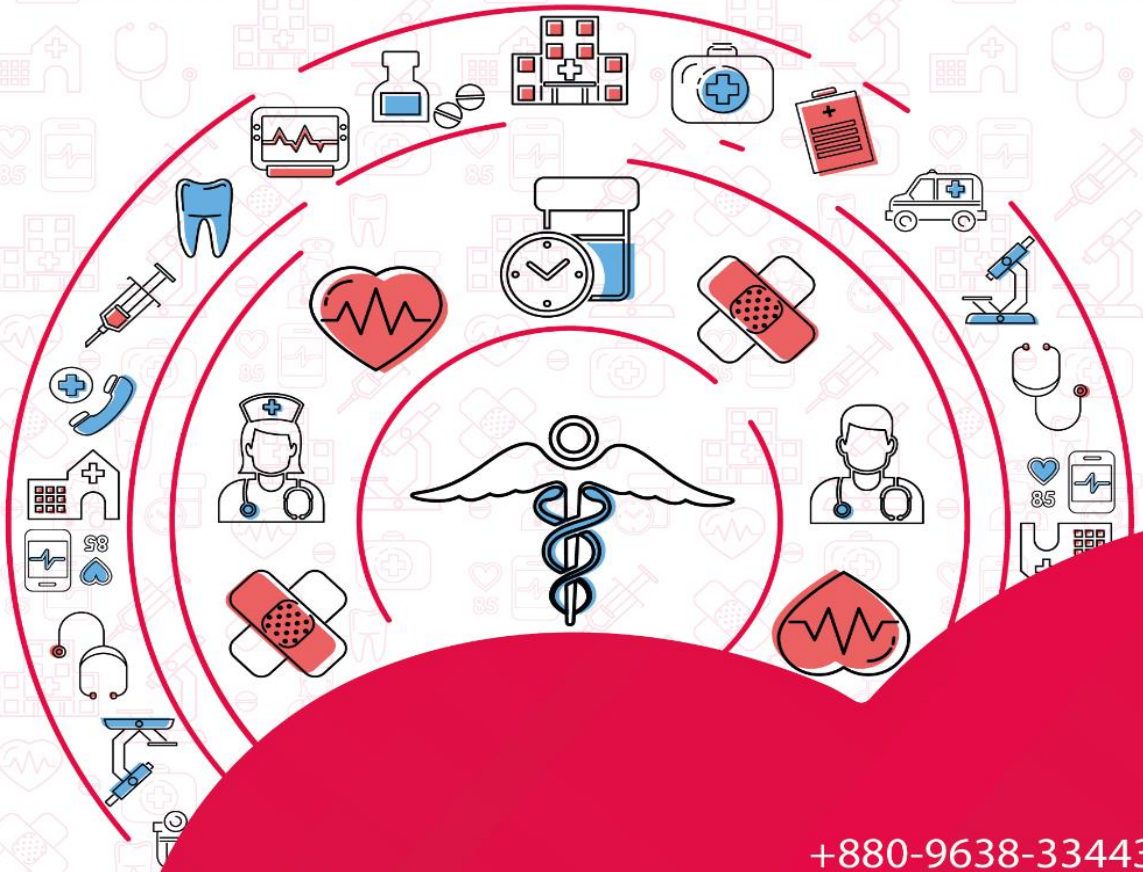
webase SOLUTIONS

SUMONA HOSPITAL

FINANCIAL PROPOSAL



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Mohammadpur, Dhaka-1207

Sumona Hospital Ltd.

Islampur Rd, 3,4 Patuatuli,

Sadar Ghat, Dhaka-1100

Subject: Proposal letter for HMS development.

Dear Concern,

Greetings. As per our meeting discussion and your requirements, we are cordially proposing your Hospital Management System software development project. Hope we will make it happen successfully by utilizing our many years long experience in software industry.

We believe you will make your choice wisely to take your business to the next level. Thank you very much for believing in us and for the opportunity to work together. We wish your company's success always.

Superbest Regards

M M Hossain Dip

Managing Director & CEO

Webase Solutions

Project Proposal

CONFIDENTIAL

Proposal ID	**202**
Product Name	**Hospital Management System**
Proposal Name	**Hospital Management System for Sumona Hospital Ltd.(SHL)**
Client Name	**Sumona Hospital Ltd.**

REVISION HISTORY

Ver. no.	Date of Release	Prepared By	Reviewed By	Review Date	Approved By	Approved Date
1.0.0	15 March 2021	Md Abdul Mannan	Ron Mahenur	16 March 2021	M M Hossain Dip	27 March 2021

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1. Executive Summary

Hospital is the essential part of our lives, providing best medical facilities to people suffering from various ailments, which may be due to change in climatic conditions, increased work-load, emotional trauma stress etc. It is necessary for the hospitals to keep track of its day-to-day activities & records of its patients, doctors, nurses, ward boys and other staff personals that keep the hospital running smoothly & successfully. But keeping track of all the activities and their records on paper is very cumbersome and error prone. It also is very inefficient and a time-consuming process Observing the continuous increase in population and number of people visiting the hospital. Recording and maintaining all these records is highly unreliable, inefficient and error- prone. It is also not economically & technically feasible to maintain these records on paper.

Thus, keeping the working of the manual system as the basis of our project. We have developed an automated version of the manual system, named as “Hospital Management System”. The main aim of our project is to provide a paper-less hospital up to 90%. It also aims at providing low-cost reliable automation of the existing systems. The system also provides excellent security of data at every level of user- system interaction and also provides robust & reliable storage and backup facilities.

1.1 Innovation: We always try to improve the quality of our products by exploring innovative ideas. We recognize the importance in a diverse workplace and are committed to making diversity an integral part of our culture. All of our products are different from others in aspects of design, quality and operation.

1.2 Quality Assurance: We always believe in proper quality assurance of our products. Each of our products is delivered to our customers after an extensive set of testing that makes our product less error free. A team of testing experts is working with professional touch and dedication to make the full quality assurance process more successful.

1.3 Customer Satisfaction: We deliver optimal solutions with quality and services at reasonable prices. For us customer satisfaction is given top place. We are very friendly in our dealings to the customers and it helps us retain existing clients and expand the customer circle. We believe that customer satisfaction depends on the quality of the product and service. We are committed to our customers regarding different presentations and after sales service.

1.4 Support & Maintenance: Our overall working activities are monitored by a strong management and a team of professionals. We are always aware that our customers are getting proper service from us and the product. We continuously look after our products in aspects of error fixing, updates and customer’s opinion. A support team is always ready for any kind of assistance regarding our product.

1.5 Security: We never compromise in the matter of security of our product and customer’s information. Data that is needed while implementation of the software is totally safe and protected in our hand. We always give the security of the database, whether it is in our hand or at the customer's end.

2. COMPANY OVERVIEW

Webase Solutions is an internet/software company in Bangladesh that provides software development and information technology-based digitalization solutions for different companies and individuals. We have been offering the global community the finest of software solutions that not just fulfilling their needs today but offer them a competitive advantage tomorrow. We combine the best of designs, technologies, processes, strategies, quality assurance and our extensive industry experience to enable our clients to succeed. Our goal is to improve performance, maximize returns of investments and ultimately, create a competitive business advantage for our customers.

