CIIT College of Arts and Technology

Hospital Management System

Metabase Integration

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Introduction

This Hospital Dashboard System (MediCare) provides a seamless analytics solution which enables healthcare managerial staff to track essential metrics in hospitals. Through its web-based system the application functions with Metabase to show patients-related data visualizations and appointment levels alongside financial summaries and inventory details.

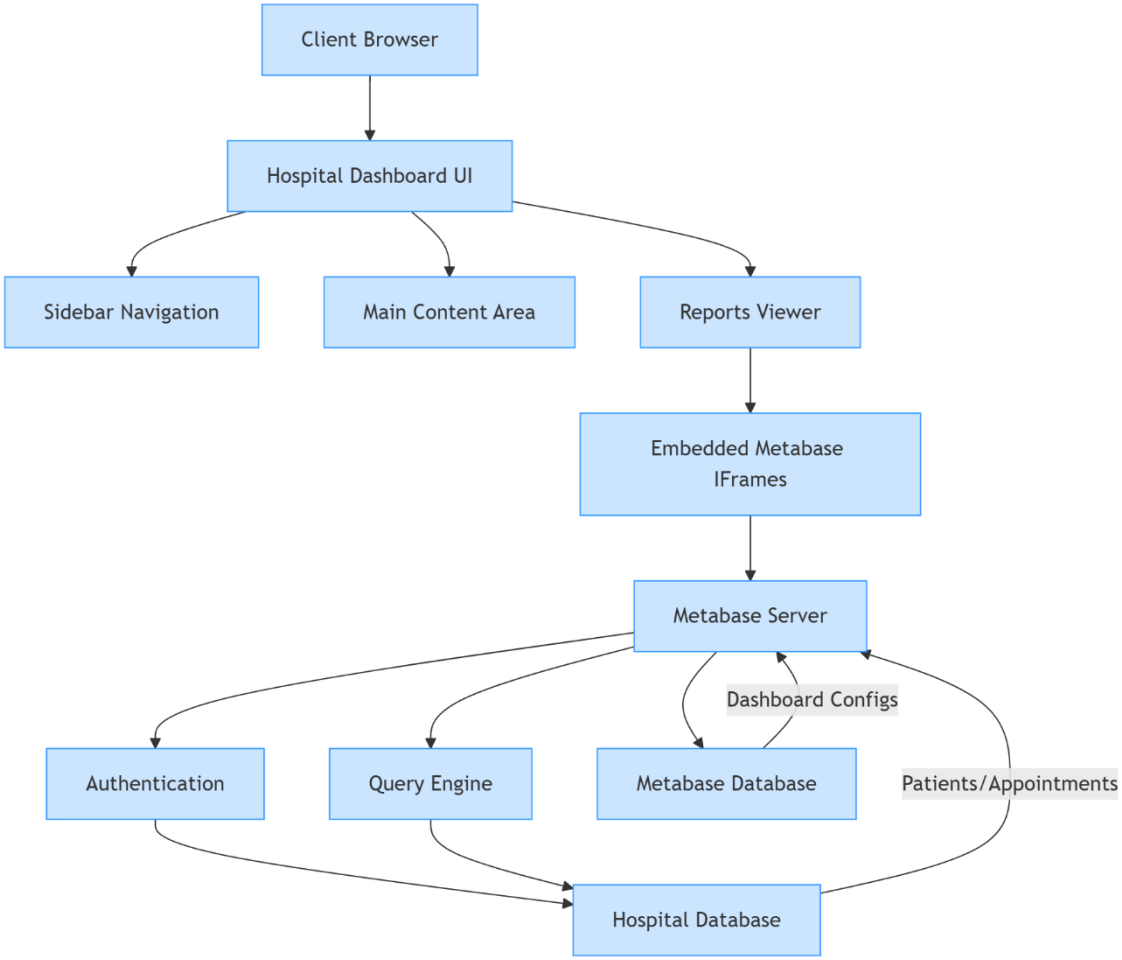
Key Features

- Interactive sidebar navigation with collapsible menus
- Embedded Metabase dashboards and reports
- Responsive design for desktop use
- User-friendly interface with clear visual hierarchy

Normalization Structure

The system is currently using the Third Normal Form (3NF). Ensuring that there were no duplicate columns (1NF) and assigning unique identifiers (primary key). We also made sure there were no partial dependencies (2NF). To achieve (3NF), we remove transitive dependencies and make sure non-key attributes only depend on the primary key. This improves the system's stability by eliminating redundancy, increasing data integrity by showing consistency across different tables, easy retrieval of data, and having a better scalability for future upgrade to the system

System Architecture



Components

- Frontend: HTML, CSS, & JavaScript
- Visualization: Metabase via embedded IFrame
- Backend: MySQL

