NAME: TANU GUPTA (MBA IN HOSPITAL AND HEALTH MANAGEMENT)

ROLL NO: IIHMR-U/01/2022-24/1640

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INTRODUCTION

I completed an internship at MyHealthcare Technologies Pvt Ltd, where I worked as a Product and Clinical Transformation intern. This role provided me with hands-on experience in the healthcare technology sector, focusing on Hospital Information Systems (HIS) and Electronic Medical Records (EMR). My responsibilities included user training, feedback collection, requirement gathering, and collaboration with cross-functional teams.

OBJECTIVES OF INTERNSHIP

- **Practical Experience:** To gain hands-on experience in the healthcare technology industry, understanding its operational and technological aspects.
- **System Understanding:** To develop a deep understanding of HIS and EMR systems, including their functionalities and implementation processes.
- **Skill Development:** To enhance my skills in user training, feedback collection, and requirement gathering.
- **Collaboration:** To learn how to effectively collaborate with various teams within an organization to improve healthcare technology solutions.

ORGANIZATION PROFILE

MyHealthcare Technologies is a digital health tech company that focuses on building an integrated, digital patient care ecosystem. The company collaborates with hospitals and clinics to create a comprehensive healthcare platform centered around patient-centric care delivery. The platform encompasses various aspects of healthcare, including doctor consultations (both physical and virtual), home diagnostics, pharmacy services, home healthcare, remote patient monitoring, preventive health, vaccination programs, and more.

One of the key goals of MyHealthcare is to bridge the gap in healthcare delivery using the latest advancements in digital technology. The company aims to create a data-driven care continuum

process that enhances patient engagement and empowers individuals to manage their own healthcare needs and those of their families.

The MyHealthcare ecosystem revolves around the concept of a structured repository of a patient's clinical data and longitudinal history. It integrates all interventions and services offered through the platform, providing a comprehensive overview of the patient's healthcare journey. This approach allows for better coordination and continuity of care.

Headquartered in Gurgaon (Delhi NCR), MyHealthcare has technology centres in Bangalore and Dehradun. The company also maintains sales offices across several countries, including India, Malaysia, Thailand, Singapore, Indonesia, Philippines, Vietnam, and Hong Kong.

The digital healthcare ecosystem provided by MyHealthcare includes a 360-degree clinical management system for doctors and nurses. This system encompasses various platforms such as practice management, patient management, and electronic medical records (EMRs). EMRs are available for different specialties, including General Physician/Internal Medicine, Paediatrics, Endocrinology, and Cardiology. Additional EMRs for specialties such as Obstetrics & Gynaecology, Oncology, Dentistry, Ophthalmology, and Neurology are planned to be available soon.

The cloud-based solution offered by MyHealthcare enables clinicians, doctors, and nurses to manage patient care through web and mobile platforms. It incorporates a built-in virtual consultation platform, allowing doctors to securely conduct video or audio consultations with their patients. The platform also facilitates remote prescription management and review of patient records. Augmented intelligence and 7 artificial intelligences are integrated into the EMR ecosystem to analyse a patient's clinical history, map diagnoses to global standards such as ICD-10 and SNOMED CT and enhance the efficiency of managing patient care.