Webase Solutions has special expertise in custom software development to our enterprise customers. We're offering our enterprise clients to build software according to their requirement to digitally empower them. We gain competitive advantage from these distinctive capabilities and have developed the ability to implement and manage complex software solutions in changing times with greater effectiveness than many competitors.

Webase Solutions is a company which intends to be in front of the client's needs, deeply understanding clients' business and delivering software solutions from the initial phase of scoping the requirements, up to the final delivery, maintenance and continuous upgrade. We always look at the things from the customer perspective to grasp their real business need as well as keeping the deadlines on time and on track.

Webase Solutions works with a team that confidently operates it process with professionalism, enthusiasm and flexibility. We are focused on our customers, being their reliable partner for software solutions, working together, helping them face the challenges of the modern times. Our differentiation point comes with three simple principles:

- We deliver values to our clients by listening to their challenges and understanding their business—which allows us to meet and more often, exceed expectations.
- We value our talented employees and have earned their loyalty by providing excellent career advancement opportunities and understanding their importance to your success and to ours.
- We pursue excellence by conducting our business with integrity and high ethical standards that apply to everything, including how we work with our clients and prospective employees.

Webase Solutions has started its journey in 2017 under the provision of private limited company Act abiding the constitutional laws of the People's Republic of Bangladesh. The principal importance of all activities of the company is to deliver quality software solutions and after sales service to our client.

2.1 Our Services

- Enterprise Software Development
- Hospital Management System
- Pharmacy Management System
- Mobile Application Development
- User Experience/User Interface (UX/UI)
- Website Design & Development
- Game Development
- Software Testing & QA
- Managed Maintenance Services

2.2 Our Products

Education ERP System

Comprehensive ERP for Educational Institutes with Online Cloud Based platform by which Universities, Colleges and Schools can manage their total operational system easily and efficiently.

Business ERP System

Comprehensive ERP for business corporations and organizations by which companies, businesses, and startups can manage their total business operations easily and efficiently.

Hospital Management System

Hospital management system is a computer system that helps manage the information related to health care and aids in the job completion of health care providers effectively.

2.3 Company Portfolio

3. SYSTEM FEATURES

The hospital management system (HMS) is software that is designed to handle all the activities of Hospital workflow like medical, financial, legal, administrative, healthcare performance. It also converts all paper works into digital form. The HMS simplifies the work of healthcare professionals and their interactions with their patients. All the activities in the hospital can be recorded in a systematic way in the digital form which helps professionals to keep track of their work. This Software including Patient Registration, Appointment & Scheduling, Outpatient Management, Inpatient Management, Billing Management, Discharge Summary, Laboratory Management, Radiology Management, Consultant Management, Inventory Management, Medical Data, Reception Management, Payroll & HR Management, Accounts Management, Service Management, Ambulance Management, Blood Bank Management, Attendance Management, Health Package, Nurse Station, Operation Theatre Management, Assets Management, Bed Management System. A complete HMS system made up of different modules and integrates all the portions of the business. All business departments and their functionality can be integrated Once you implement the HMS which helps you to analyze all the activities in day-to-day basis and also which helps us to monitor all activities. The role of the HMS is complete the inventory management by implementing the operations specific to a streamlined manufacturing process.

The proposed system will highlight the following major functionalities:

1. Administration
2. Patient Registration
3. Appointment & Scheduling
4. Outpatient Management
5. Inpatient Management
6. Billing Management
7. Discharge Summary
8. Laboratory Management
9. Radiology Management
10. Consultant Management
11. Inventory Management
12. Medical Data
13. Reception Management
14. Payroll & HR Management
15. Accounts Management
16. Service Management
17. Ambulance Management
18. Blood Bank Management
19. Attendance Management
20. Health Package
21. Nurse Station
22. Operation Theatre Management
23. Assets Management
24. Bed Management System

3.1 Administration

- All Masters
- Multi User facility
- Right to give Permissions
- Authority to check all Departments
- Hospital Administration

3.2 Patient Registration

- Patient Registration module of our hospital management system is designed to manage vital information for the patient information chart, which marks the outset of demographics capture. It encompasses the patient's name, address and contact information, birth date, employer, and insurance information.
- Unique patient ID for tracking visits
- Automatically verifies patients' benefits eligibility using secured electronic data interchange
- Sends updates through SMS text messages or emails to reduce no-shows.

3.3 Appointment & Scheduling

- The Appointment & Scheduling module of our hospital management system is designed to manage the effective scheduling of appointments of patients for the doctors, laboratory, and radiology services.
- Quick and effective patient scheduling
- Online and offline appointment availability
- Patients and staff can check appointment status
- Sends updates through SMS text messages or emails to reduce no-shows.

3.4 Outpatient Management

- Outpatient Management module of our hospital management system is designed to manage everything related to Outpatient activities.
- Straightforward Patient Billing / Insurance Claims and Collection
- Organized services, e.g., Consulting Services, Procedures, Medicines, X-Ray, Labs, MRI, etc.
- Manage invoice, payment due, and advance payment
- SMS for patient notification, payment, next vaccine dose
- Generates various reports and analytics to provide the insights to operations

3.5 Inpatient Management

- Inpatient Management module of hospital management system is designed to manage all Inpatient department needs. Patient Demographics along with the details of Admission, Room, Consultant, Surgeon, Diet, etc. and the Advance Payment made are entered into this HM Software.
- Unique admissions number generated for each patient
- Easily manage admissions, discharges, and transfers
- Quickly search for and allocate a bed, ward, and room by availability or cost
- Ensures correct discharge process is followed
- Generates comprehensive discharge summary
- Records and generates related documents, e.g., consent forms for electronic signature
- Forms that require patient signature are in regional language and English

3.6 Billing Management

- Billing of all Inpatient and outpatient consultancy and services with details of Patient Information, Services provided daily like Room rent, Operation, Delivery, Oxygen & Other Gases, Consultation, Nursing Charges, Laboratory tests, X-ray, Ultrasound, Medicines, Procedures, etc.
- Paper-Based and Electronic Claim billing services to insurance companies
- Vital data for MIS reports
- Payment Overdue alerts for better revenue cycle management

3.7 Discharge Summary

- Patient Discharge summary stemmed from Hospital or a physician's office, at the end of hospital admission or a series of treatments, and automatically generated after the discharge of the patient.
- Articulately reflect the patient's chief complaint, findings, and diagnosis
- Records the kind of therapy administered and response
- List recommendations upon discharge in an easy to understand format
- Customizable and can include laboratory results Information

3.8 Laboratory Management

- Laboratory Management module of hospital management system is used by the pathology lab to record and disseminate the information regarding the tests performed
- Effectively manages patient medical tests, exam reports, commercial records and laboratory department activities
- Generates billing for both inpatients and outpatients
- Authorized personnel will finalize test reports, which can be printed, emailed, and accessible on portal and apps.
- Finalized reports can be visualized on the screen sent to the ward
- Lab reports available via patient portal enabling complete paperless solution
- SMS/Email sent to the patient when results are available
- Lab Machine integrated with our EHR Software.
- Wide variety of workflow modules

3.9 Radiology Management

- Radiology Management module of hospital management system manages all radiology services provided by the hospital. As the radiology tests are booked at the reception desk, the request is automatically sent to the radiology department.
- Centralized reporting tool for CT, MRI, Ultrasound, X-ray, and PACS
- Completely compatible with all radiological imaging technologies
- Offers smart methodologies for interpretation
- Generates billing for inpatient and outpatient
- Authorized personnel finalizes test report, only finalized test reports can be printed

- Finalized reports can be visualized on screen, sent to the ward, sent via email
- Radiology reports available via patient portal enabling complete paperless solution
- SMS/Email sent to the patient when results are available

3.10 Consultant Management

- Consultant Management module of hospital management system tracks consultant charges for outpatient and inpatient visits and procedures. Option for defining consultant charges based on the procedures/ department.
- Classifying visit of the patient as new / existing for that consultant

3.11 Inventory Management

- Inventory Management module of hospital management system is used for inventory store management.
- Maintain Purchase order with due dates of delivery
- Maintain MRN and Issue slips
- Maintaining Stock, Reorder levels and show the appropriate warning.
- Bills can be adjusted against the payments made at other departments

3.12 Medical Data

- Medical Data module of hospital management system takes care of all the medical data of the patient. Patient's intake, outtake, Medication, reading, etc.