Table includes

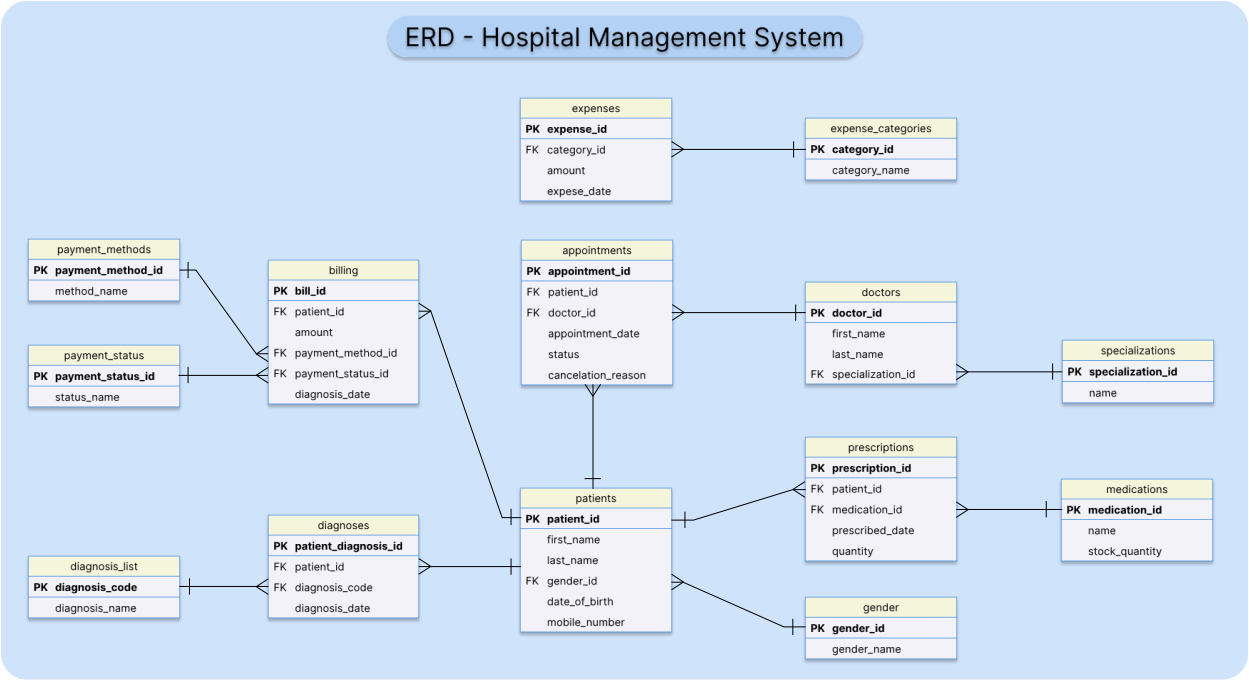
- patients: This table keeps the information of the patient.
- genders: Stores gender options for patients
- specializations: Stores doctors' medical specialization.
- doctors: Stores information regarding the doctors and their areas of specialty.

- appointments: Monitors the patient and doctor interactions with time indicators.
- diagnoses: Contains details of the patient's diagnosis and treatment.
- diagnosis_list: Contains list of all diagnose name.
- medication: List of all available medications and stocks.
- prescription: This records all prescription issue to patients
- payment_methods & status: Stores accepted payment options and tracks payment status.

Each attribute is designed with primary keys and foreign keys to ensure that relational integrity is preserved amongst them.