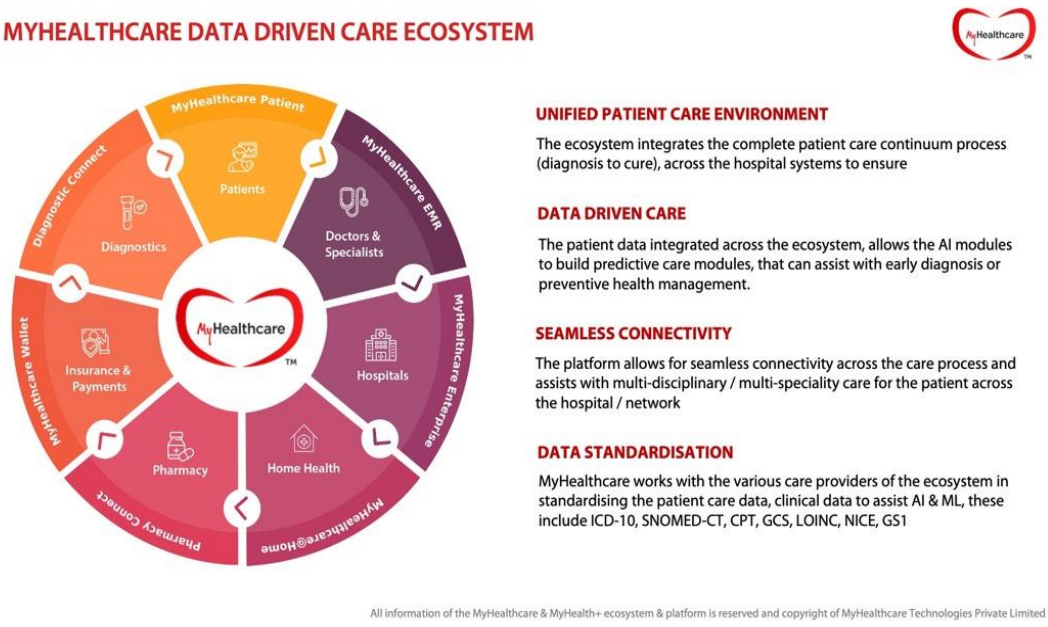
MyHealthcare ecosystem includes a comprehensive library of care protocols and encompasses attributes for over 19,000 drugs. The availability of a patient's longitudinal history helps in managing emergency care needs, while the integrated care platform aims to improve patient experience and deliver better clinical outcomes.

Furthermore, MyHealthcare offers the MyHealthcare@Home ecosystem, which provides a connected care platform for managing patients from a centralized command centre. This

scalable platform enables the monitoring of a large pool of patients from a single location, including remote patient monitoring and home isolation monitoring.

MyHealthcare AI utilizes clinical data, treatment protocols, and big data generated from partner hospitals to develop augmented intelligence modules. These modules assist in diagnosing conditions and offer complete cure process protocols, leveraging the power of artificial intelligence and data analytics.

Fig.1:



SERVICES PROVIDED BY THE ORGANISATION

The MyHealthcare platform incorporates various core platforms and features to provide a connected care ecosystem. These include:

Patient Ecosystem (Web and Mobile): Patients can connect with doctors, seek appointments for virtual or in-person consultations, upload documents and notes, and receive post-consult prescriptions.

Hospital Portal: A patient support platform for the hospital team to manage patient related activities and information.

Doctor/Nurse EMR & Practice Management: Web, mobile, and tablet platforms for doctors and nurses to manage electronic medical records (EMRs), practice management, and patient care.

MyHealthcare@Home Command Centre: A web-based platform that enables centralized monitoring and management of patients, including remote patient monitoring and home isolation monitoring.

Homecare nursing platform: Web and mobile platforms for managing homecare nursing services. Remote patient monitoring: Web and mobile platforms for monitoring patients remotely, including vital signs and health data.

Queue Management System (mobile): A mobile application to manage patient queues and appointments efficiently.

Experience Feedback System: A system to collect and analyse patient feedback to improve the healthcare experience.