3.13 Reception Management

- Reception Management module of hospital management system manages front desk reception activities. Status of any patient/doctor can be queried from this module, e.g., timing of consultant, residential address/patient room search.

3.14 Payroll & HR Management

- Payroll & HR Management module manages payroll and HR department.
- A complete salary can be computed through this module. This module interfaces with commercially available Time recording machines. All necessary formats can be generated through this module.

3.15 Accounts Management

- Accounts Management module manages various financial accounts.
- Financial accounts for all purchases, expenses, payments can be entered in this module. Receipts can be directly imported from the Outpatient and Inpatient department.
- Hospital Systems can integrate with most commercially available Finance & Accounting software products.
- QuickBooks, Tally, SAP Integration available

3.16 Service Management

- Service Management module of manages the rate of services charged as per the hospital rules. It considers Night Charges, Emergency Charges, and other parameters while calculating the rate of services for the patient.

3.17 Ambulance Management

- Ambulance Management of manages the ambulance services provided by the hospital. It keeps track of the hospital and external vendors' ambulances.
- Normal Care/Critical Care ambulance services
- Scheduling of Ambulance/Vehicles
- Driver's and Accompanying Doctor’s Duty Roster
- Tariff Management
- Daily running statistics of ambulances
- Scheduling maintenance of the vehicles
- Managing emergency facilities provided in the ambulance
- Provision for communication facilities within the ambulance

3.18 Blood Bank Management

- Blood Bank Management module provides the platform for the critical functionalities of a Blood bank, encompassing a blood request process and the issuance and management of stock.
- It maintains records of blood collection and transfusion, donor, and recipient reactions.
- It maintains records of blood group availability at the diagnostic center.
- It generates various reports based on the following; Area wise, Stocks-Blood Group wise, and expiry reports.

3.19 Attendance Management

- Attendance management module helps to record the staff attendance
- This module can interface with biometric attendance machines to In-Out time can be recorded accurately and automatically.

3.20 Health Package

- Health Package module of our hospital software helps to bundle various surgeries, tests, and medications.
- Easier to promote hospital activities in different patient demographics.

3.21 Nurse Management

- Nurse Station module of our hospital software engenders an enabling hospital environment, with task management efficiently handled.
- The patient gets health care through the development of a proper health care plan.
- The patient’s vital signs, admission and nursing assessments, and nursing notes are accessed. The nursing staff knows about the clinical details of the patient.

- The nursing staff can access clinical information from various disciplines to do care-planning. It also brings about holistic health plans with proper assessment and evaluations.
- Additionally, the legibility of electronically prescribed drugs is possible, eliminating the wrong medication prescribed to patients to a large extent.

3.22 Operation Theatre Management

- Operation Theatre Management module tracks all surgical operations. The entire requirement to embark on a successful surgery, like scheduling, managing the team, recording of surgery details, etc., is managed. By keeping records intact, surgery can be managed and prepared before it happens.
- It empowers the electronic consent of the patient or the relatives while keeping up the data on preoperative and postoperative as regards the patient's condition.
- It is likewise outfitted with CPT codes for all procedures that have taken place in Operation Theater. Staff can reach for a comprehensive checklist that enables patient monitoring, Detailed preoperative assessment; Anesthesia details monitoring and recording, multilingual consent forms, Inventory and stock management of the OT, and Sterilization schedules.

3.23 Assets Management

- Assets Management Module of hospital management system presents a complete physical and monetary record of every single Fixed Asset of the Hospital.
- Records of procurement, capitalization, revaluation, exchange, and transfer of assets are maintained.
- The calculation, recording, and reporting of depreciation of an asset, as indicated by the organization's depreciation policy can be achieved via this module; it will likewise be incorporated with the Financial Accounts software.
- Items have unique identification and used for calculation of Depreciation, including year-wise Net Asset Value.

