HILABS APM DECK

PROBLEM STATEMENTS

The field of pharmaceuticals faces a critical challenge in leveraging real-world evidence for data-driven decision making. With vast and diverse sources of data, ranging from clinical records to genomic information, ensuring data quality, conversion, and curation has become a daunting task. Errors and inconsistencies in these datasets hinder the timely and accurate analysis of patient outcomes, treatment effectiveness, and disease progression. We need to design an AI solution that will help solve this problem. This case study consist of the following slides:

- Assumptions
- Target Users & the Stakeholders involved.
- Solution outline (outlining the use of technology and the key value offering)
- Wireframes/Mockups of important screens
- Pitfalls & Future Enhancements

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ASSUMPTIONS

Users Journey

Patient books an appointment

Reached Hospital,receptionist manually verify his insurance information

Have a 10 min meeting with doctor. Suggests some diagnostic tests

Doctor prescribes a treatment plan

Undergoes diagnostic tests, which generate data that needs to be added to his EHR

Follow-up appointments with specialists

Once the treatment is complete, receives the medical bills

Pain Points

Limited slots, longer wait time

Manual verification of insurance data lead to inaccuracies and delays

Inaccurate, incomplete EHR data hinder the doctor's ability to make an accurate diagnosis

Issues with insurance data accuracy can result in difficulties in obtaining prescribed medications

Digital Record generated outside provider network, Delayed data entry into EHR

A similar test was already done in past.Incurred unnecessary cost

Billing inaccuracy lead to confusion, disputes between patient, healthcare provider, insurance company

Key Problems

EHR Management and Incomplete Patient Picture:

1. EHR generation and storage in different systems.
2. Lack of a complete patient profile leads to gaps in care.

Insurance Claim Processing:

1. Insurance provider seeks faster, accurate claim analysis.
2. Claim requests monitoring and member updates.
3. Patient's desire for quicker access to remaining payment details.

Solutions

1. EHR Fusion: Consolidating EHRs from multiple stakeholders into a central data storage system

2. MediSys Manager: Simplify Hospital Workflow and Improve Diagnoses with AnalyticS

3. ClaimHub Pro: Provide a unified, platform that empowers insurance providers, hospitals, service providers to efficiently process claims, ensuring authenticity.

STAKEHOLDERS

Patient

Insurance Company

Healthcare Provider

Pharma Stores

Clinical Labs

TARGET USERS

Healthcare Provider	• Access to a centralized system for comprehensive patient information. • User-friendly interface for reviewing and updating patient records. • Streamline document preparation, accelerate claim processing, and automate billing
Patient	• Access to portal for contributing and accessing health information • Control over data consent and privacy settings for their own health records • Seek in-network providers, real-time claim updates, remaining payment info, easy grievance resolution
Insurance Company	• Integration with healthcare systems & access to accurate and complete patient profiles for claim analysis • Managing claim requests and generating report to send to the hospital with minimal human interfere • Monitoring different claims processed and sending members the updates on their claims

BUILDING PRODUCT(1/3): EHR FUSION

Patient EHR from different stakeholders

Central data storage system

Product & Services

Insurance Company

Healthcare Provider

Pharma Stores

Clinical Labs

Auth server verifies access rights, grants entry with matching usernames and passwords, otherwise denies it

Authentication Server

Middleware Network Interface

Central Database

Common interface for diverse hospital EHR systems, enabling seamless communication with the central database

Analytical Insights:
Suggesting medical procedure, right insurance plan for patient, patients health trends, early detection of disease

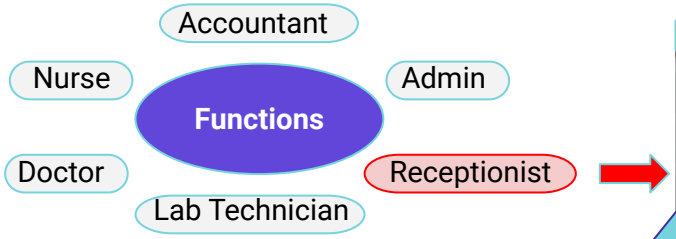
Process Optimization:
Improved Doctor-Patient Communication, Secure storage of patient data, Improving operational efficiency between cross functional departments within provider network