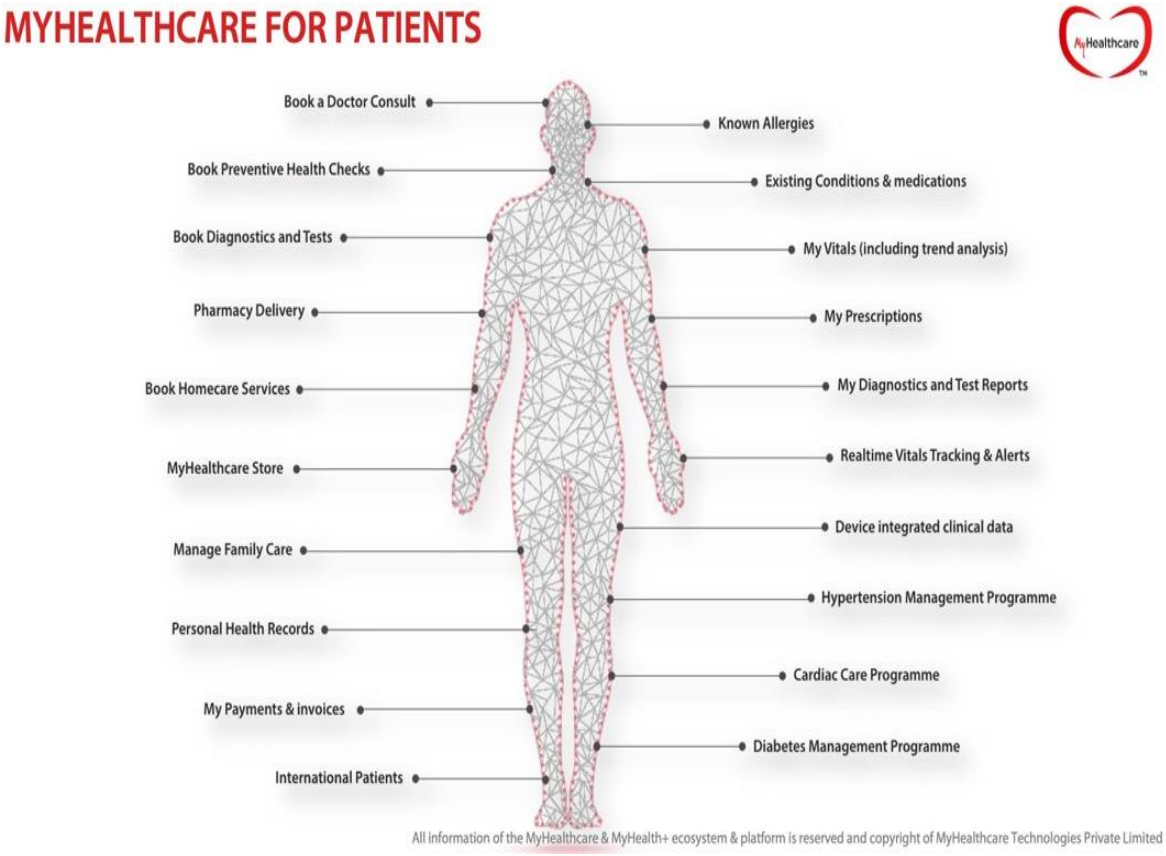
Lead Management System (CRM) - web: A web-based system to manage leads and customer relationship management for healthcare providers.

Fig.2:

The MyHealthcare Patient Platform allows patients from various regions to connect with doctors, seek appointments for virtual consultations or in-person visits, upload documents and notes, receive prescriptions, and manage their healthcare needs. The platform supports services such as diagnostics at home, pharmacy services at home, home care, remote patient monitoring, and home isolation monitoring.

The virtual consultation platform provided by MyHealthcare ensures high levels of security and encryption. Patients access video consultations through the MyHealthcare patient mobile apps. During virtual consultations, doctors have access to the patient's complete medical records, relevant test reports, past clinical history, and real-time documents uploaded by the patient.

Fig.3:



MYHEALTHCARE PATIENT APPLICATION

The MyHealthcare Patient Application is an integrated ecosystem that allows patients and their families to manage their healthcare needs. It provides features such as patient registration, appointment booking for consultations, secure video consultations, centralized storage of prescriptions and reports, booking diagnostic tests and health check-up packages, homecare service booking, e-pharmacy orders, profile management, family member registration, online payment options, coupon codes for promotions, tracking of bookings, document uploads, management of allergies and existing conditions, patient history management, personal health

records (PHR), vitals tracking, device integrations for monitoring, viewing family prescriptions, invoice delivery, and a loyalty and rewards program.

Overall, the MyHealthcare platform offers a comprehensive and user-friendly experience for patients to access healthcare services, manage their health records, and engage in virtual consultations and remote monitoring, among other features.