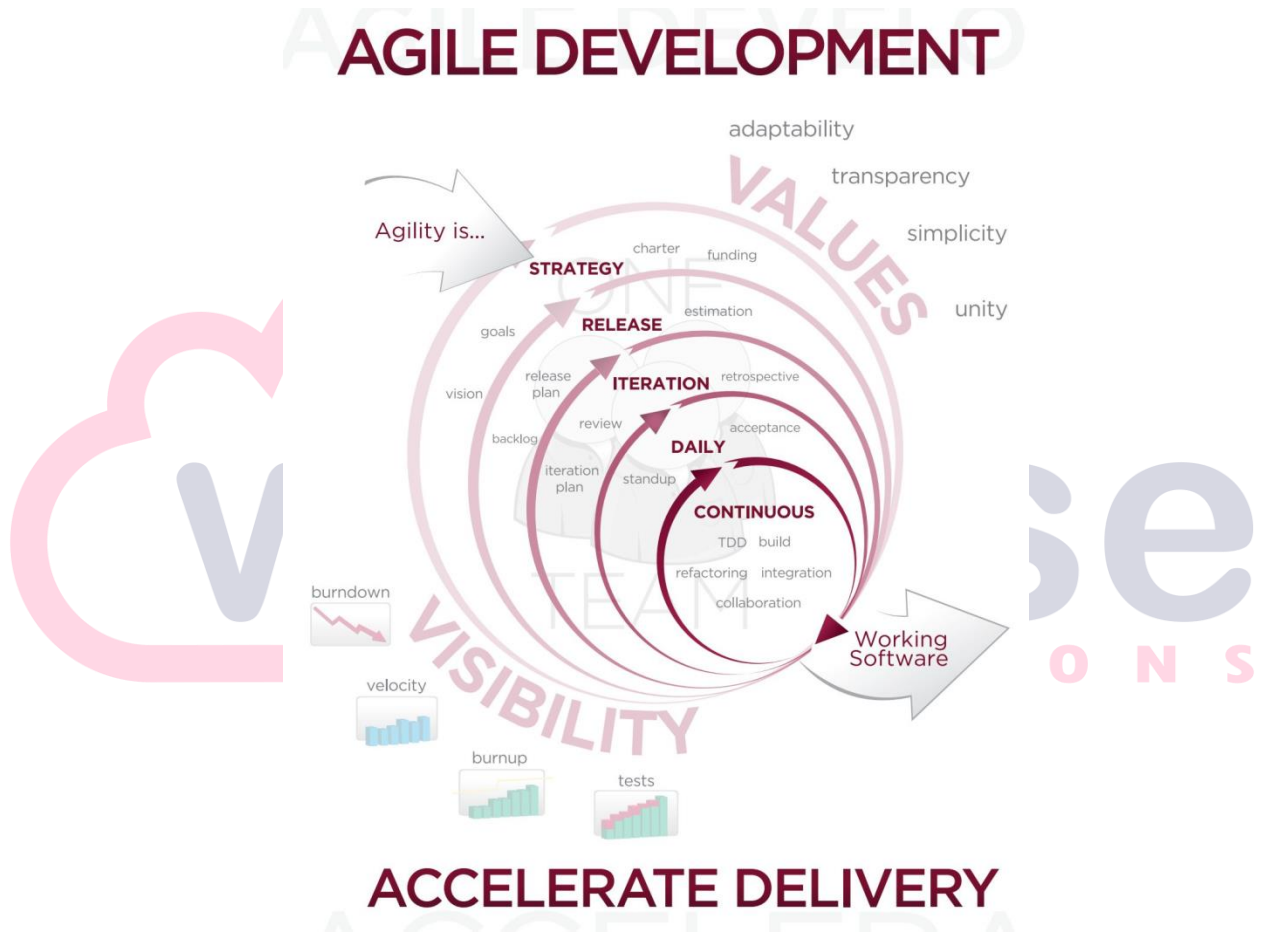
3.24 Bed Management System

- Find out location of patients in the ward. Ward staff can view any outstanding actions for the patient, notes on the patient's specific needs and any planned movements to other wards.
- Better bed assignment. Patients are allocated beds according to care types to facilitate right care.
- Real-time notifications to housekeeping teams of newly vacated beds to speed up bed availability. Using the mobile application, housekeeping teams are given a visibility of bed readiness at the wards via the bed turnover module.
- Care Visibility View. This enhanced feature improves visibility of bed situations on dashboards in all the wards and executive dashboard on Bed Management Unit, Housekeeping and Executive office.

4. Technical Process (Software Development/Maintenance Process)

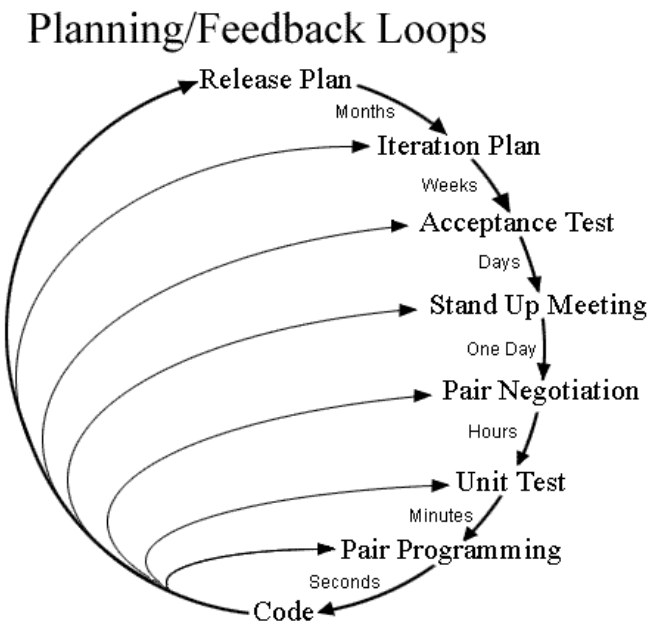
4.1 Development Methodology

Webase Solutions will follow mixed strategy (prototyping & incremental) of Software Development Life Cycle (SELC). For this reason, best fit is "**Agile Software Development**". It is a group of software development methodologies based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. It promotes adaptive planning, evolutionary development and delivery, a time-boxed iterative approach, and encourages rapid and flexible response to change.



Among all of the methodologies of Agile, **Extreme programming (XP)** is best suited for this HMS project. It is a software development methodology which is intended to improve software quality and responsiveness to changing customer requirements. As a type of agile software development, it advocates frequent "releases" in short development cycles (time boxing), which is intended to improve productivity and introduce checkpoints where new customer requirements can be adopted.

Other elements of extreme programming include: programming in pairs or doing extensive code review, unit testing of all code, avoiding programming of features until they are actually needed, a flat management structure, simplicity and clarity in code, expecting changes in the customer's requirements as time passes and the problem is better understood, and frequent communication with the customer and among programmers. The methodology takes its name from the idea that the beneficial elements of traditional software engineering practices are taken to "extreme" levels, on the theory that if a little is good, more is better.



4.2 Tools & Techniques

4.2.1 Development Tools

Client Tier (Frontend)

Language	:	HTML, CSS, Bootstrap etc
Mapping tools	:	Hibernate
Architecture	:	MVC 3
Script & Style Lang	:	jQuery, Ajax, CSS
Tools	:	Eclipse, Netbeans, Noteplus+

Middle Tier (Application Server)

Application Server:		Glassfish / Apache-Tomcat / JBoss / Weblogic
Server OS	:	Red-Hat Linux/ Ubuntu / Open-SUSE / Windows Server 2008
Scripting Lang	:	php, Javascript
Connection tool	:	SSH, VNC viewer, TeamViewer/AnyDesk

Database Tier (Backend)

Database	:	Oracle 11g / PostGRE/MySQL
DB Server OS	:	Linux (Red-Hat / Ubuntu / Open-SUSE/ Oracle Linux)
Tools	:	Toad, SQL Developer
Connection tool	:	SSH, VNC viewer

Reporting

Development Tools:		Jasper Report
Enterprise Report	:	BIRT report

Stand Alone Software (Value Added Services)

Development Tools:		Eclipse
Language	:	Php/Python
Database	:	PostGRE / MySQL/Mysql
Host OS	:	Windows XP / Windows Vista / Windows 7 etc.

4.2.2 Techniques

Goals

Extreme programming (XP) attempts to reduce the cost of changes in requirements by having multiple short development cycles, rather than a long one. In this doctrine changes are a natural, inescapable and desirable aspect of software development projects, and should be planned for instead of attempting to define a stable set of requirements.

Coding

The advocates of XP argue that the only truly important product of the system development process is code – software instructions a computer can interpret. Without code, there is no working product.

Coding can also be used to figure out the most suitable solution. Coding can also help to communicate thoughts about programming problems. A programmer dealing with a complex programming problem and finding it hard to explain the solution to fellow programmers might code it and use the code to demonstrate what he or she means. Code, say the proponents of this position, is always clear and concise and cannot be interpreted in more than one way. Other programmers can give feedback on this code by also coding their thoughts.

Testing

Extreme programming's approach is that if a little testing can eliminate a few flaws, a lot of testing can eliminate many more flaws.

Unit tests determine whether a given feature works as intended. A programmer writes as many automated tests as they can think of that might "break" the code; if all tests run successfully, then the coding is complete. Every piece of code that is written is tested before moving on to the next feature.

Acceptance tests verify that the requirements as understood by the programmers satisfy the customer's actual requirements. These occur in the exploration phase of release planning.

Listening

Programmers must listen to what the customers need the system to do, what "business logic" is needed. They must understand these needs well enough to give the customer feedback about the technical aspects of how the problem might be solved, or cannot be solved. Communication between the customer and programmer is further addressed in the Planning Game.

