

User Classes and Characteristics

Internet connection

- Users must have their correct usernames and passwords to enter into their online accounts and do actions

The dependencies are:-

- The specific hardware and software due to which the product will be run
- On the basis of listing requirements and specification the project will be developed and run
- The end users (admin) should have proper understanding of the product
- The system should have the general report stored
- The information of all the users must be stored in a database that is accessible by the Hospital management System
- Any update regarding the Appointment from the hospital is to be recorded to the database and thedata entered should be correct

Requirement

Software Configuration:-

Microsoft SQL Server as the back end to store the database.
Operating System: Windows NT, windows 98, Windows XP
Language: Java Runtime Environment, Net beans 7.0.1 (front end)
Database: MS SQL Server (back end)

Hardware Configuration

Processor: Pentium(R)Dual-core
CPUHard Disk: 40GB
RAM: 256 MB or more

Data Requirement

Collect and store patient details including name, contact information, and medical history for effective appointment management Maintain information about healthcare providers, their schedules, and availability to facilitate accurate appointment schedule. Capture data on scheduled appointments, including date, time, and purpose, to ensure proper coordination and resource allocation. Securely store user credentials and access permissions to ensure authentication and authorization for administrators, healthcare providers, and patients. Record and track changes to appointment schedules, cancellations, and modifications, providing an audit trail for accountability and data integrity.

External Interface Requirement

GUI

Designing the external Graphical User Interface (GUI) for a hospital appointment scheduler is crucial for providing a user-friendly experience. Here are the external GUI requirements for a hospital appointment scheduler project:

- It provides stock verification and search facility based on different criteria.
- The user interface must be customizable by the administrator
- All the modules provided with the software must fit into this graphical user interface and accomplish to the standard defined
- The design should be simple and all the different interfaces should follow a standard

The system provides different types of services based on the type of users [Patient/Doctors]. The Doctor will be acting as the controller and he will have all the privileges of an administrator. The Patient can be either a Manager or Hospital Staff of the Hospital Management..

The features that are available to the Hospital Management Side are:-

- User Registration:
- Appointment Scheduling
- Appointment Management:
- Automated Reminders:
- Emergency Booking:
- Login Dashboard:

The features that are available to the Patient Side are:-

- User Registration:
- Doctor Availability
- Patient Details
- Customize Scheduler
- Login Dashboard
- Feedback and Rating System

Operating Environment

Creating a hospital appointment management project involves several components, and the operating environment refers to the software, hardware, and network infrastructure required for the system to function. Below is a general outline of the operating environment for a hospital appointment management project: Assumptions and Dependencies

The assumptions are:-

- The coding should be error free
- The system should be user-friendly so that it is easy to use for the users
- The information of all users, Doctors and Patients must be stored in a database that isaccessible by the website
- The system should have more storage capacity and provide fast access to the database
- The system should provide search facility and support quick transactions
- The Hospital Management System is running 24 hours a day
- Users may access from any computer that has Internet browsing capabilities an.

Security Requirement

- System will use secured database
- Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints
- Proper user authentication should be provided
- No one should be able to hack users' password
- There should be separate accounts for Manager of Hospital and staff such that no member can access the database and only Manager has the rights to update the database.

Requirement attributes

- Multiple administrators will have the authority to make changes to the hospital management system.
- Administrative roles should be well-defined, allowing them to modify the system as needed, while other users, such as staff and patients

Business Rules

Patients can schedule appointments through various channels, such as online portals, phone calls, or in-person. Appointments can be scheduled for different departments and healthcare providers. The system should consider the availability of doctors, specialists, and facilities when scheduling appointments. Patients should be able to modify or cancel their appointments within a reasonable time frame. The system should automatically update the schedule when modifications or cancellations occur. Late cancellations may incur penalties or affect the patient's future appointment scheduling privileges

User Requirement

The system should allow users to easily schedule, reschedule, or cancel hospital appointments online. Users should

be able to view their upcoming appointments, past appointments, and any associated details such as date, time, and location. The system should send automated reminders to users prior to their scheduled appointments. Patients should have the option to provide additional information or specific requirements when scheduling an appointment. The platform should support multiple users, including patients, healthcare providers, and administrative staff. Users should be able to search for available time slots based on the type of service or healthcare provider needed.