Database Schema

Entity Relation Diagram

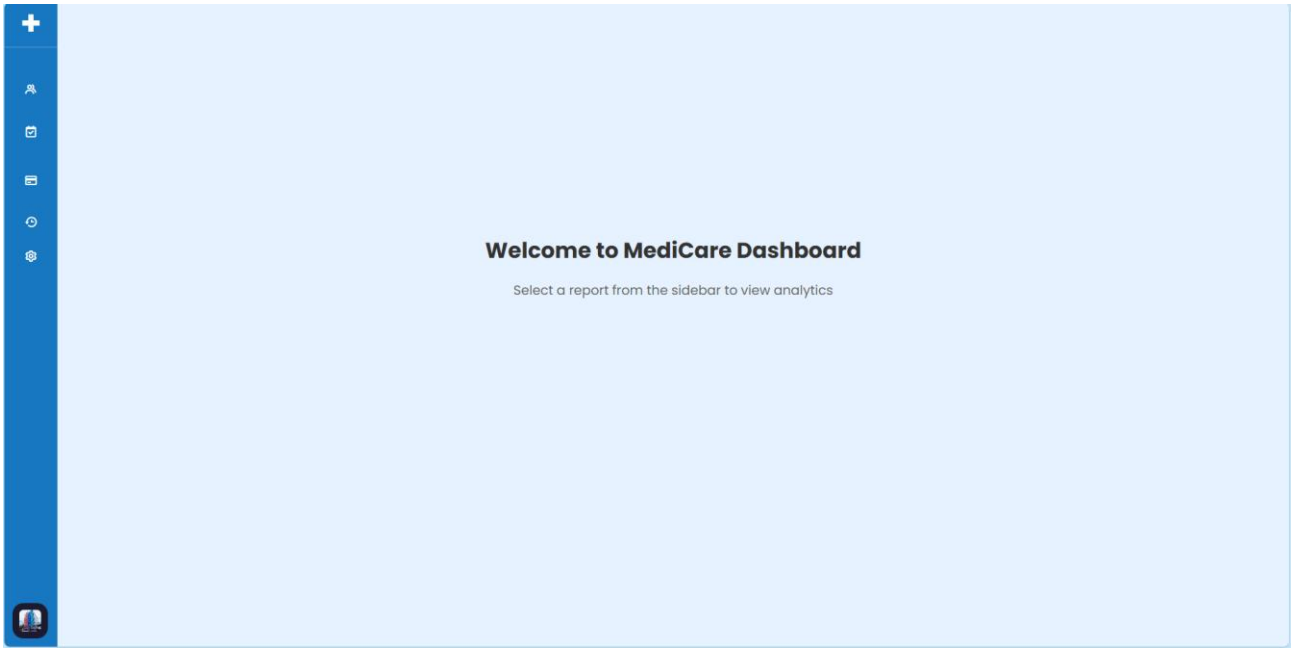


Relationship Table

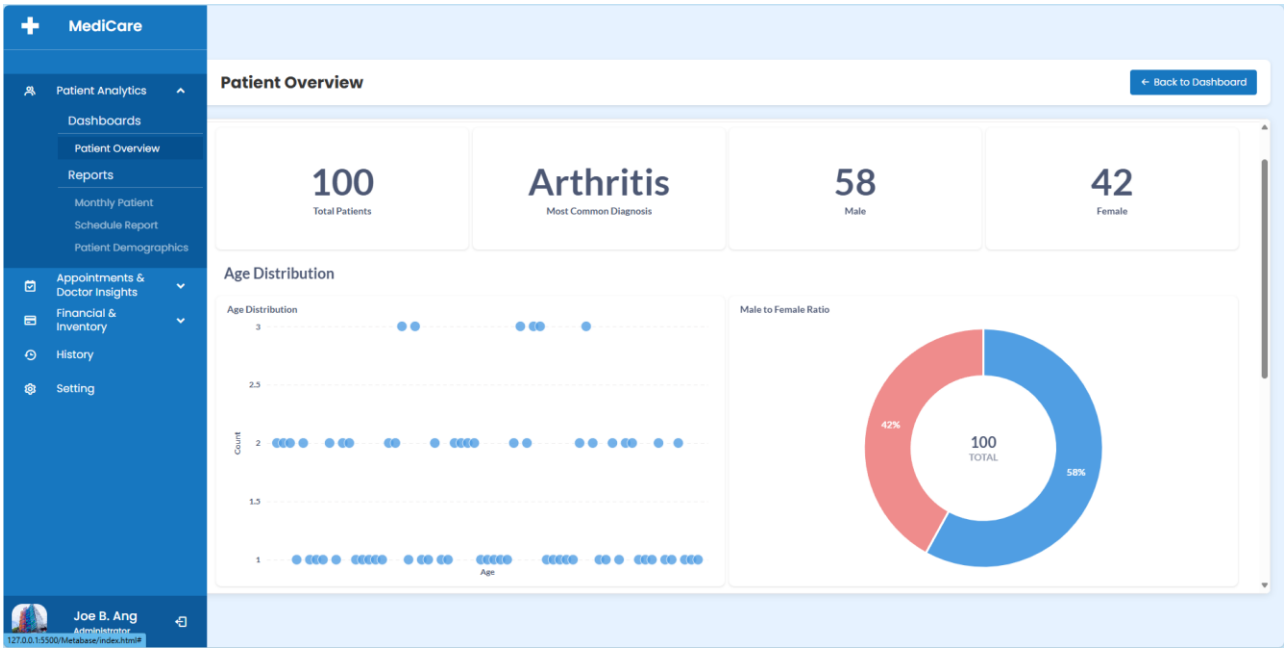
Parent Table	Child Table	Relationship
genders	patients	one is to many
patients	appointments	one is to many
patients	diagnoses	one is to many
patients	prescriptions	one is to many
patients	billing	one is to many
doctors	appointments	one is to many
specializations	doctors	one is to many
diagnosis_list	diagnoses	one is to many
medications	prescriptions	one is to many
payment_methods	billing	one is to many
payment_status	billing	one is to many
expense_categories	expenses	one is to many