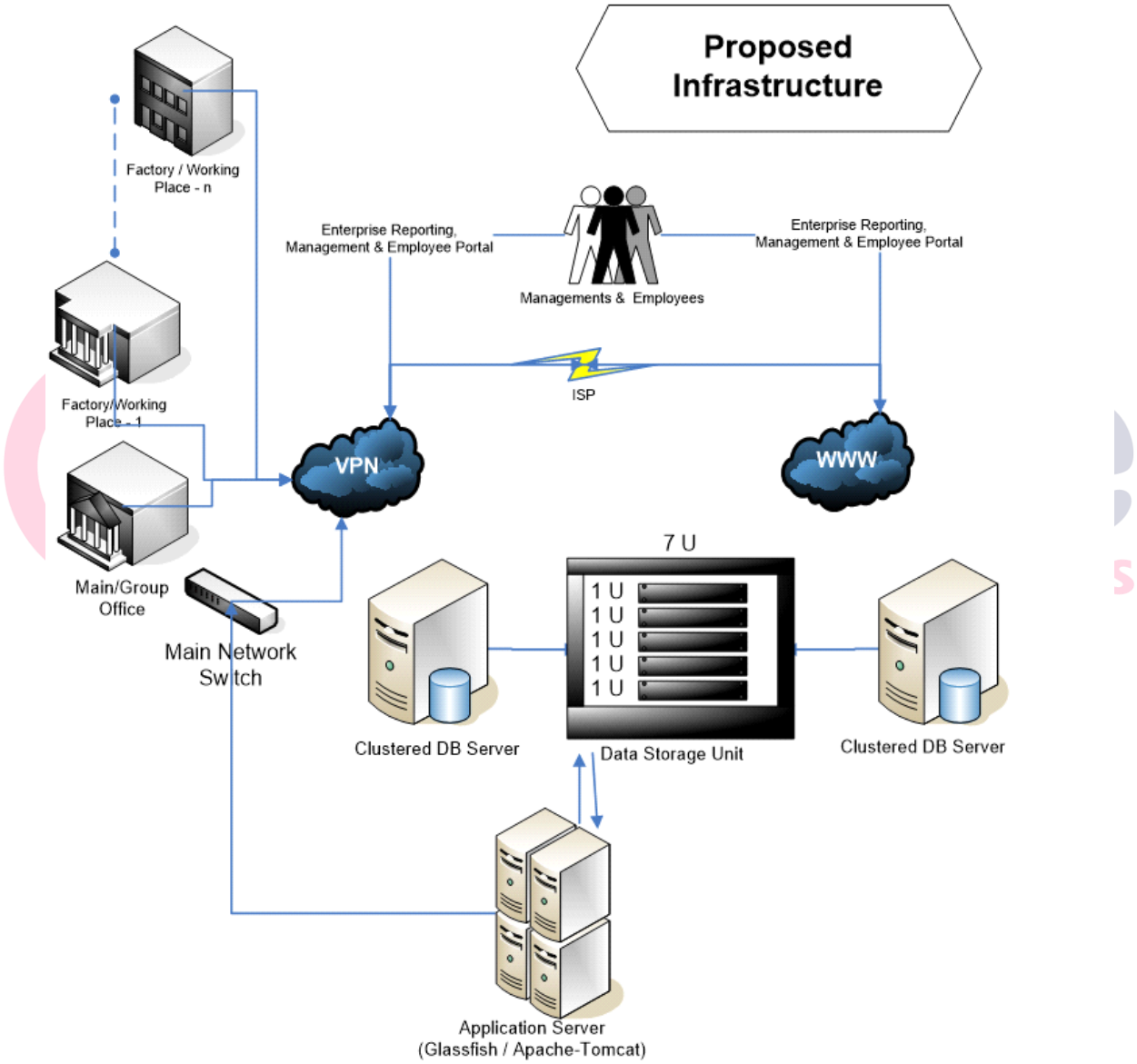
Designing

From the point of view of simplicity, of course one could say that system development doesn't need more than coding, testing and listening. If those activities are performed well, the result should always be a system that works. In practice, this will not work. One can come a long way

without designing but at a given time one will get stuck. The system becomes too complex and the dependencies within the system cease to be clear. One can avoid this by creating a design structure that organizes the logic in the system. Good design will avoid lots of dependencies within a system; this means that changing one part of the system will not affect other parts of the system.

4.2.3 Infrastructure

Proposed "**HMS for Sumona Hospital Ltd. (SHL)**" is a software solution which is enriched with 3-tier software architecture. This architecture is depicted in the following diagram.



4.2.4 Support Service

The proposed application requires software support and maintenance for the developed "**HMS for Sumona Hospital Ltd. (SHL)**" System on a yearly retainer basis.

All developed application software will fall under **three** months free warranty program. The application software warranty normally commences after commissioning of the proposed HMS solution.

Greater details on warranty described in section: **8.4 Warranty.**

5. Project Organization

Webase Solutions will form a team structure for the successful commissioning of the project:

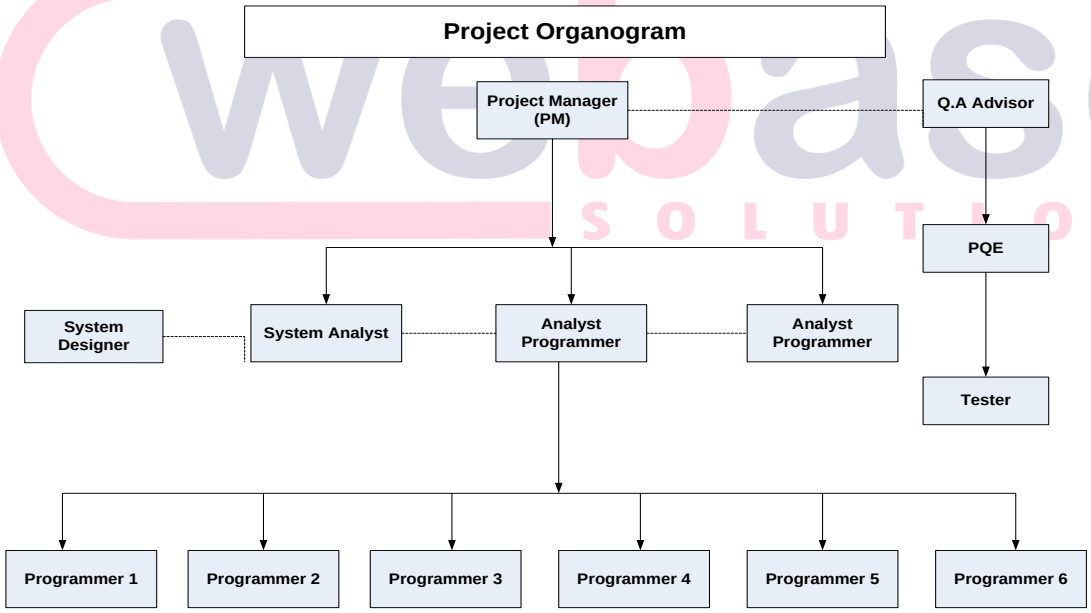
As detailed below:

1. Project Manager (PM) : 1 person
2. Process Quality Evaluator (PQE) : 1 person
3. System Analyst : 1 person
4. Analyst Programmer : 1 person
5. Programmer/ Internal Tester : 2 person
6. External Tester : 1 person (optional)

Webase will assign on an average of 2 resource persons to project development and implementation of the "**HMS for Sumona Hospital Ltd. (SHL)**" along with required integration with associated applications for 6 months.

