

1. Functional Requirements

1.1 Patient Management

- Allow receptionists to register new patients.
 - National Identity Card input field with a button to load patient information from Vinavi.
 - Patient full name input field.
 - Patient gender input field with Male/Female selection.
 - Date of Birth input field.
 - Patient address input field with the address.
 - Atoll
 - Island
 - House name
- Maintain a unique patient identification number.
 - Automatically assign Hospital Number (Primary Key) for every patient registered.
- Store and retrieve patient demographics, medical history, allergies, and past treatments.
 - Enable receptionist to store and retrieve patient demographics.
 - Enable medical professionals to store and retrieve patient demographics, medical history, allergies, and past treatments.
- Enable the search and retrieval of patient records using various criteria.
 - Search by Name, Address, Hospital, NID/Passport with filtration.
 - Show search result data as table.
 - Button to create a new consultation for selected patient.
 - Button to view of medical history for selected patients.

1.2 Appointment Scheduling

Allow receptionists to schedule appointments through the system.

- Enable receptionists to book appointments for a selected date and time/session (Session as Morning or Evening).
- Search by Name, Address, Hospital, NID/Passport with filtration.
- Select patient from the table of search results.
- Date selection with both a visual calendar and manual date entry.
- Select session and view all the available doctors and appointments.
- Easily view patient last consulted date and doctor as consultation history.
- Allow medical professionals to request follow-up appointments and receptionists to approve them.
- Input field for patient contact number.
- Send an SMS to the stated patient contact number with details of his/her appointment.
- Appointment cancellation for individual patients or all appointments for a specific doctor and notify patients via SMS.

1.3 Electronic Health Records (EHR) Management

- Capture and store comprehensive electronic health records for each patient.
 - Patients complain and history
 - Finding on patient examination
 - Vitals such as Temperature, Respiratory rate, Blood pressure, pulse rate, SPO2, Weight and Height.
 - Add medicine and instructions of use.
 - Add services such as laboratory investigations and radiology services.
 - Diagnosis searchable by ICD Code and Disease name.
 - Create templates investigation and other services for certain diagnosis. These templates should enable medical professionals to bulk add services.
- Enable healthcare providers to document medical observations, diagnoses, and treatments.
- Support secure sharing of EHRs (Electronic Health Record) among authorized medical personnel.
- Enable doctors to create electronic prescriptions for patients.
- Maintain a database of medications, including dosage, frequency, and interactions.
- Provide alerts for potential medication conflicts or allergies.

1.5 Billing and Invoicing

- Generate accurate bills based on treatments, medications, and services provided.
- Support different billing categories, including insurance, custom credit accounts and Aasandha.
- Search filter with input field Service code, Service name, Service category
- Show search result data as table.
- Add services to bill.
- Select billing account. (e.g., Aasandha)
- Select bill type (Inpatient and Outpatient)

1.7 Reporting and Analytics

- Generate various reports, including patient demographics, financial summaries, and clinical outcomes.
- Provide customizable dashboards for administrators and department heads.
- Support data visualization and trend analysis for informed decision-making.

1.8 Administrative Tasks

- Manage user roles and permissions to ensure data security and privacy.
- Add and manage services, billing accounts, billing types, wards/rooms and other related administrative tasks.
- Create custom report template for each department specific needs and generate reports.
- Enable administrative tasks such as managing user accounts, department allocation, and system configuration.



- Department InCharge's and other senior managers should be able to view their team's performance and other required information so they can develop their teams.
- Supervisors should be able to make duty rosters for their staff and this functionality should be compatible with the hospital's current HR system.

1.9 Queue Management

- Touchscreen interfaces for kiosk.
- Ability to create and manage multiple queues based on different service types and areas.
- Prioritized queue for 65 above or disabled patients.
- Indication prioritized queue on queue displays.
- Real-time display of queue numbers and estimated waiting times.
- Compatibility with thermal printers (Kiosk side).
- Tracking and management of service areas and counters.
- Customizable queue display interfaces to match the hospital's branding and visual identity.
- Options to show messages as banner and visuals displayed to customers.
- Ability to handle high volumes of patients during peak times.