System Design

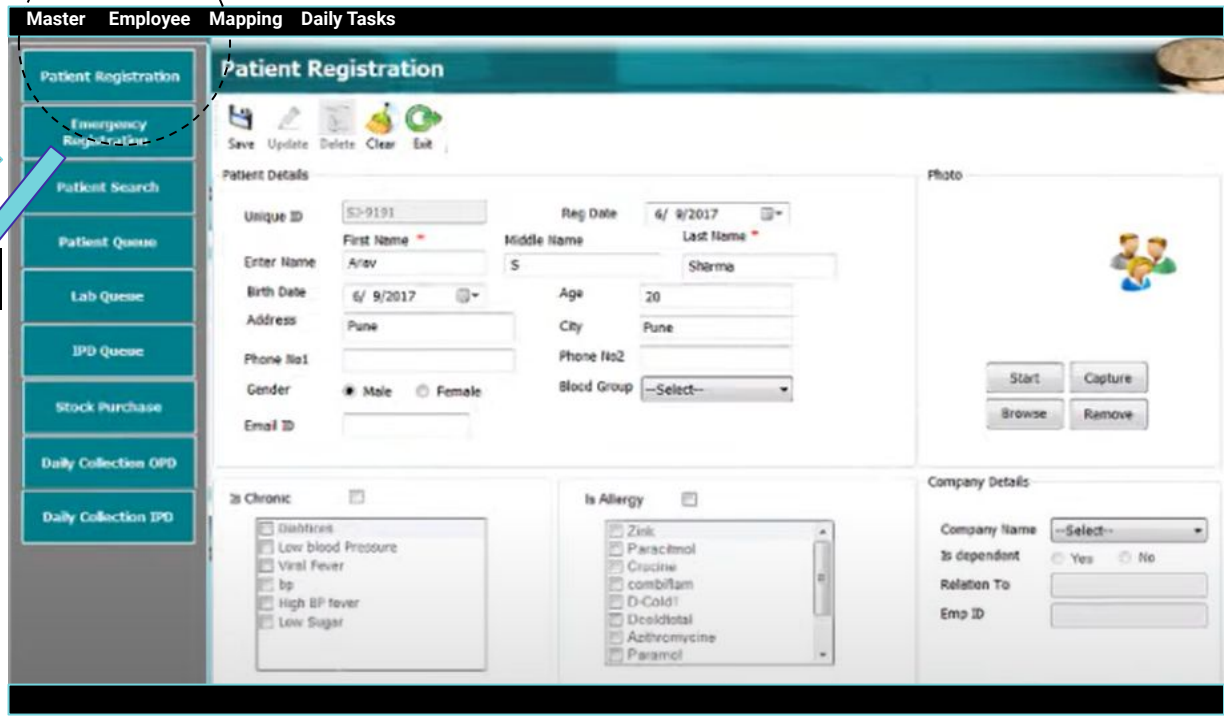
EHR	**Unstructured data:** Images & Graphics Radiology Reports Visit Documentation Discharge Summary Chief Complaint	**S3 bucket:** Patient data including unstructured data stored	**EMR Engine:** Data preprocessing Data cleaning Data massaging	**Natural Language Processing:** Organize data with ICD-9/ICD-10 and HCC codes, Extract and code medical details from clinical notes, Transcribe reports with speech recognition, Convert unstructured radiology reports into EHR data	**Central Database**

BUILDING PRODUCT(2/3): MEDISYS MANAGER

A single platform for entire healthcare provider to improve workflow management and doctor-patient communication.



Receptionist's Tab



Master
Doctor Master
Medicine Master
Diagnosis
Hospital Information

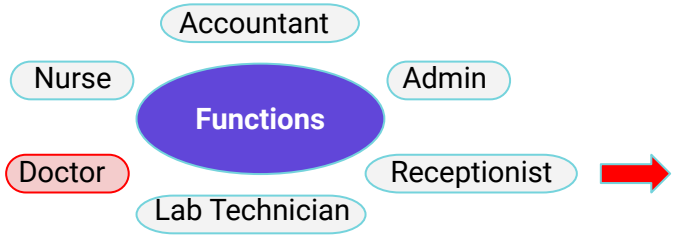
Employee
Employee Registration
Employee Salary
Employee Shift

Mapping
Symptom Diagnosis Specialisation to Patient Questionnaire
Role to Employee
Employee to Job Profile

Daily Tasks
Daily Attendance
View Daily Attendance
Add Daily Work Done
View Work Done

When a new patient arrives at the hospital, they are required to be registered in the system initially. This involves recording and saving essential information like the patient's name, age, city, blood group, address, and details of their medical conditions.

