Hospital Bed Management System

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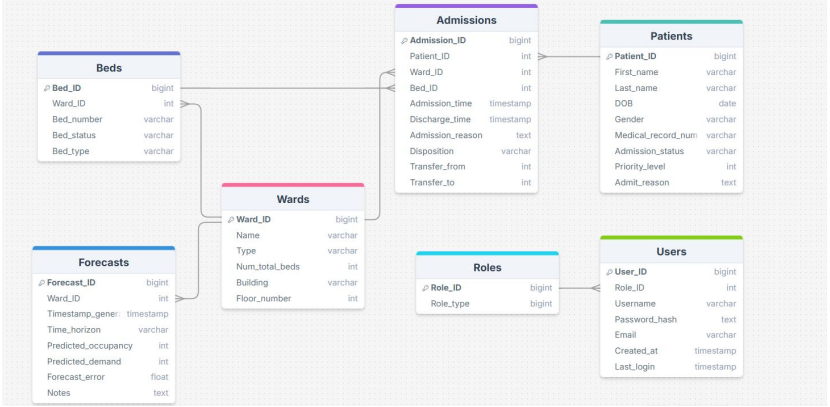
Mock Data / Schema / Hosting

- Created mock data for showcasing site in csv files
- Used GCP buckets and database
- Github pages hosting



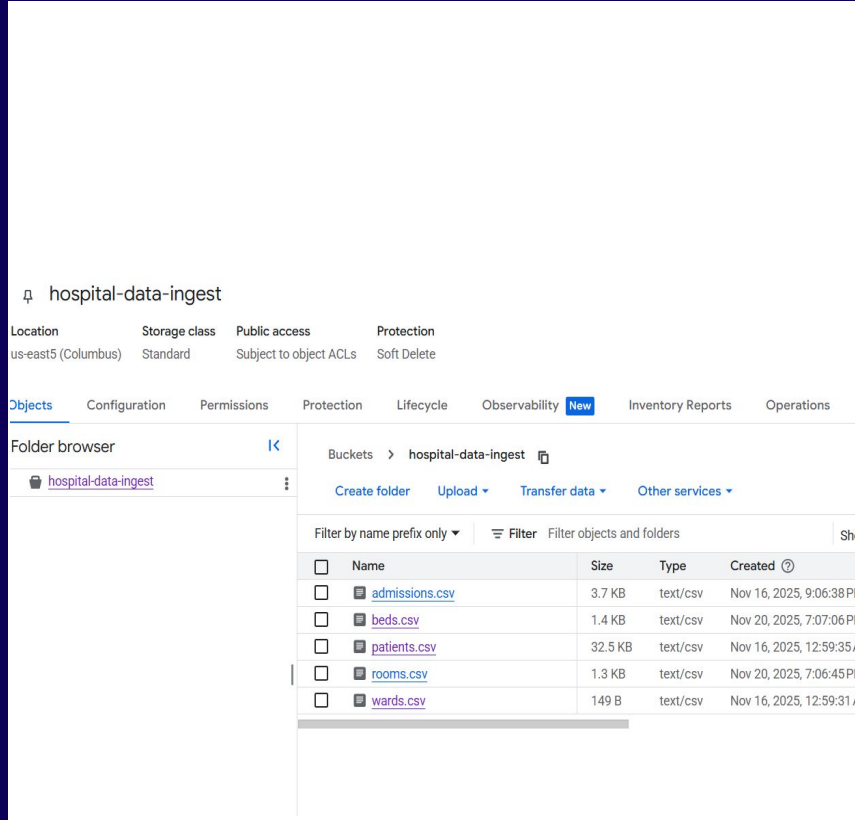

```
mysql> USE BedTest;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW TABLES;
+-------------------+
| Tables_in_BedTest |
+-------------------+
| admissions        |
| beds              |
| forecasts         |
| patients          |
| roles             |
| users             |
| wards             |
+-------------------+
7 rows in set (0.02 sec)

mysql> DESC beds;
+------------+-----------------+------+-----+---------+----------------+
| Field      | Type            | Null | Key | Default | Extra          |
+------------+-----------------+------+-----+---------+----------------+
| bed_id     | bigint unsigned | NO   | PRI | NULL    | auto_increment |
| ward_id    | int             | YES  |     | NULL    |                |
| bed_number | varchar(20)     | YES  |     | NULL    |                |
| bed_status | varchar(50)     | YES  |     | NULL    |                |
| patient_id | int             | YES  |     | NULL    |                |
| bed_type   | varchar(50)     | YES  |     | NULL    |                |
+------------+-----------------+------+-----+---------+----------------+
6 rows in set (0.02 sec)
```