Preview of Dashboards and Reports

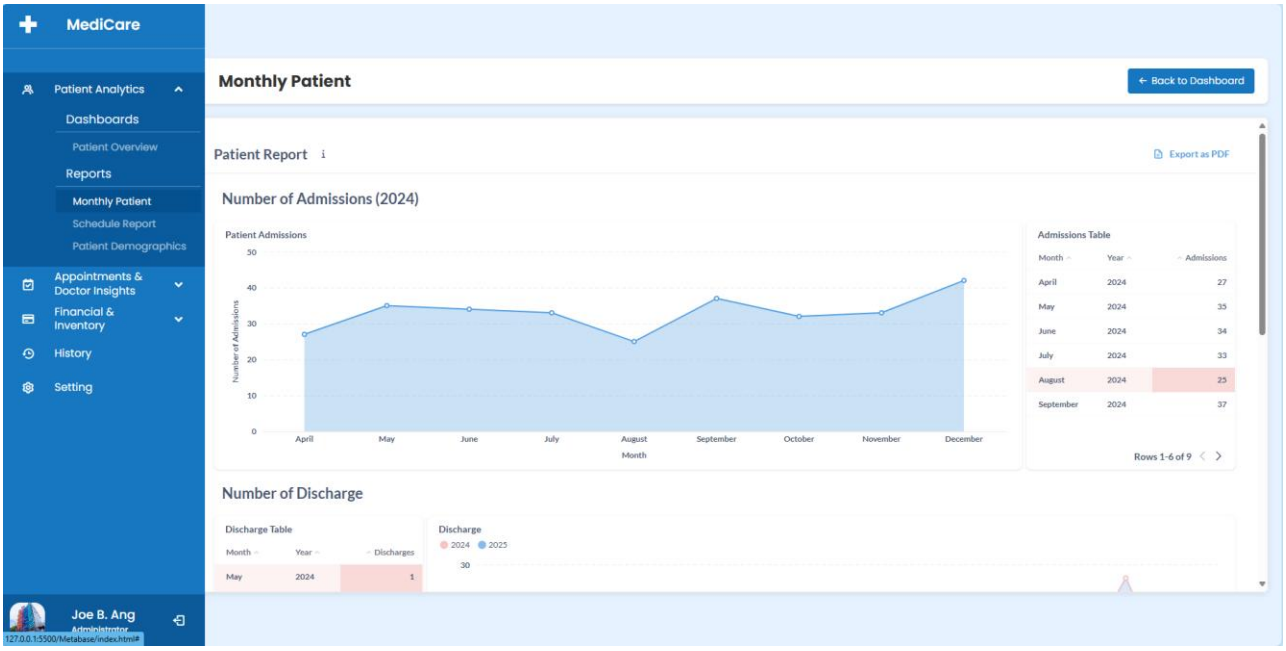
MediCare Landing Page



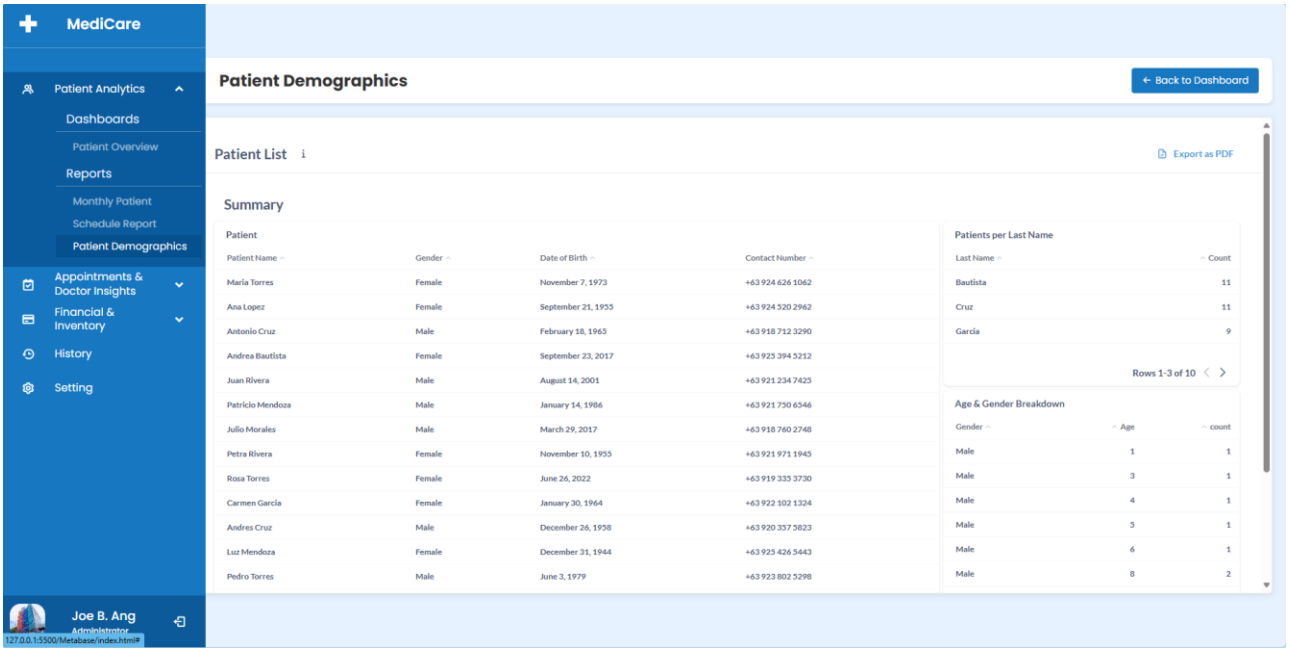
Patient Overview



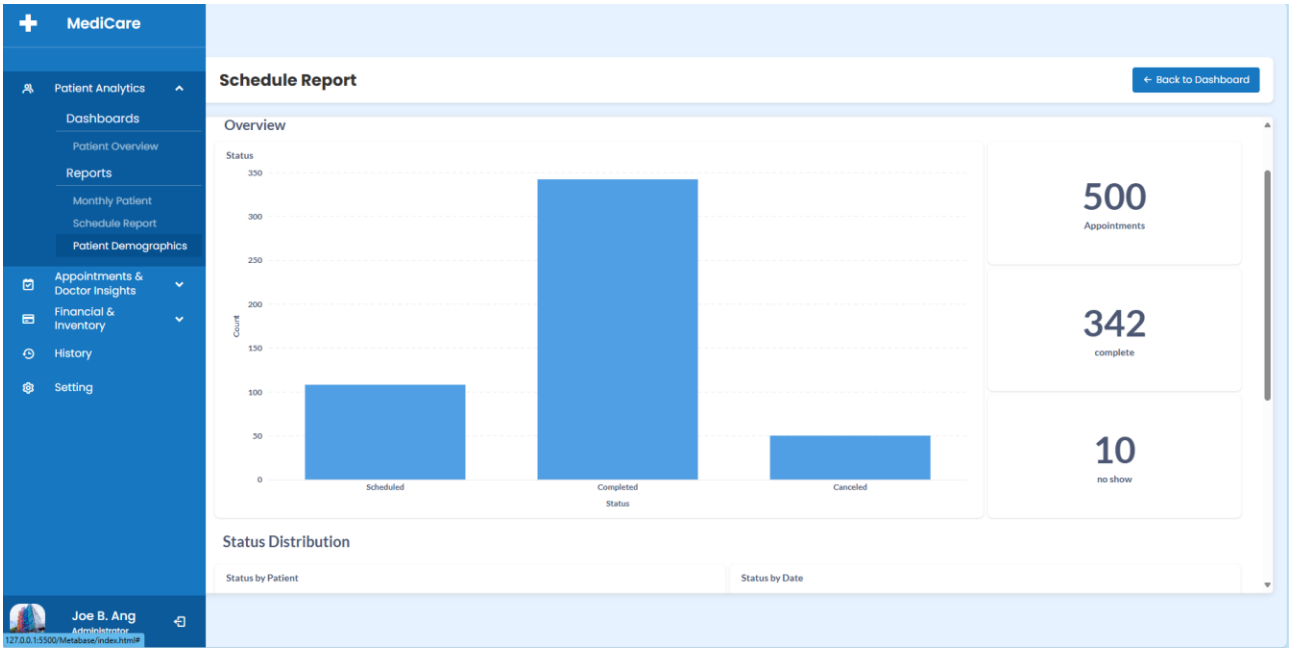
Monthly Patient



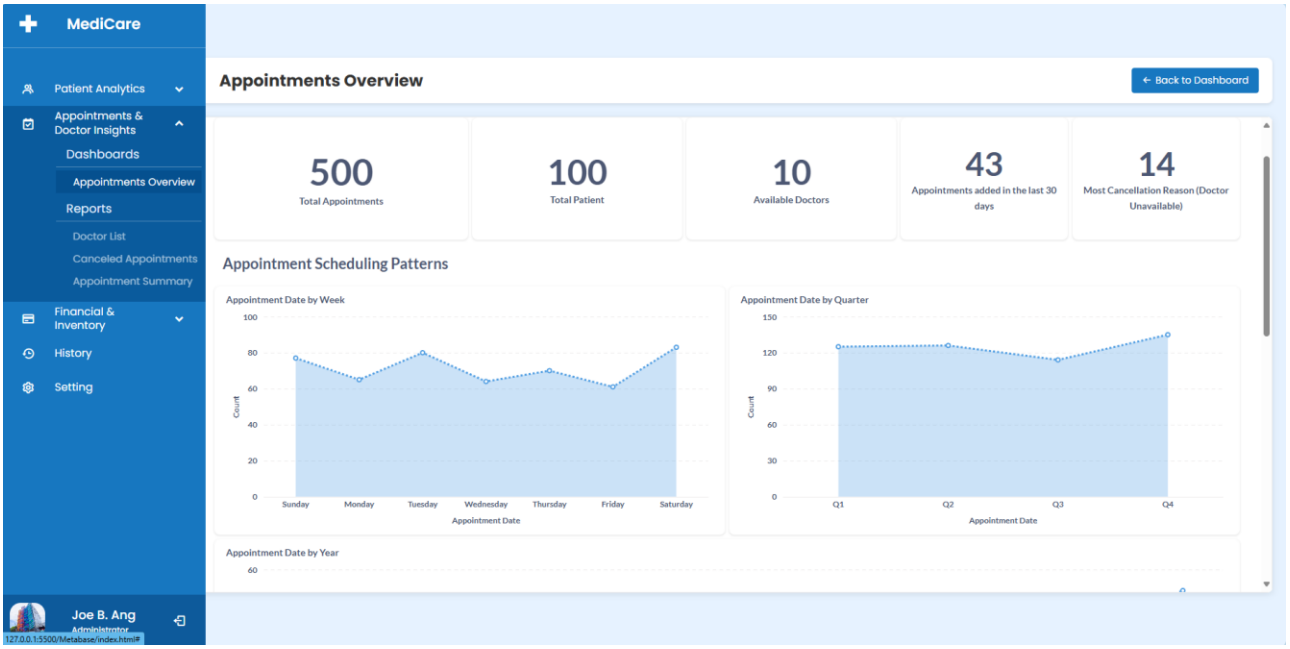
Schedule Report



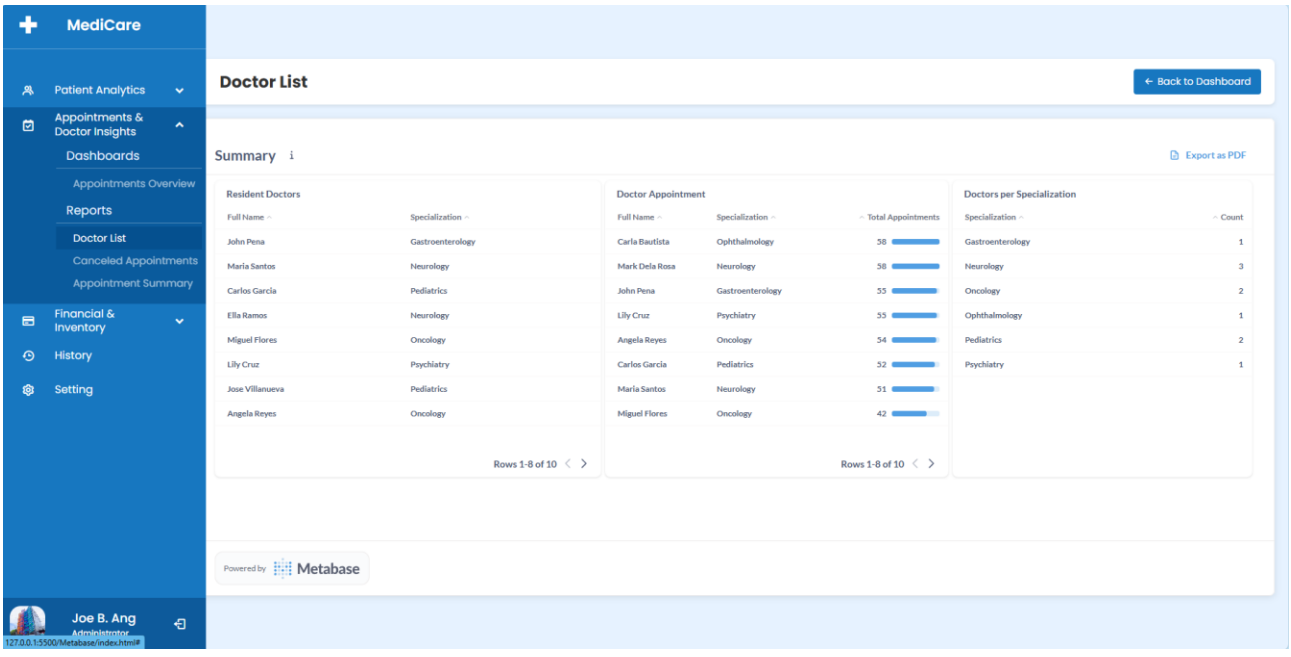
Patient Demographics



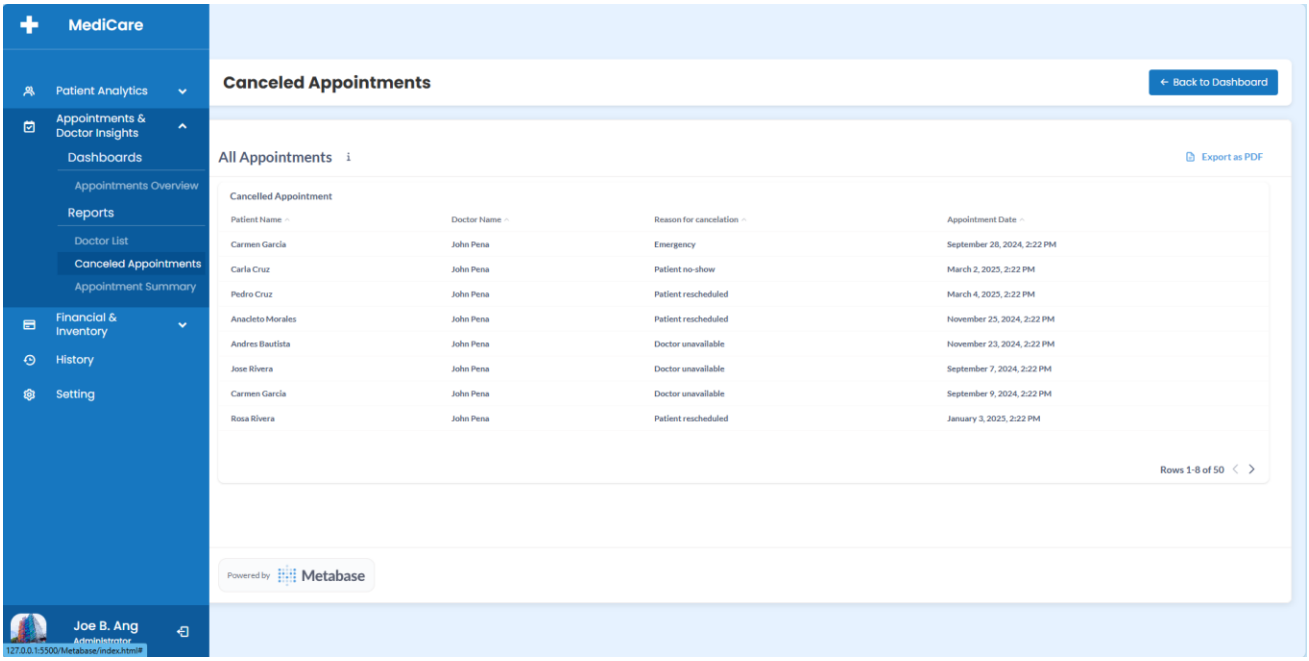
Appointments Overview



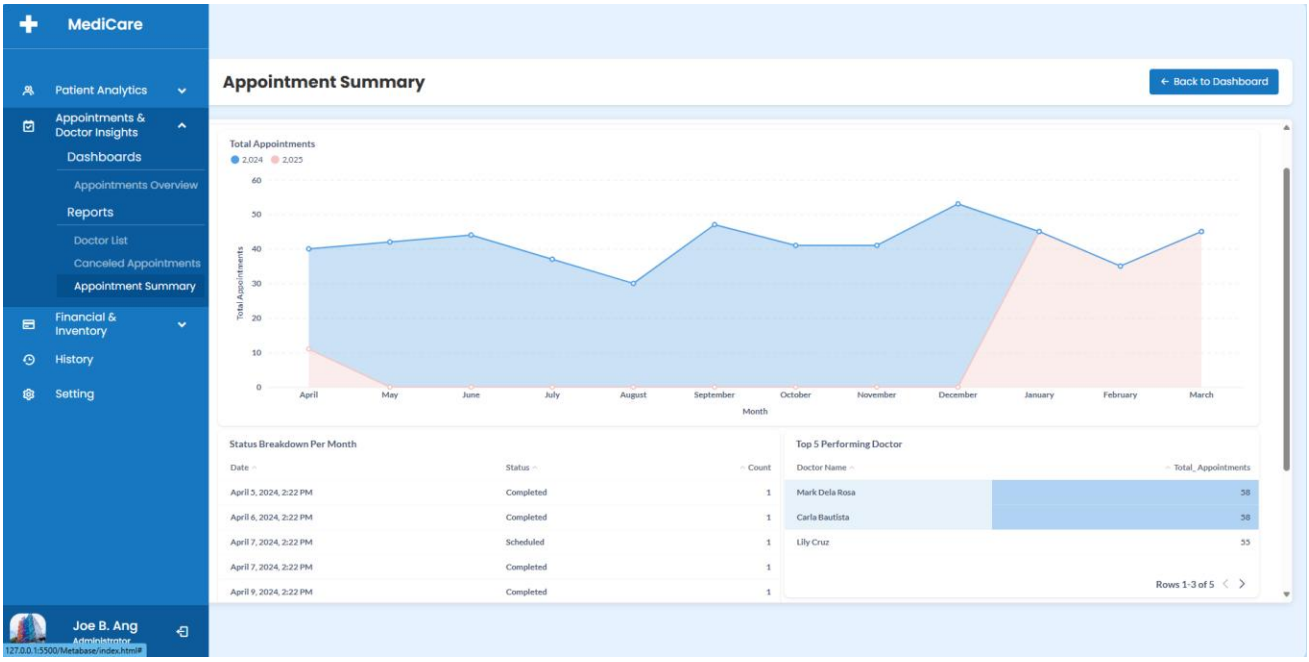
Doctor List



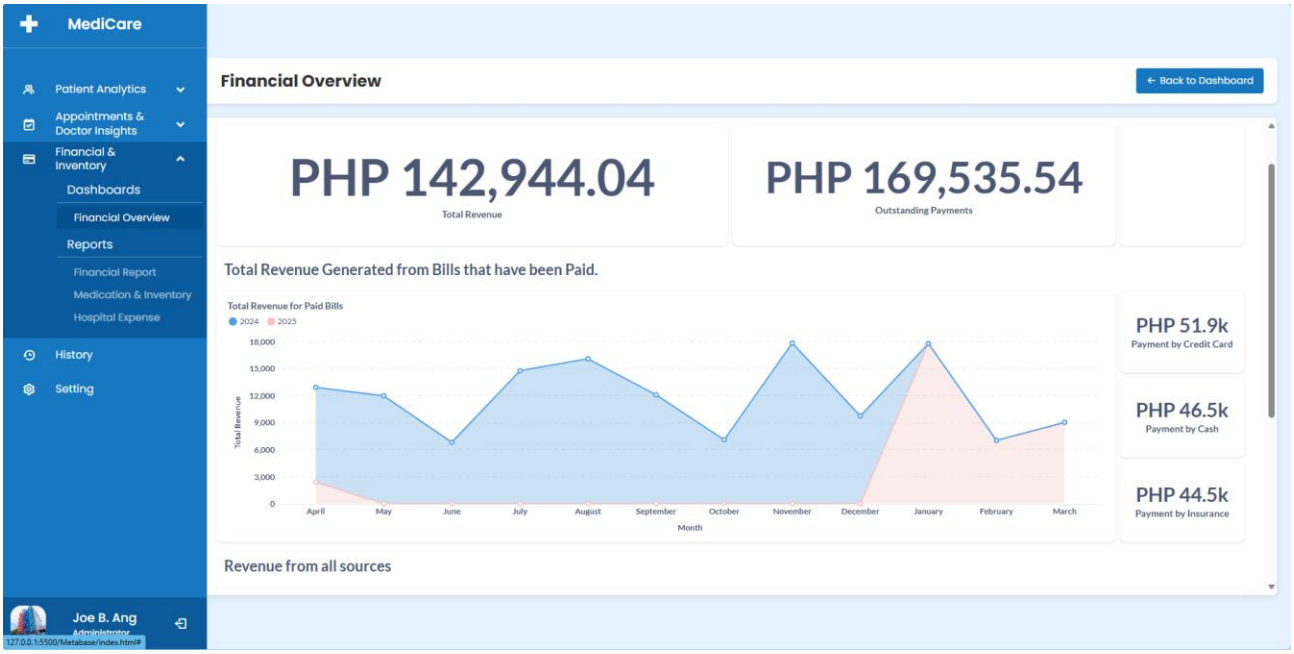