BUILDING PRODUCT(2/3): MEDISYS MANAGER

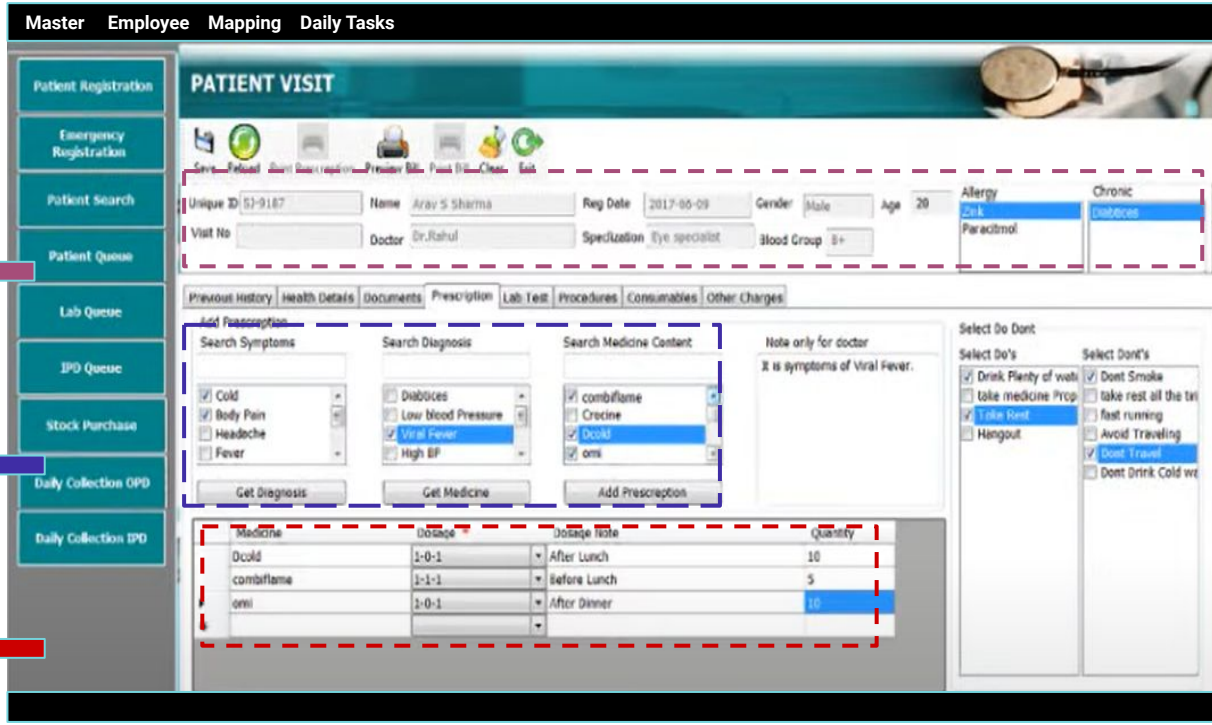


Patient's essential details along with their medical history, including any known allergies to specific medications.

After knowing patient's history, doctor select the symptoms and irrespective diagnosis and then suggest medicines accordingly.

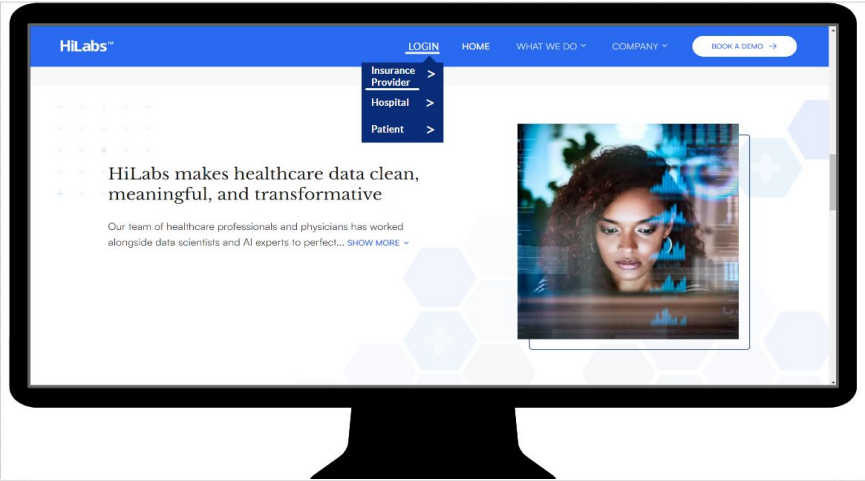
Doctor can add dosage & dosage notes.