1.10 Public Health Management Module

- Capabilities to maintain and manage electronic health records for individuals, families, and communities.
- Generation of customizable reports and dashboards for health officials, management and policymakers.
- Management of vaccination schedules and tracking of immunization coverage.
- Reminders and alerts for patients due for vaccinations.
- Statistical tools for analyzing health data trends.
- Secure authentication methods for user login.
- Capabilities to generate reports required by regulatory bodies or public health authorities.

1.11 Inpatient Management Module

- Track available beds and room occupancy.
- Assign patients to appropriate beds and rooms/wards based on medical needs and availability.
- Create and manage electronic health records (EHR) for each patient.
- Store and update medical history, diagnoses, treatment plans, and progress notes.
- Generate and manage treatment plans for inpatients.
- Enable nurses to document patient care activities and observations.
- Record vital signs, nursing assessments, and medication administrations.
- Record provided services in billing system.

- Facilitate the discharge process by generating discharge summaries and instructions.
- Manage patient transfers between different departments or health facilities.

1.12 Laboratory Management Module

- Receive test requests from medical professionals.
- Record and manage various types of laboratory tests.
- Store and manage test data, including patient information, test parameters, and results.
- Storing and retrieving test results and other data in relevant measuring units.
- Assign unique identifiers to each sample for tracking.
- Support barcode printers and readers.
- Generate barcodes or labels for samples to ensure accurate identification.
- Generate barcode labels for samples and test containers.
- Provide customizable result formats for different types of tests.
- Interface with laboratory instruments to automate data transfer and result retrieval.
- Manage storage of samples that need to be retained for a specific duration.
- Track sample locations within storage facilities.
- Data retrieval for historical analysis.
- Provide alerts for critical results, abnormal values, or deviations.
- Provide analytics to monitor laboratory efficiency, test volumes, and turnaround times.

1.13 Medical Records Module

- Create custom report template and generate reports. (e.g., IPD report, Inpatient diagnostics report and RTA report)
- Storage of electronic copies of patient admission and service records.
- Generate stickers for patient files.
- Electronically track and record patient file locations within shelves, by search and filtration methods.

2. Non-Functional Requirements

2.1 Security and Privacy

- Implement strong authentication and access controls.
- Role-based access control to ensure that users can only access relevant data.
- Activate and deactivate users.
- Encrypt sensitive data both in transit and at rest.

2.2 Performance

- Ensure the system can handle concurrent users without significant performance degradation.
- Maintain fast response times for user interactions and data retrieval.
- Compatible with low end computer systems.

2.3 Scalability

- Design the system architecture to accommodate future growth in terms of data volume, user load and integration with new features and medical systems.

2.4 Usability

- Develop an intuitive user interface with clear navigation and minimal learning curve.
- Provide user training and documentation to assist with system adoption.

2.5 Interoperability

- Integrate with currently operational database or move database to this system.
- Enable integration with existing hospital systems (e.g., Human Resource System and Stock Management System) through standardized APIs or another secure medium.
- Integration with Vinavi and seamless data sync between two systems.

2.6 Reliability and Availability

- Implement backup and disaster recovery mechanisms to ensure data integrity and availability.
- Minimize downtime through proper maintenance and system monitoring.

2.7 Constraints

- The HIS must be compatible with commonly used operating systems such as Windows 10 and above.
- The HIS must be able to run on low-end systems and not resource heavy.
- The development process should adhere to the hospital's budget and timeline constraints.

This document is not full requirement but provides a general look at the software requirements for the Hospital Information System (HIS). The HIS should improve overall efficiency within the healthcare facility by streamlining hospital operations, improving patient care, and streamlining hospital operations. This system's successful development and deployment should significantly contribute to the hospital's mission of providing high-quality medical services.