Project Manager (PM) will be responsible for overall project execution. Project Manager will not be directly involved in the development activities. He would rather exercise monitoring function.

The structured of Project team is described below:



5.1 Internal Interface

Task List	Responsible	Accountable	Consult	Informed
Prepare Proposal	PM	Asst. Manager	Manager	Manager
Communication With Client	PM	Asst. Manager	Manager	Manager
Initial Business Requirement Collection	System Analyst & Analyst Programmer	PM	Asst. Manager	Manager
SRS Signoff	PM	Asst. Manager	Manager	Asst. Manager
System Design	Analyst Programmer	PM	PM	Asst. Manager
Perform Coding and Unit Testing	Programmer	Analyst Programmer	PM	Asst. Manager
Perform Software Integration and Integration Testing	Programmer	Analyst Programmer	PM	Asst. Manager
Perform Sub-System and System Testing	Programmer	Analyst Programmer	PM	Asst. Manager
Perform Installation, Acceptance Testing and Changeover	Programmer/Client	Analyst Programmer	PM	Asst. Manager

5.2 Client Interface

Task List	Responsible	Accountable	Consult	Informed
Describing process of current system	Application Asst. Manager, IT	Application Manager, IT	Application Manager, IT	Director, IT
Briefing Initial Business requirement	Application Asst. Manager, IT & Corresponding Module stakeholder.	Application Manager, IT	Application Manager, IT	Director, IT
Recommendation of System Architecture	Application Asst. Manager, IT	Application Manager, IT	Application Manager, IT	Director, IT
Requirement Signoff	Application Asst. Manager, IT & Corresponding Module stakeholder.	Application Manager, IT	Application Manager, IT	Director, IT

6. Managerial Process Plan

6.1 Project Monitoring

Once the project is planned, the PM monitors the progress against the plan to identify and resolve issues in a timely manner. For this, the PM gathers the information needed, analyzes it and identifies deviations that are significant. Corrective actions are identified for all issues and tracked to closure. Corrective actions may include re-planning and establishing new agreements.

When the project is completed, the PM gathers the project related data and documents. The PM prepares a Project Closure Report and hands over the project-related work-products, documents, records, and the Project Closure Report and all project related documents to the QAH.

The scope of this document is to list down activities for monitoring, manage and close a project. In brief the scope is:

1. Execute and Monitor Project [As per Webase Quality Management System]
2. Close the Project [As per Webase Quality Management System]

6.2 Control Plan

6.2.1 Requirement Control Plan

For organizing requirements from this Proposal to Design (database & prototype) through SRS, WEBASE will use **RTM** (Requirement Traceability Matrix).

6.2.2 Configuration Control

The typical steps in configuration management would be following as such as:

- Plan for Project CM
- Set Up the CM Environment
- Acquire Configuration Items
- Handle Changes to Controlled CI
- Ensure Integrity of Baselines and Maintain CM Data
- Perform Configuration Audits

CC (Configuration Controller) / PM maintain a master list of documents indicating the revision status and distribution of all the documents under the document control.

[As per CM Process – Webase Quality Management System]

6.2.3 Escalation Mechanism

Building software systems requires communicating system requirements to the developers of the system. In formal software development methodologies, this task is accomplished through documentation. Extreme programming techniques can be viewed as methods for rapidly building and disseminating institutional knowledge among members of a development team. The goal is to give all developers a shared view of the system which matches the view held by the users of the system. To this end, extreme programming favors simple designs, common metaphors, collaboration of users and programmers, frequent verbal communication, and feedback.

SL	Escalation Issues	Responsible from Webase	Primary Responsible from Client	Solving duration (days/week)	Remarks
1	Define client side resource during user requirement analysis	Project PM	Yet to be confirmed from SHL	2 days	If there are any issue related to requirement analysis which may delay the project duration & cost.
2	Recommendation of System Architecture	Project PM	Yet to be confirmed from SHL	7 days	If there are any issue related to design or proposed architecture mention in this proposal which may delay the project duration & cost
3	Acceptance Test Plan & User Acceptance Test Case	Project PM	Yet to be confirmed from SHL	7 days	If there are any issue related to requirement or design mention in this proposal which may delay the project duration & cost
4	Any major or critical issue raise by the issue tracking register	Project PM	Yet to be confirmed from SHL	7 days	If there are any issue related to any phase which may delay the project duration & cost

6.2.4 Requirement Change Control Plan

This procedure applies to all the documentation and records related to project life cycle. All changes will be handled by Change Request (CR) as per the Webase Quality Management System.

6.3 Quality Assurance Plan

All work products of the project will be reviewed by the Process Quality Evaluator (PQE) assigned by the Quality Assurance department of Webase Solutions.

A Process Quality Evaluator (PQE) who is independent of the project carries out the Quality Assurance activities for a project. The PQE provides QAH and Project Manager with appropriate visibility (Consolidate PQE Status report) into and feedback on the processes and work-products of projects.

Steps for Quality Assurance

- Plan for Project QA [As per QA Process – Webase Quality Management System]
- Execute Project QA [As per QA Process – Webase Quality Management System]
- Review & Monitor QA Activities [As per QA Process – Webase Quality Management System]

6.3.1 Review and Audit

For visibility into the overall operations of the organization, senior management performs reviews for the operations of the various groups and resolves the issues identified. The following steps are carried out in order to review various work products and project progress in a project life cycle.

- Work Product Review [As per Work Product Review Process – Webase Quality Management System]
- Perform Management Review of Projects (MRP) [As per Management Review Process – Webase Quality Management System]
- Perform Management Review of Operations (MRO) [As per Management Review Process – Webase Quality Management System]
- Perform Quality Assurance [As per Quality Assurance Process – Webase Quality Management System]

After the project initiation, a detailed Project Management Plan (PMP) will contain the above activities. In the PMP the details of the review process and the frequency of review at various levels will be specified.

6.4 Risk Management

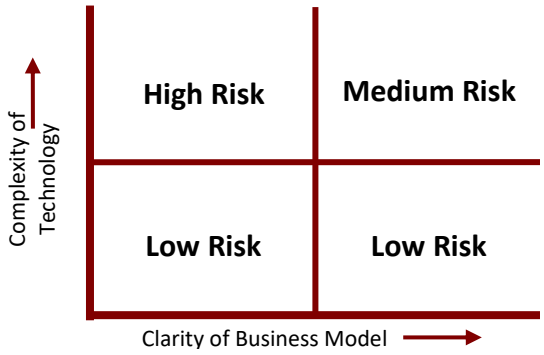
Risk is inherent in everything we do. Risk management on projects allows us to identify potential risks and plan for their occurrence, thus helping to improve the effectiveness of our project management. Project management requires the planning of milestones and activities and the identification and allocation of resources to carry them out. Risk management looks at those factors that threaten to stop the planned activities from being carried out and prevent milestones from being achieved. The technique seeks to anticipate problems and pre-plan, wherever possible, ways of reducing their probability of occurrence and / or of mitigating their impact should they occur. The alternative to this is crisis management and reactive problem resolution.