Canceled Appointments



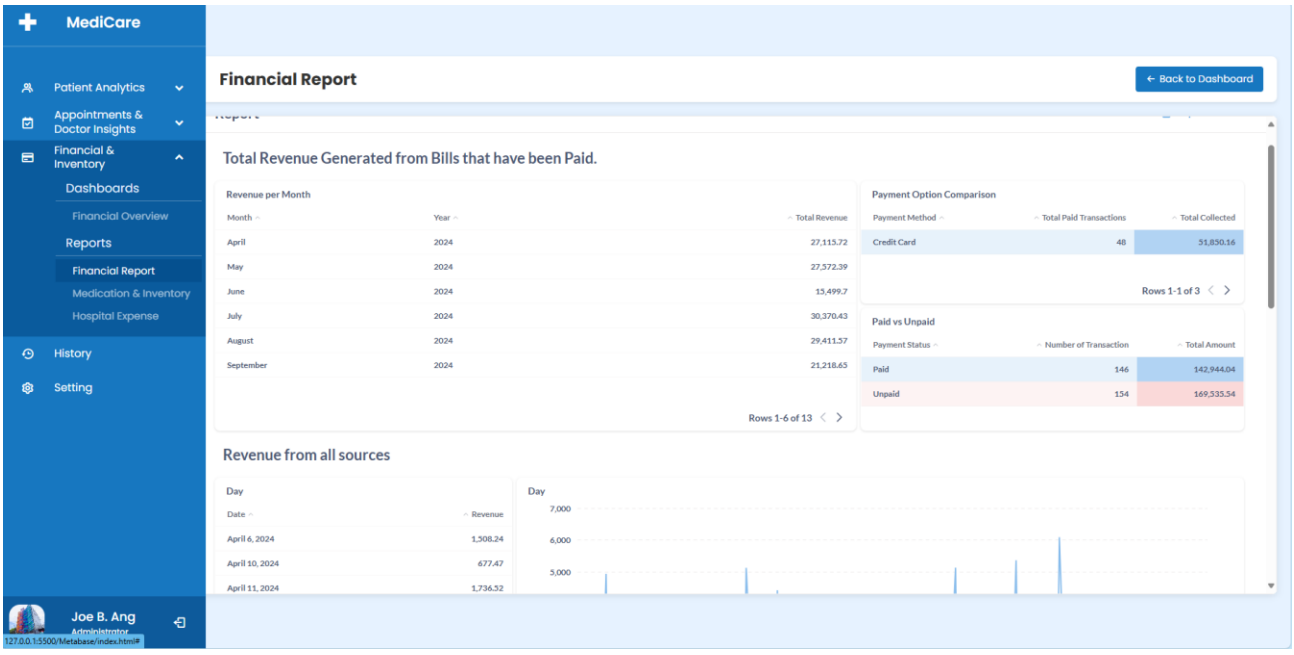
Appointment Summary



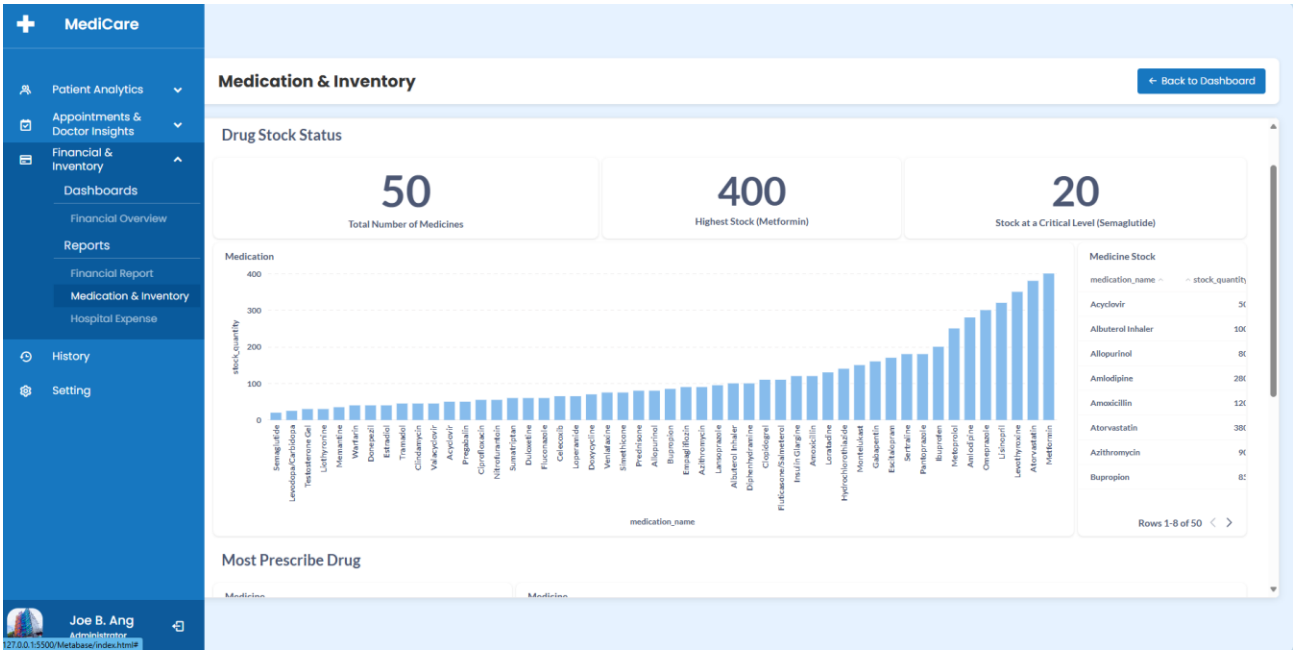
Financial Overview



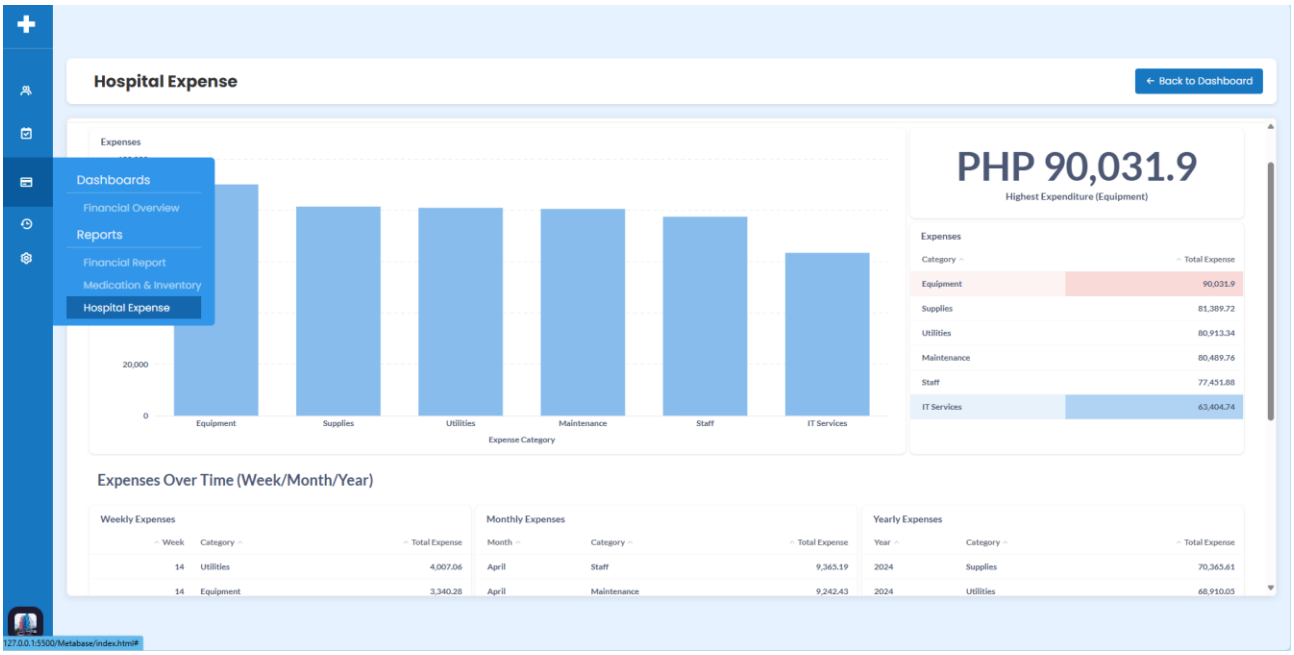
Financial Report



Medication & Inventory



Hospital Expense



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User Guide

Accessing the System

- The index.html file should open in any up-to-date browser for viewing.
- Ensure Metabase is running on localhost:3000

Navigating the Dashboard

Sidebar Navigation

- You can collapse and expand the sidebar by clicking on the hospital icon placed in the top-left section of the screen.
- The system contains three main categories each showing its own dashboard and (3) reports.

Patient Analytics

- Dashboard [Patients Overview]
- Reports [Monthly Patient], [Schedule Report], [Patient Demographics]

Appointments and Doctor Insight

- Dashboard [Appointments Overview]
- Reports [Doctor List], [Canceled Appointments], [Appointment Summary]

Financial and Inventory

- Dashboard [Financial Overview]
- Reports [Financial Report], [Medication & Inventory], [Hospital Expense]

Viewing Reports

- You can obtain reports by clicking on any sidebar entry to populate them throughout the primary display

- All reports exist in two main groups (Dashboards and Reports) based on their organizational structure.
- To navigate back you should use the browser's "Back" button along with the "Back to Dashboard" button.

Using Metabase

Within any report, you can:

- Hover over charts for details
- Use date filters (where available)
- Select the Fullscreen option available through Metabase's user interface to enhance view size

Key Features

- The system stores your recent report when you refresh the active page through persistent sessions.
- The system transforms presentation for different screen sizes through its adaptive design which causes the sidebar to hide on smaller displays.
- Quick Access enables users to find their most recent reports by accessing them from the History section.