GCP / Backend

- When a CSV file (beds, patients, wards, admissions, etc.) is uploaded to your bucket, Eventarc automatically triggers your Cloud Run backend.

- The backend reads the CSV, parses each row, and inserts or updates records in MySQL (using ON DUPLICATE KEY UPDATE).

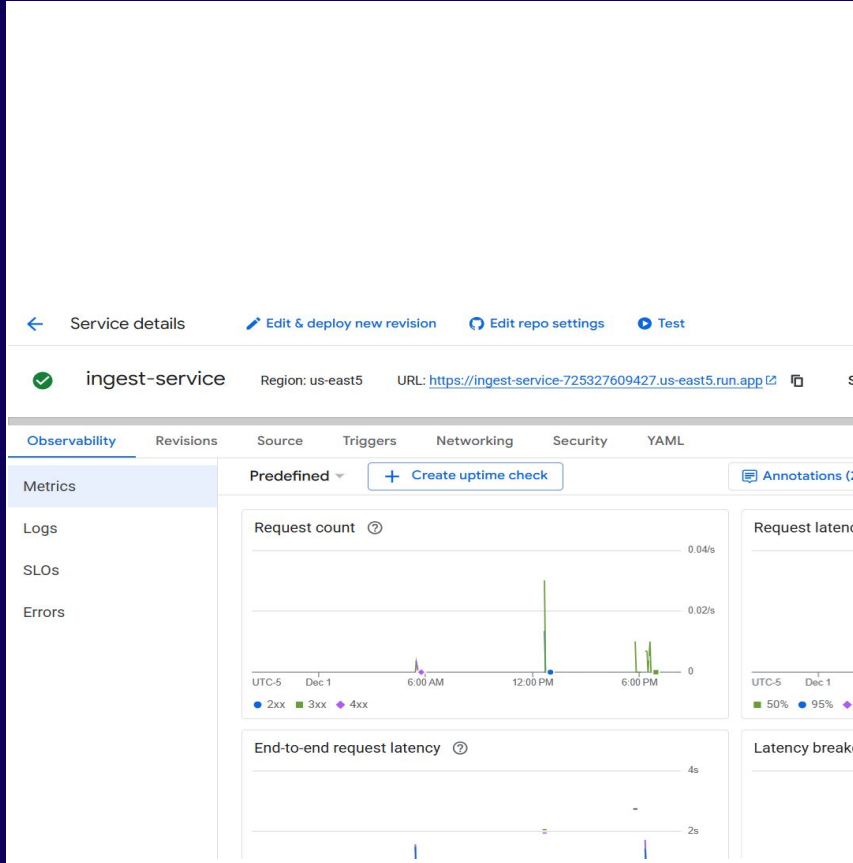
- All live hospital data (beds, wards, patients, admissions) is stored in Cloud SQL MySQL. Every dashboard view pulls real-time data directly from MySQL through REST API calls.



GCP / Backend

- Cloud Run Backend REST API The server (index.js) exposes multiple endpoints:
  - GET /beds → returns every bed
  - GET /beds/:bedNumber → bed + patient details POST /beds/assign → updates bed status and creates/discharges admissions
  - GET /wards → ward statistics
  - GET /patients → all patient profiles

Any CSV upload → Eventarc → backend → SQL update Dashboard auto-refreshes data on page load and after updates This gives the hospital a real-time bed management system without manual syncing.