MYHEALTHCARE DOCTOR OPD EMR

The MyHealthcare Doctor Platform helps doctors manage their virtual consultation and OPD consultations seamlessly, from a user-friendly web or mobile platform. The MyHealthcare Doctor Platform is integrated with all clinical platforms of a hospital such as the Hospital Information System (HIS), Laboratory Information System (LIS), Radiology Information System (RIS) and Picture Archiving and Communication System (PACS). The MyHealthcare Doctor ecosystem is integrated with the MyHealthcare patient platform, MyHealthcare@Home platform, the Queue Management System and Doctor Referral platform.

The MyHealthcare Doctor EMR allows the doctor to view all patient demography details, test reports, clinical documents, patient uploaded documents, and patient notes uploaded prior to the consult. The doctor can use the platform to view the patient journey from the time they book an appointment, arrival at the hospital, their clinical assessment and delivery of an e-prescription. The MyHealthcare Doctor EMR is a cloud-based solution, using the best-in-class data security protocols, ready masters for drugs, tests, templates, copy from previous prescription and voice enabled. The MyHealthcare Doctor Platform comes with Speech to Text EMR. This allows the doctors to dictate the prescription notes, medicines, and tests. The platform has been launched for the first time in India and is able to decipher clinical terms, medicine names, diagnostics tests, etc. By implementing EMR, patient data can be tracked and analysed over an extended period by associated healthcare providers. It also helps them to boost the quality and safety of patient care by 11 implementing best practices such as care protocol and real-time clinical decision support system.

The MyHealthcare Doctor Platform helps providers better manage care for patients and provide better health care by:

• Providing accurate, up-to-date, and complete information about patients at the point of care

• Enabling quick access to patient records for more coordinated, efficient care

• Securely sharing electronic information with patients and other clinicians

• Helping providers more effectively diagnose patients, reduce medical errors, and provide safer care

• Improving patient and provider interaction and communication, as well as health care convenience

• Enabling safer, more reliable prescribing

• Helping promotes legible, complete documentation and accurate, streamlined coding and billing

• Enhancing privacy and security of patient data

• Reducing costs through decreased paperwork, improved safety, reduced duplication of testing, and improved health.

A. Functional Features MyHealthcare EMR Doctor Platform includes:

1. My Doctor Profile (view and edit details except Doctor Registration Number, Speciality, Mobile Number and Designation)

2. Calendar view of all appointments (virtual and OPD)

3. Create new appointment for registered patients (SMS will go with payment link; appointment will be held for 30 mins and get confirmed only upon successful payment)

4. Cancel appointments (as per configurable business logic)

5. Task based user journey for patient management

6. Status view – Upcoming Appointments; Missed Appointments; Cancelled and Completed Appointments

7. Ability to connect with Patients from Missed Appointments

8. View patient notes and uploaded images, documents

9. View patient section on Known Allergies

10. View Existing Conditions, as provided by patient

11. View / Edit / Update Patient's Family History and Social History

12. View patient's diagnostics reports (pathology available with trends analysis). This is subject to LIS / LIMS integration.

13. View patient's radiology reports from RIS, with sorting as per patient history. This is subject to RIS integration.

14. View of patient's history through all past prescriptions (for appointments done via the MyHealthcare Platform)

15. Consult options: video consultation, audio consultation using dialler feature of the phone and physical OPD consultation.

16. Ability to upload up to 4 pages of prescriptions via images, camera capture, or one pdf file

17. MyHealthcare Voice.ai: Speech to Text EMR (available on MyHealthcare Doctor Web, iOS, and Android platforms)

18. Copy from the previous prescription – allows the doctors to copy previous prescription of the same patient to complete a follow-up consult in no time

19. Doctor in-app notification 15 minutes prior to a consult

20. Late Alert: Doctors can send alerts to their patients if they are running late (15, 30, 45, 60 mins) – to all or selected patients only

21. Failover option of doctor being able to use dialler to call patient.

B. Core Features of the MyHealthcare SOAP EMR Doctor Platform includes:

1. SOAP based – allows doctors and nurses to navigate screens and create orders based on their role and requirements. The benefits of the task based EMR – allows for higher configurations, mapping it closer to the workflows required for each practice.