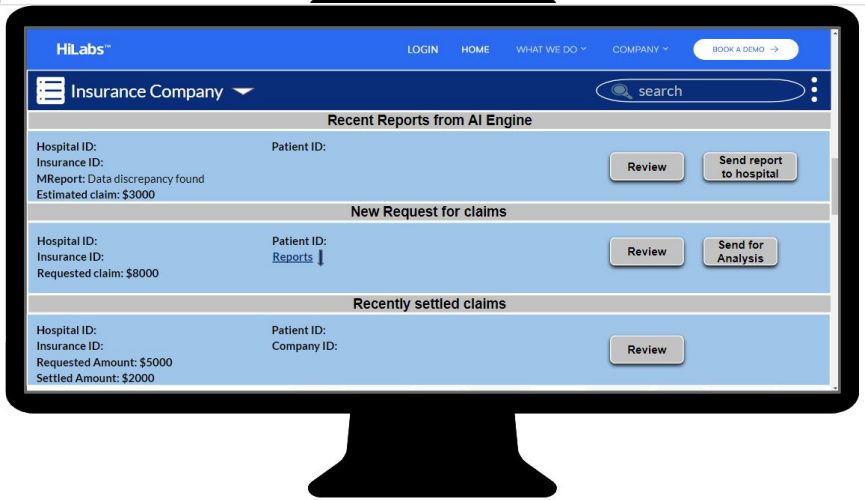
Doctor's Tab



Receptionist sends the patient to doctor. This tab is the patient-visiting form which has to be filled by doctor. It includes basic information and use past records of Patients & Predictive Modelling, to suggest Diagnosis Techniques & assist the Doctor.

BUILDING PRODUCT(3/3): CLAIMHUB PRO





Objectives

1. Adding new Insurance plan by the company
2. Adding new customer under an insurance plan
3. Adding new service providers to the provider directory
4. Settings of different Hilabs products
5. Assigning employees different roles and granting access accordingly

User Journey

1. Insurance Provider login through HiLabs Portal
2. Dashboard showing aggregated values related to different parameters like Requested Claim amount, Settled claim amount, No. of Applications with respect to the stakeholders (insurance providers) using the app.
3. Insurance Provider team may receive & manage all the requested claims the home tab
4. Each report can be reviewed in detail and sent for automated analysis using the Hilabs Product for checking the authenticity & completeness.

PITFALLS

Data Security

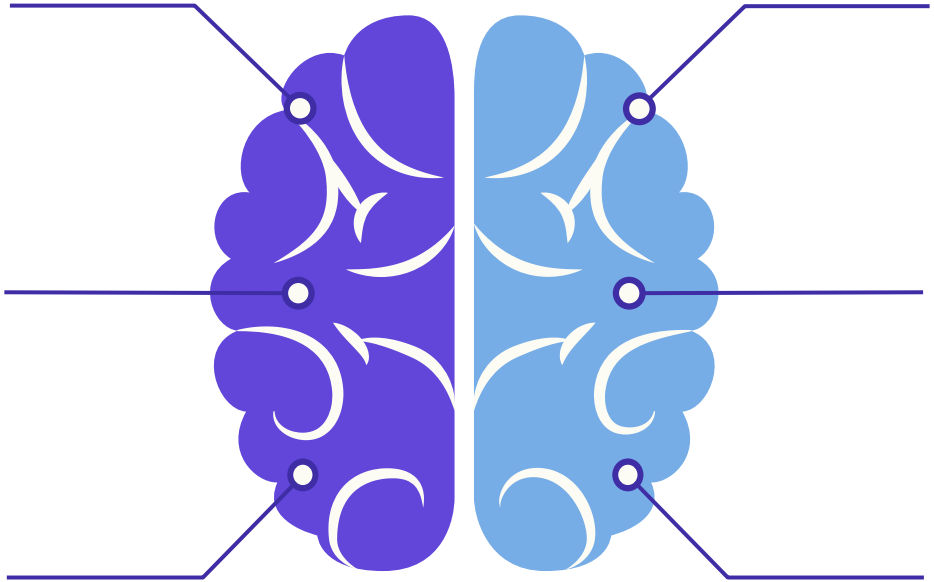
Ensuring the protection of sensitive patient data from breaches and unauthorized access

User Adoption

Encouraging healthcare providers to adapt to the new system may face resistance

Integration Challenge

Overcoming issues related to integrating various stakeholders' systems



FUTURE ENHANCEMENTS

Blockchain Integration

Implement blockchain technology for enhanced data security and transparency

Telehealth Integration

Include telehealth capabilities for remote patient monitoring and consultations.

AI Powered Data Quality Assurance

Develop AI algorithms for real-time data quality checks and corrections.