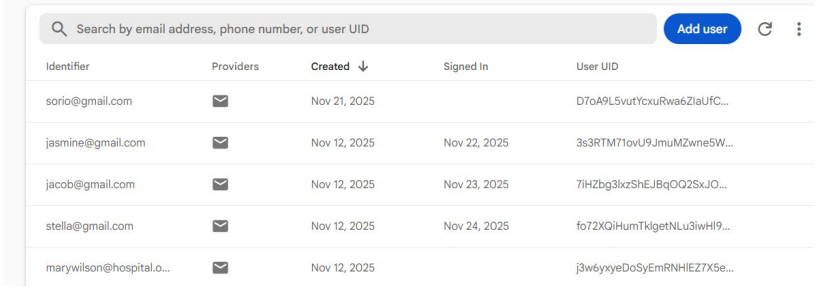


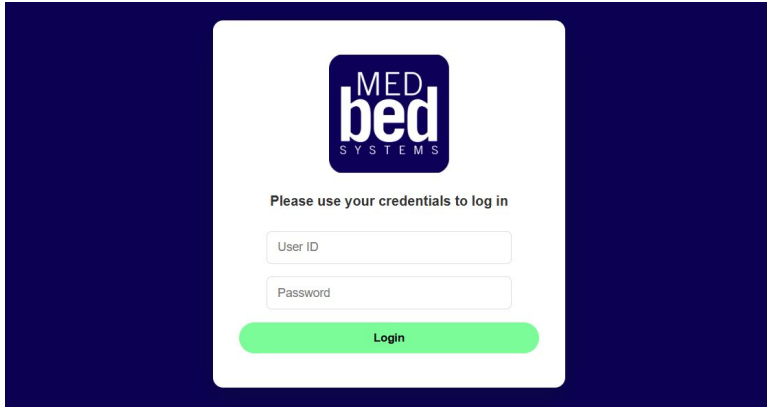
Login Page

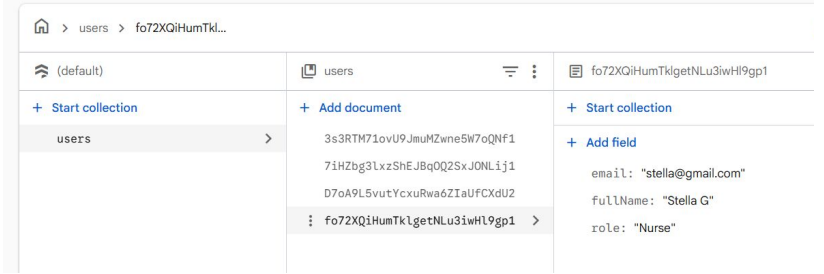
- Firebase Authenticator
- Users added/controlled by third party (us)
- Collections created

Future:

- Add role based permissions for different types of users (Doctors, Nurses, Admin, etc.)