2. Voice.ai – MyHealthcare offers a voice based EMR flow, where clinical notes, clinical orders, etc can be dictated instead of typing. The Voice.ai EMR is trained to understand clinical terminologies, medicine names, test names, etc.

3. Dashboard – The Dashboard screen allows the doctors to navigate between multiple facilities, if applicable. Each facility is shown in a card with - Name of the facility, Doctor OPD timings, Total number of appointments booked for the day, Total number of patients arrived in OPD (including walk-in) as of now.

4. Search Patient - allows the doctor to search a registered patient using either their Name, Mobile number or UHID

5. Late Alert - allows the doctor to announce any delay in starting the OPD to his team and/or impacted patients with configurable auto rescheduling of appointments and relevant communication to patients

6. Care Protocols– reducing the number of clicks, the EMR allows the doctors to create/edit disease wise clinical templates (care protocols), which includes disease details (mapped automatically to ICD10 codes), medicine list with dosage details, tests advised, patient advisory notes, etc. In a SINGLE CLICK, the entire template can be processed.

7. Order Sets – allows the doctor to create/edit Order Sets of medicines and tests – a group of orders than can be placed on a SINGLE CLICK. This saves time and clicks for doctors to be able to place a set of order quickly.

8. Patient Queue – allows the doctor to manage his/her queue in auto or manual mode (based on configuration) tightly integrated with OPD workflow. Timeline view helps the doctors in understanding the waiting time for the patients and manage them accordingly.

9. Start/stop practice – allows the doctors to manage their time in case they need to step out of the OPD for any emergency or otherwise SOAP Configurator – allows the doctor to self-configure the SOAP sections, based on their requirement and care protocol management. The SOAP configurator allows for auto setup of SOAP processes applicable for his/her patients and enable/disable the content for printing in prescription. SOAP configurator also helps the management to define minimum data set requirement for each consult to standardise the EMR data capturing across the organization.

10. SOAP based record entry – allows doctors to adopt best practices of using configurable Subjective, Objective, Assessment and Plan based record entry for his/her patients.

- Subjective (Chief complaint of the patient, History of present illness and Review of systems (voice enabled)
- Objective (Vitals, Allergies, Existing Conditions, Patient History,
- Assessment (Diagnosis – auto mapped to ICD10, image attachment with annotation)
- Plan (Order medicine with augmented intelligence for dosage calculations, route, frequency, option for dosage tapering, ordering tests, usage of templates and order sets (which may be linked to diagnosis), instructions for patient, doctor referrals and follow up)

11. Copy from previous prescription – allows the doctors to copy previous prescription of the same patient to complete a follow-up consult in no time

12. Continue Treatment – allows the doctors to continue treatment protocol for long terms care patients with a SINGLE CLICK.

13. Drug allergy alert – if the doctor prescribes a drug patient is allergic to. The alert works for all the brands for a given generic (integration with CIMS available)

14. Past Visits – allows a doctor to review longitudinal patient records in a timeline view.

15. PHR – allows the doctors to review various clinical documents uploaded by the patients using the integrated patient app and patient portal

16. Poly pharmacy alert - when more than 8 active medication is prescribed

17. Duplicate drug order prevention – by stopping the doctor from selecting same drug for ordering again.

18. Device data integration – the MyHealthcare EMR allows the doctor to view all patient data from device integrations for ECG, Heart Rate, Blood Pressure, Pulse Rate and Blood Sugar.

C. MyHealthcare Doctor Practice Management Platform includes:

A. Calendar – allows doctors to view their complete calendar for the day (OPD, Virtual consults and patient list for the day)

B. Book appointments – the doctor can give out consult appointments from his own calendar in 3 clicks.

C. Block / Unblock slots – doctor can block or unblock his schedule in the event of emergencies, surgeries, other such engagements. Any appointments will be alerted to the hospital team for rescheduling.

D. Mark leave – doctors can mark leave on the system, which automatically blocks their appointment / OPD schedule.

E. New Patients – register and book new patients with simple registration process.

MYHEALTHCARE IPD EMR

EMR for In-Patient Department (IPD) manages hospital functions for admitted patients. Integrated firmly with the hospital HIS, LIS, PACS and other integral systems of the hospital. EMR IPD systematises processes related to the treatment.