The admin provides certain facilities to the users in the form of:-

- Backup and Recovery
- Forgot Password
- Data migration i.e. whenever user registers for the first time then the data is stored in the server
- Data replication i.e. if the data is lost in one branch, it is still stored with the server
- Auto Recovery i.e. frequently auto saving the information
- Maintaining files

Data and Category Requirement

.Patient Information
- Name
- Date of Birth
- Gender
- Contact Details
- Address

. Appointment Details
- Appointment Date
- Appointment Time
- Department/Specialty
- Doctor's Name
- Reason for Appointment
- Appointment Status (Scheduled, Cancelled, Completed)

. Doctor Information
- Doctor ID
- Name
- Specialization
- Contact Details
- Schedule

Administrative Data
- Staff ID
- Staff Name
- Role (Receptionist, Administrator, etc.)

System Logs
- Date and Time of Appointment Creation
- Date and Time of Appointment Modification

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Appendix

Database Schema: The appendix includes a visual representation of the database schema used for storing

patient information, appointment details, and related data.ER Diagram: An Entity-Relationship diagram illustrating the relationships between different entities in the database, such as patients, doctors, and appointments. Source Code Snippets: Selected code snippets from the project, showcasing key functions like appointment scheduling, data retrieval, and user authentication. User Interface Screenshots: Screenshots of the user interface for various modules, including appointment booking, patient registration, and administrative functions. Test Data Samples: A table containing sample data used for testing purposes, demonstrating how the system handles different scenarios. Data Flow Diagram: A visual representation of the data flow within the system, illustrating how information moves between different components. System Architecture: Diagrams depicting the overall architecture of the hospital appointment management system, including client-server communication. Error Handling Documentation: Documentation on how the system handles errors, including error codes, messages, and recovery procedures. Security Measures: Information on the security measures implemented, such as encryption protocols, access controls, and data validation. API Documentation: Details on any APIs used in the project, including their endpoints, request/response formats, and authentication methods. Third-Party Libraries: A list of third-party libraries and frameworks used in the project, along with their versions and licenses. Performance Metrics: Metrics and benchmarks related to system performance, including response times, resource utilization, and scalability. Deployment Procedures: Step-by-step instructions for deploying the hospital appointment management system on different environments, such as local servers or cloud platforms. User Manual: A brief user manual providing instructions on how to use the system, including common tasks and troubleshooting tips. Future Enhancements: Ideas and plans for future enhancements to the hospital appointment management system, including potential features and improvements.

Glossary

The following are the list of conventions and acronyms used in this document and the project as well:

- Appointment:
  A scheduled meeting between a healthcare provider and a patient for medical assessment, treatment, or consultation.
- Patient:
  An individual seeking medical care or treatment from a healthcare facility.
- Healthcare Provider:
  A professional or institution offering medical services, such as doctors, nurses, or hospitals.
- Scheduler:
  The system component responsible for arranging and organizing appointments between patients and healthcare providers.
- Availability:
  The time slots during which a healthcare provider is open to scheduling appointments.
- Calendar:
  A digital representation of time, used to manage and display scheduled appointments for both patients and healthcare providers.
- Notification:
  A system-generated alert or message to inform patients or healthcare providers about upcoming appointments, changes, or cancellations.
- Confirmation:
  The acknowledgment or acceptance by a patient or healthcare provider of a scheduled appointment.
- Cancellation:

The act of terminating or voiding a previously scheduled appointment by either the patient or the healthcare provider.

- Waitlist:
  A list of patients who are willing to take an appointment if a slot becomes available due to cancellations or rescheduling.
- EMR (Electronic Medical Record):
  Digital documentation of a patient's medical history, treatment plans, diagnoses, medications, and other relevant healthcare information.
- User Profile:
  Personalized information and settings associated with an individual user, typically including contact details, preferences, and appointment history.
- Access Control:
  Security measures and permissions defining who can view, schedule, or modify appointments within the system.
- Resource Allocation:
  The process of assigning and managing healthcare providers, rooms, or equipment for scheduled appointments based on availability and requirements.
- Dashboard:
  A visual interface that provides an overview of appointments, schedules, and key metrics for efficient monitoring and management of the appointment system.

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CLASS DIAGRAM FOR HOSPITAL APPOINTMENT SHEDULER