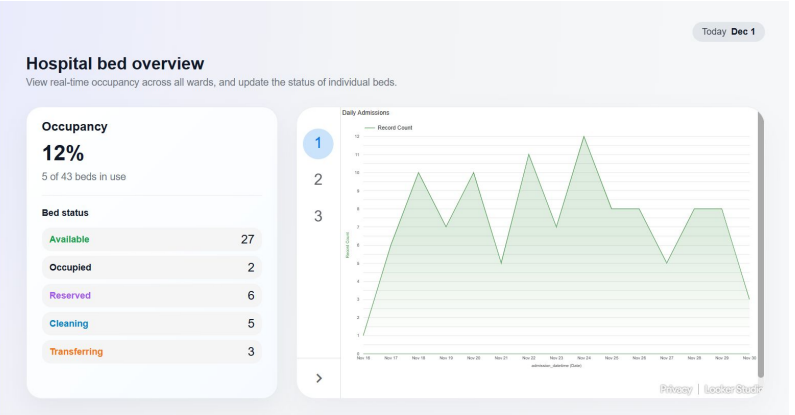


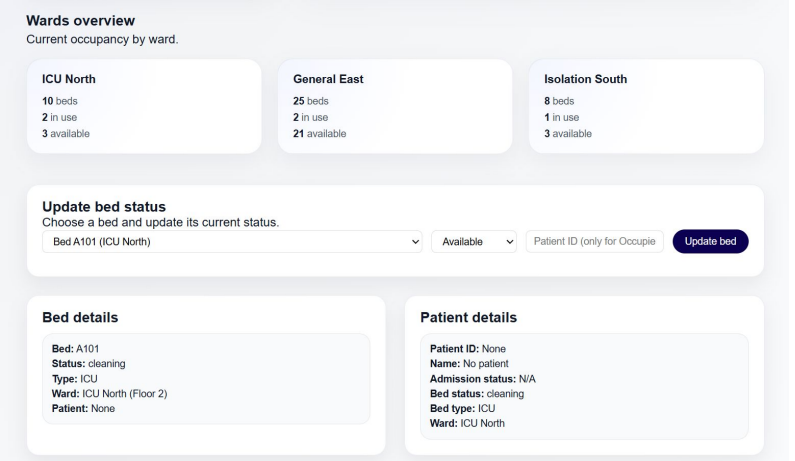




Dashboard Page

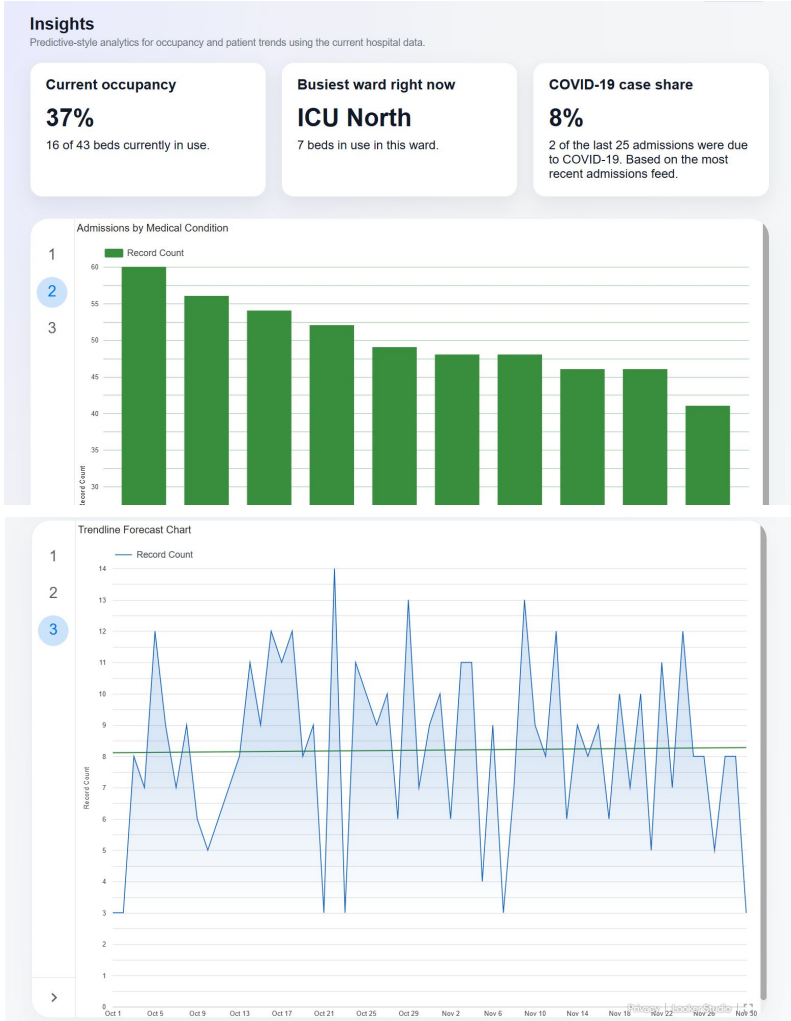
- Occupancy Summary – beds in use, statuses
- Daily Admissions Chart – Looker Studio line chart showing 2-week trends
- Wards Overview – occupancy by ward
- Bed Management – update bed status, view bed details
- Patient Details – quick access to assigned patient information