Key components of IPD- EMR are mentioned below:

1. IPD- EMR for Doctors:

a) Order Management (CPOE): Doctor can order, acknowledge result, and edit or cancel any order e.g., Lab test.

b) Order sets for easy selection & placement of clinical orders

c) Medication review – hold/ resume, stop or renew medication order

d) Core attributes mapped for over 19,000 drugs (with salt, strength, route, frequency, schedule, dose, and form)

e) Allergy alerts: for any patient medication where there is an allergy to the salt is highlighted to clinicians

f) Placement of diagnostics, radiology & procedure orders from masters

g) Duplicate order alerts 15

h) LASA alerts for all medications

i) Substitute recommendation based on item nature and payor configuration

j) View events of the past 24 hours

k) View laboratory and radiology report status. Radiology PACS images also on view as image

l) Patient longitudinal history view across all encounters (OPD, IPD, ER, Homecare)

m) Critical result / alert notification

n) Forms Builder (including progress notes), for creating customised forms

o) Medication Management: Manages medication reconciliation and provides doctors with patient's drug history.

p) Operation Theatre: Schedule, reschedule or cancel patients' surgical processes.

q) Clinical Notes: Doctor can create, edit, and delete clinical notes for patient. additionally, he/she can view old notes details and form builders.

r) Configuration to auto post Admitting practitioner visits, Referral visits based on note recorded

s) Referral workflow: Initiate, accept, forward and complete referral

t) Patient Discharge: Doctor can initiate or cancel patient's discharge using this tool. It also highlights patient discharge timeline.

u) SMART discharge summary which is configurable: Doctor can define summary formats as they like. This allows summary to automatically populate as configured and eliminates need to type it from scratch.

v) Patient History: Provides doctor with patient's history and allows him to view trend graphs of his ongoing or past treatments

w) ICD 10 Diagnosis – full text search enabled ICD Codes based diagnosis recording

x) Alerts & Notifications – Provides timely alert based on highly configurable notification engine.

2. IPD- EMR for Nurses:

a) Order Management: Nurse can view, track, amend and even cancel the orders. Access control based.

b) Supplies: Acknowledge, ward supplies, return or approve return of drugs

c) Medication Administration Record: EMR IPD allows nurse to administer medication records and perform below mentioned activities:

- Administer Now
- Delay the task
- Unable to Administer
- Administer Missed Dose
- Start Infusion
- Complete Infusion
- Change Infusion Rate
- Administer from ward stock.

d) Patient Discharge: Give nursing clearance, view pending orders, view patient's discharge timeline, and send discharge cancellation intimations.

e) Patient Transfer flow: Transfer request, approval, transfer out and transfer in

f) Operation Theatre:

- Prepare transfer for the procedure
- Prepare transfer checklist.
- Surgery Request
- Schedule or reschedule surgery.
- Check-in to OR
- Surgery Timeout
- Operative Notes, Anaesthetist's Notes, Nursing Notes
- Surgical Safety Checklist
- Checkout from OR
- Ward transfer port surgery

g) Charting: Vital, I/O charting and ICU charting.

h) Notes: Can create, edit, and delete clinical notes for patient. Additionally, he/she can view old notes details and form builders.

i) Blood Transfusion: Complete transfusion and activities related to blood transfusion such as:

- Barcoded Initiation of Blood Transfusion
- Complete or Stop Transfusion
- Adverse Events
- Return Blood Bag
- View Order Detail

MYHEALTHCARE EMERGENCY EMR

i) Complete management of Ambulance starting from call receiving to dispatch, real-time tracking, and in-transit management of patients from command centre.

ii) Remote patient monitoring through device integrations, including on-demand virtual consultation.

iii) Single click Registration for Emergency and bulk patient registration.

iv) Triage and Vitals tracking with clinical markers, clinical alerts.

v) Single screen ER workbench to order and monitor service status, report tracker, capture clinical notes, medicine administration, referral tracking and length of stay.

vi) Template and protocol-based order execution enabling faster and intime delivery of services for critical cases.

vii) Admission request tracker starting from the point of admission advice from the practitioner till the arrival in ward, which also helps track conversion.

viii) Discharge Initiation, ER Visit Summary with configurable templates which can be automated, Nursing clearance and discharge.