Risk management is applied using a three-stage approach. The stages are: assessment, planning, and control. Accordingly, we shall take steps to mitigate project risk during the lifecycle of the implementation. Our approach to risk management is guided by the belief that:

- Project risk is measurable.
- Measurement and structure of risk profile is necessary.
- Based on risk assessment, different projects require:
- Different project management strategy
- Different project management style
- Different project management skills

Our methodology defines “risk zones” within the project and categorizes them according to their criticality. The categorization is based on a “risk model”.

Risk Model



Accordingly, the Analysis stage of the project lifecycle is marked as a “high risk” zone; design and construction are “medium risk” zones while implementation is “low”.

Based on this categorization, appropriate risk management activities are provided in the relevant phases of the methodology. Some illustrative project risks and how they will be tackled are summarized in the table below. Please note that neither the list of risks, nor the solutions mentioned here are exhaustive:

Risks	Suggested steps to mitigate risks
Project concept risk	▪ Develop project business case and compute project ROI ▪ Get top management buy-in early through Strategy Alignment Workshops ▪ Use checkpoints in the methodology to conduct "Steering Committee" meetings and seek guidance/approval on strategic direction of the project
Technology risk	▪ Initiate procurement early and budget for delays in delivery ▪ Put in place tried and tested Backup/recovery and Disaster Contingency Plans ▪ Test the implemented system for audit trails and security loopholes ▪ Estimate for workflow and batch printing requirements and size your infrastructure accordingly ▪ Purity of data, inconsistent codes or abbreviations across data sources, availability and accessibility of data will not only affect a MBS implementation, but will also severely impact the quality of decision-making support. Data collection is a critical risk in a distributed legacy environment. Start data collation, correction and migration procedures early on in the life-cycle
Organizational risk	▪ Executive Management Ownership is a must; buy in of the senior management is a must ▪ The client's top management must depute their best and brightest business managers and IT resources to the project on a full-time basis to the project ▪ The top management should champion the cause of "change for the better". The opportunity of adopting business best practices and establishing uniformity of processes across the organization must be exploited fully. ▪ Communicate the happenings and milestones in the project to the organization at large to create enthusiasm and expectancy; use project newsletters, intranet sites, workshops etc. ▪ Redesign jobs, policies and facilities to support the new business model ▪ Inform your business partners (suppliers & customers) about the project. ▪ Create special retention plans for the core team members and plan for attrition during and after the project lifecycle.

Risks	Suggested steps to mitigate risks
Project management risk	▪ Project slippage is a serious risk; built contingencies into the project plan ▪ Manage key stakeholders ▪ Leverage the following WEBASE procedures to identify and mitigate project management risk: - Issue Resolution - Scope Change Request - Deliverable Walkthrough - Configuration Change Control - Test Problem Report
Team Management Risks	▪ Availability of key personnel - Key functional team members not available - Core Team members not available during team meetings - Full time team members not allocated ▪ Team coordination and information - Team not inform about the objectives and vision of the project - Team not aware of the functionality in totality across all locations - Lack of coordination across functional areas and modules

7. Milestones, Schedules and Deliverables

7.1 Milestones and Deliverable

Phase	Phase Description	Deliverables
Phase-I	Perform Requirements Analysis	SRS (System Requirement Specification) Document Acceptance Test Plan
Phase-2	Perform High-Level Design	N/A
Recurrent Phase-3	Perform Coding and Unit Testing	N/A
Recurrent Phase-4	Perform Software Integration and Integration Testing	N/A
Recurrent Phase-5	Perform Sub-System and System Testing	Acceptance System/ sub-system Test Case (Provided by Client or by vendor based on demand – if vendor charge applicable)
Phase-7	Integration Test	N/A
Phase-6	Perform Installation, Acceptance Testing and Changeover	User and Operational Manual

7.2 Project Plan

SL#	Milestone	Breakdown	Resource	Required Duration	Aggregated Duration
1	Starting	Sign off	PM	1 day - -	0.5 months
		Resource Allocation	N/A	12 days - -	
		Kickoff Presentation	All stakeholders	1 day - -	
		Payment	PM, BM	1 day - -	
2	Requirement Analysis	Web Apps	System Analyst	1 months ||	1.5 months
		Mobile Apps	Analyst Programmer	1 months ||	
		ACL, Approval Module	Analyst Programmer	1 months ||	
		SRS Sign off, Payment	PM, BM	15 days - -	
3	Design	Database Design	System Analyst, DBA	1 months ||	1 months
		Prototype Design	Analyst Programmer	1 months ||	
		UI Design	Analyst Programmer	1 months ||	
5	Full Deployment	Administration	Analyst Programmer 1 Programmers	3 months ||	3 Months
		Patient Registration		3 months ||	
		Appointment & Scheduling		3 months ||	
		Outpatient Management	Analyst Programmer 2 Programmers	3 months ||	
		Inpatient Management			
		Billing Management		3 months ||	
		Discharge Summary		3 months ||	
		Laboratory Management			
		Radiology Management		3 months ||	
		Consultant Management	PM	1 day - -	
7	User Acceptance & User Training	User Acceptance Test	Client Users	1 months ||	1 months
		User Training	Programmers	1 months ||	
		Payment	PM	1 day- -	

Free support 3 months after go live

8. Installation, Acceptance and Changeover

8.1 Installation

"**HMS for Sumona Hospital Ltd. (SHL)**" is web enabled and three –tier architecture is defined for solving the purpose of the organization.

The installation process will focus on the flowing steps:

- Application Server Configuration as Middle tier.
- Deploying HMS solution as Frontend.
- Oracle DB 11g / Post Gre / Any DBMS as a Backend.

8.2 Acceptance

The most important step in this phase is the User Acceptance Test (UAT). The test is carried out according to the Acceptance Test Plan defined at an early stage of the Software Engineering Life cycle as per Webase Quality Management System.

SL	Phase	Acceptance Criteria	Remarks
1	Requirement	1. SRS (Software Requirement Specification) Document Sign-off with micro level requirements and System Design.	1. After sign-off of SRS Client cannot be able to change any requirements, if any it will be treated as a new requirements which is chargeable (out of scope)
		2. Acceptance test plan and case sign-off by Client.	2. Acceptance Test Case Data and Criteria need to be provided by the Client.
2	Design	Based on detailed requirements mentioned in SRS.	In this phase client will not get any scope to give major changes. Any changes less than 10 man hours will not be treated as major
3.	Coding	N/A	Client can see the output of the Forms, Reports and can discuss on it.
4.	Testing	User Acceptance Test needs to be implements as per Acceptance Test Plan and Test Case. Any kind of new requirements will not be part of UAT.	As all the test case will be provided by the client. So vendor needs to ensure the same participation during UAT.
5.	Implementation & User Training	User and Operational Manual as per SRS for user training and Installation and Migration Manual for Implementation Phase.	After successful implementation and user training Client needs to give Clearance and Acceptance Certificate.

8.3 Changeover

After successful acceptance test, the system is ready to be handed over through cutting over any other legacy system, if any or the manual system.

8.4 Warranty

The System will be delivered with error free. After delivered to the client Three Months free warranty will be provided in case of error and bug fixing. Therefore, warranty scope will cover the malfunctions occur due to bug or technical fault in the system. This mentionable that if support is required due to operational issue from client end it will not be covered under the warranty scope. If Sumona Hospital Ltd. intends to arrange a support & maintenance contract it will be treated as separate agreement.