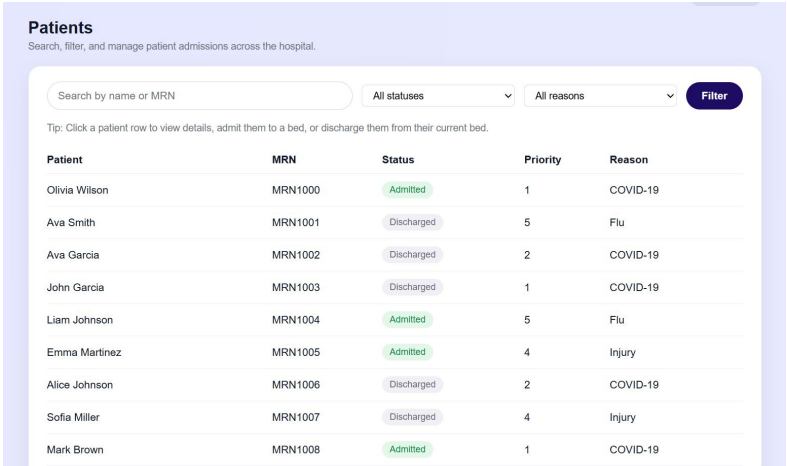
Insights Page

- Current Occupancy & Busiest Ward – real-time usage highlights
- COVID-19 Case Share – proportion of admissions related to COVID-19
- Admissions by Medical Condition – category breakdown of patient reasons
- Trendline Forecast – Looker Studio forecast showing admission patterns



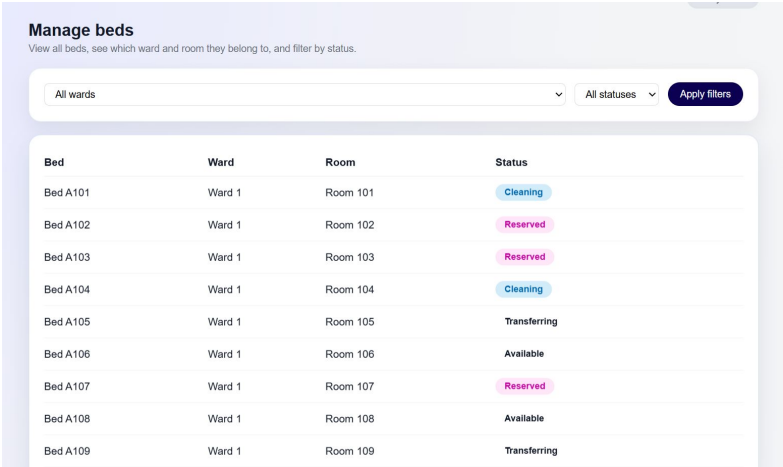
Patients Page

- Search & Filter – find patients by name, MRN, status, or reason
- Patient Table – view MRN, status, priority level, and admission reason
- Interactive Rows – click a patient to view details or manage their admission
- Admission Management – admit to a bed or discharge from current bed



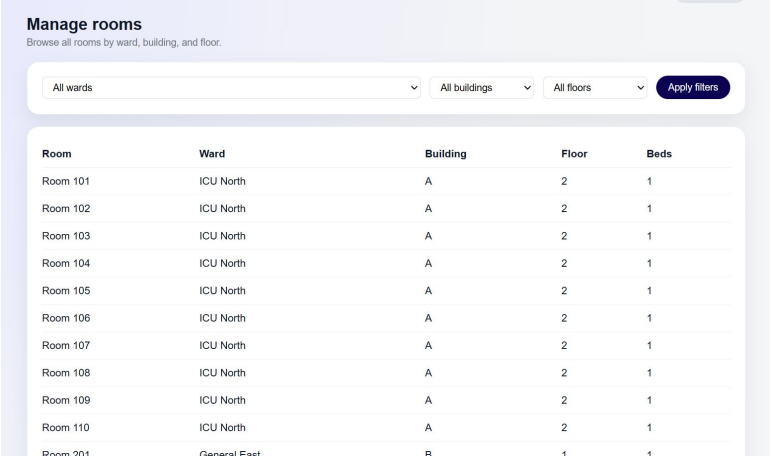
Manage Beds Page

- Bed Directory – view every bed with its ward and room
- Status Overview – see real-time statuses (available, reserved, cleaning, transferring)
- Filtering – filter beds by ward or status
- Bed Management – select a bed to update its status or view details



Manage Rooms Page

- Room Directory – view all rooms with ward, building, floor, and bed count
- Filtering Options – filter rooms by ward, building, or floor
- Room Details – see bed availability and room assignments
- Navigation – quick access to specific wards or buildings



Live Demo Link