KEY ACTIVITIES/PROJECTS UNDERTAKEN OTHER THAN DISSERTATION

1. **Hospital Information Systems (HIS):**
    - **Implementation and Optimization:** Assisted in the deployment and enhancement of HIS solutions across various departments within the healthcare facility.
    - **Data Integration:** Worked on integrating patient data into the HIS, ensuring seamless access to information for healthcare providers.
    - **System Updates:** Participated in regular system updates and maintenance to improve functionality and user experience.
2. **Clinical - EMR:**
    - **Development and Customization:** Engaged in the development of EMR systems, tailoring them to meet the specific needs of healthcare providers and patients.
    - **Compliance:** Ensured that the EMR systems complied with clinical standards and healthcare regulations, maintaining data accuracy and security.
    - **User Support:** Provided technical support to users, helping them navigate the EMR system and troubleshoot any issues that arose.
3. **User Training:**
    - **Training Sessions:** Conducted comprehensive training sessions for healthcare professionals, educating them on the functionalities and best practices of HIS and EMR systems.
    - **Training Materials:** Developed user manuals, guides, and other training materials to support the learning process.
    - **Follow-Up Support:** Offered follow-up support to users to ensure they were comfortable and proficient in using the systems.
4. **User Feedback:**

- **Feedback Collection:** Designed and conducted surveys, interviews, and focus groups to collect feedback from end-users regarding their experience with HIS and EMR systems.
- **Analysis:** Analysed the collected feedback to identify common issues, areas for improvement, and user satisfaction levels.
- **Recommendations:** Prepared reports with recommendations for system enhancements based on user feedback.

5. **Requirement Gathering:**
    - **Stakeholder Engagement:** Met with various stakeholders, including doctors, nurses, and administrative staff, to understand their needs and requirements for the HIS and EMR systems.
    - **Workshops:** Organized and facilitated workshops to gather detailed requirements and ensure a comprehensive understanding of stakeholder needs.
    - **Documentation:** Documented the gathered requirements and worked with the development team to translate them into technical specifications.
6. **Cross-Functional Team Collaboration:**
    - **Inter-Departmental Coordination:** Worked closely with IT, clinical, and administrative teams to ensure smooth implementation and operation of HIS and EMR systems.
    - **Project Meetings:** Participated in regular project meetings to discuss progress, address challenges, and align on project goals.
    - **Problem Solving:** Collaborated with team members to resolve any issues that arose during the project, leveraging diverse perspectives and expertise.

KEY LEARNINGS FROM INTERNSHIP

- **Industry Insights:**
    - Acquired a comprehensive understanding of the healthcare technology industry, including current trends, challenges, and opportunities.
    - Learned about the critical role of HIS and EMR systems in improving healthcare delivery and patient outcomes.
- **Technical Skills:**
    - Developed proficiency in the implementation, customization, and optimization of HIS and EMR systems.

    - Gained hands-on experience with system integration, data management, and compliance with healthcare regulations.
- **Communication Skills:**
    - Enhanced my ability to conduct effective user training sessions, ensuring clear communication and understanding.
    - Improved my skills in gathering and analysing user feedback, translating it into actionable insights.
- **Collaboration:**
    - Learned the importance of cross-functional collaboration in achieving project goals and enhancing healthcare solutions.
    - Developed the ability to work effectively with diverse teams, leveraging different perspectives and expertise.
- **Problem-Solving:**
    - Improved my analytical and problem-solving skills by identifying and addressing user issues and system improvements.
    - Gained experience in developing and implementing solutions to enhance system functionality and user satisfaction.

This internship has been an invaluable learning experience, equipping me with practical skills and knowledge that will be instrumental in my future career in the healthcare technology field.