8.5 Assumption & Exclusion

The following points don't come under the current Scope of work (applicable to Webase Solutions.)

- Supplying of materials with regards to third party products; hardware and software (IT and Non-IT).
- Installation and integration of any third-party products unless specifically mentioned in the RFP.
- Installation of electrical instruments or cabling.
- Hardware vendor selection.
- Expectation from client.
- The Client shall assign a resource to act as a single point of contact with the SI project team; who will act as the Client Project Manager for the envisaged scope.
- The client will create a steering committee, from the project stakeholder community.
- The Client shall make available the members of the steering committee, System Administrators, Network Administrators, Security Administrators, Service Desk Managers and other stakeholders for discussion with WEBASE consultants when required for the duration of the project.
- The Client shall provide logistic support including and space, telephone and Internet connection for the WEBASE consultants working on the project.
- The Client shall allow WEBASE consultants to attach their laptops/systems to its own network for development purposes.
- When required the client will allow network resource access related to the project.

9. Commercial Terms

9.1 Financial Proposal

Hospital Management System 1. Administration 2. Patient Registration 3. Appointment & Scheduling 4. Outpatient Management 5. Inpatient Management 6. Billing Management 7. Discharge Summary 8. Laboratory Management 9. Radiology Management 10. Consultant Management 11. Inventory Management 12. Medical Data 13. Reception Management 14. Payroll & HR Management 15. Accounts Management 16. Service Management 17. Ambulance Management 18. Blood Bank Management 19. Attendance Management 20. Health Package 21. Nurse Station 22. Operation Theatre Management 23. Assets Management 24. Bed Management System	**4,50,000/=**
Sumona Hospital Website with Patient Appointment Booking System	**1,00,000/=**
In Word: Five Lacs and fifty thousand Taka only	**5,50,000/=**

9.1.1 Support Service

Particulars	Amount(Taka)
Annual Maintenance Service on per man- month basis (Central System Only)	15,000.00

9.2 Payment Schedule

SL	Particulars	Deliverables	Amount (BDT)	% of Project Value
1	Project Sign off Kick off	Final Resource Allocation Status	2,75,000.00	50%
2	Partial Go Live	Administration, Patient Registration, Appointment & Scheduling, Outpatient Management, Inpatient Management, Billing Management, Discharge Summary, Laboratory Management, Radiology Management, Consultant Management, Inventory Management, Medical Data	1,10,000.00	20%
3	Partial Go Live	Reception Management Payroll & HR Management, Accounts Management, Service Management Ambulance Management, Blood Bank Management, Attendance Management, Health Package, Nurse Station, Operation Theatre Management, Assets Management, Bed Management System	1,37,500.00	25%
9	Support Service	Free support	27,500.00	5

9.3 License agreement

Copyright of "**HMS for Sumona Hospital Ltd. (SHL)** is totally belongs to Webase Solutions. Without the permission of vendor (Webase Solutions), this EPR solution or any part can't be copied of deployed anywhere.

If the client wants then they can procure required third party license from Webase Solutions or anywhere.

9.4 Confidentiality & Privacy

Webase Solutions and **SHL** will fully maintain confidentiality and privacy of all documents and data handled by the development team during the project development cycle. This applies to client documents, data in all formats, design, methodology, data and the people involved.

9.5 Termination

Will follow Webase Solutions company policy in such a phenomenon.

9.6 Force Majeure

A party is not liable for failure to perform the party's obligations if such failure is as a result of Acts of Nature (including fire, flood, earthquake, storm, hurricane or other natural disaster), war, invasion, act of foreign enemies, hostilities (regardless of whether war is declared), civil war, rebellion, revolution, insurrection, military or usurped power or confiscation, terrorist activities, nationalization, government sanction, blockage, embargo, labor dispute, strike, lockout or interruption or failure of electricity or telephone service. No party is entitled to terminate this Agreement under Section 12.5 (Termination) in such circumstances.

If a party asserts Force Majeure as an excuse for failure to perform the party's obligation, then the nonperforming party must prove that the party took reasonable steps to minimize delay or damages caused by foreseeable events, that the party substantially fulfilled all non-excused obligations, and that the other party was timely notified of the likelihood or actual occurrence of an event described in Force Majeure.

9.7 Legal Jurisdiction

Governed by the laws of Bangladesh.

10. Terms & Condition

- First of all, Sumona Hospital Ltd. & Webase Solutions. Will make an agreement as per the proposal. To make it happen, Sumona Hospital Ltd. need pay the full amount according to the Payment Schedule mentioned above at 9.2
- Webase will gradually develop the proposed modules, deploy and give user training in 'batch process mode'. So, Sumona Hospital Ltd. will ensure the payment following the schedule.
- For working in a smooth manner, Sumona Hospital Ltd. will give time schedule of the people of corresponding department, so that they can give their input properly and in timely manner (as per schedule requirement analysis duration is 1 month). In case of delay due to this issue, Webase will not be accountable for project delay.
- For Analysis, Design and Development process, Sumona Hospital Ltd. will arrange a sitting arrangement of 3 people at Sumona Hospital Ltd. premise with Internet connection.
- Proposed HMS is compatible with any kind of Database system. Webase will provide the system with open-source software (Database-Postgre, WebServer-Apache Tomcat). If Sumona Hospital Ltd. Wants to use licensed product like Weblogic server, then Sumona Hospital Ltd. Authority have to manage the corresponding licenses on their own. In this point, Webase can assist Sumona Hospital Ltd.
- Webase will not be liable for any delay caused by Civil Commotion, National Disaster or political unrest.
- It is assumed that Sumona Hospital Ltd. will arrange a House facility for the analysts, designers, and developers while they need to work and stay at the development time and Support time.
- **Taxes and duties:** The above-mentioned professional fee exclusive of all Tax, VAT & other duties.
- **Support:** An experienced and trained support team is dedicated for customer support anywhere and anytime.

    i. We will provide free of cost system update & paid maintenance service.
    ii. Webase Solutions support team will be at your service within twelve hours of your call for physical support.
    iii. We also provide online support round the clock (24/7) for our valued clients.
    iv. Three (3) working days training will be provided for total system but is changeable as per client's requirements.

10.1 Licensing Agreement

Copyright Developed System will belong to the Webase Solutions all environmental Software licenses will be procured by client where applicable.

1. Webase Solutions provides the development and implementation support part of Development and System.
2. The System will be solely used in particular server mentioned and installed by Webase Solutions, if Client required to use this application in any other server, they need to inform Webase Solutions.
3. Webase Solutions will provide **3 months** post implementation support warranty for error & bug fixing.

11 . Conclusion

Hospital management software makes all the work of a hospital paperless and integrates it into one application. It helps with decision making for hospital authorities and in developing comprehensive health care policies. With a proper system in place hospitals can improve healthcare, eliminate waste and increase efficiency.

Webase is confident that by implementing the proposed **HMS for Sumona Hospital Ltd. (SHL)** at Sumona Hospital Ltd. would be able to deliver significant improvements on their overall operational, administrative and internal management. Webase Solutions believes that successful implementations are a long-term partnership with the client and developer working together. By this work, Webase Solutions wishes to extend its relationship and share the experience in delivering professional software.