**Identify Core Modules**

1. System Administration

• User roles & permissions

• Business rules/workflow config

• System logs, online users, audit logs

2. Patient Management

• Patient registration (new/edit)

• Allergy info & medical notes

• Appointment calendar

• Walk-in/emergency queueing

• Wristband/ID printing

3. Receptionist Module

• Staff attendance (QR/biometric)

• Visitor logs

• Phone call logs

• Postal dispatch/receiving

4. Queue & Vitals Module

• Patient queue dashboard

• OPD & IPD vitals capture

• Timestamps, nurse initials

5. OPD & Consultation

• Medical history view

• HPI, complaints, examination

• Lab/imaging request

• Drug prescriptions

• Traditional medicine tracking

6. IPD (In-Patient) Management

• Admission/discharge/transfer

• Surgery & labor monitoring

• Daily billing

• Bed allocation & summaries

• Doctor’s rounds notes

7. Laboratory Management

• Test request dashboard

• Sample collection/verification

• Result entry/upload

• Blood bank

• Lab reports/statistics

8. Radiology

• Imaging request & scheduling

• PDF/image report upload

• Equipment integration

• Radiologist’s report sign-off

9. Pharmacy

• Prescription fulfillment

• POS interface

• Drug label printing

• Stock alerts (e.g. TB, HIV drugs)

• Chronic prescription tracking

10. Billing & Payments

• Invoice generation

• Receipts, discounts, waivers

• NHIS tariffs & claim support

• Payment types (cash, mobile money, etc.)

• Refunds and part payments

11. HR & Payroll

• Staff records

• Leave & performance management

• Payroll processing, earnings, deductions

• Payslip viewing, salary breakdown

12. Inventory & Asset Management

• Product requisitions & approvals

• Stock levels, expiry tracking

• Asset register & depreciation

• Purchase order tracking

13. Business Intelligence (BI) & Dashboards

• KPIs: Bed occupancy, average stay

• Revenue & performance reports

• Collection reports

• Data visualization for CEO/finance/clinical

14. Communication, CRM & Board

• SMS/WhatsApp notifications

• Appointment reminders

• Internal memos, staff requests

• Campaign/marketing interface

**Define User Roles**

Primary User Roles in the KUMANI Health System

1. System Administrator

• Access: All modules

• Can manage users, roles, permissions, system configuration, logs

• Typically sees audit trails, error reports, backups

2. Receptionist / Front Desk Officer

• Access: Patient registration, vitals, appointments, visitor logs, phone & postal records

• Can queue patients, print ID cards, verify visits

3. Nurse

• Access: Vital signs module, IPD/OPD patient monitoring, nursing care notes

• Can log vitals, shift summaries, labor monitoring, basic treatments

4. Doctor / Clinician

• Access: OPD/IPD modules, lab/radiology requests, medical history, prescriptions

• Can view & update patient records, diagnosis, treatment plans

5. Lab Technician

• Access: Lab module only

• Can receive test requests, verify samples, enter results, and upload documents

6. Radiologist

• Access: Radiology module

• Can view imaging requests, upload results/PDFs, and generate radiology reports

7. Pharmacist

• Access: Pharmacy module

• Can view prescriptions, fulfill drugs, revise prescriptions, manage queue, label printing

8. Cashier / Finance Staff

• Access: Billing & payments module

• Can generate invoices, accept payments, issue receipts, apply waivers or discounts

9. HR Officer

• Access: HR module

• Can manage employee data, handle leave, schedule training, performance review tracking

10. Payroll Officer

• Access: Payroll module

• Can process payroll, configure deductions/earnings, and generate pay reports

11. Store/Inventory Manager

• Access: Inventory and Asset Register

• Can track stock, receive goods, manage suppliers, handle requisitions and approval workflows

12. CEO / Management

• Access: BI dashboards, financials, performance KPIs

• Can view high-level reports, income analysis, hospital statistics

13. Quality Assurance Officer

• Access: QA module

• Can set restrictions based on age/gender for services (e.g., lab, vaccines, procedures)

14. CRM/Marketing Officer

• Access: CRM & Sales modules

• Can send SMS campaigns, manage inquiries, and access campaign reports

15. Mortuary Staff

• Access: Morgue module

• Can register deceased, assign storage, track embalming and final release

16. Board Users (General Staff)

• Access: Board module

• Can make requisitions, leave requests, view payslips, and access HR-related info

**Create the UX flow (Interaction Planning)**

1. Entry Point: Login and Role Detection

When a user logs in:

1. They enter their username/password or use 2FA/biometric (optional).

2. The system checks their role (e.g. Doctor, Nurse, Cashier).

3. They’re redirected to a role-specific dashboard, not a generic one.

1. Role-Specific Dashboards

Each role gets a dashboard showing:

• Only the tools/modules they need

• Quick stats, reminders, and shortcuts

Example:

• Doctor Dashboard:Today’s appointments, patient queue, recent lab results

• Receptionist Dashboard: Add new patient, check visitor log, appointment calendar

• Lab Tech Dashboard: Pending test requests, upload results

• CEO Dashboard: KPIs, revenue graphs, bed occupancy, trendlines

1. Navigation System

The main UI structure can have:

Sidebar Navigation (Persistent)

• Core modules listed (e.g. Patient, Pharmacy, Finance)

• Use icons + labels for clarity

• Highlight the active section

Top Navigation (Global)

• Search bar (search patient, invoice, ID)

• Notification bell (e.g. alerts for abnormal vitals, new messages)

• User profile dropdown (logout, settings, language switch)

• Facility selector (if multi-branch)

1. Quick Access (Shortcuts / FABs)

Important tasks should be 1-click away via:

• Floating Action Button (FAB) or pinned buttons

• Examples:

• “+ New Patient”

• “Schedule Appointment”

• “Add Prescription”

• “Receive Payment”

1. Flow Examples

To design flows, “What action leads to what next?”

Example 1: Receptionist Registers a New Patient

• Login → Dashboard → Click “Register Patient” → Fill form → Assign queue → Print ID → Done

Example 2: Doctor Attends to Patient

• Login → Sees Patient Queue → Clicks Patient → Sees vitals + history → Prescribes drugs → Orders lab → Done

Example 3: Lab Technician Uploads Results

• Login → Sees Pending Lab Requests → Opens Patient → Enters test result → Attaches PDF → Submits

1. Key UX Principles to Follow

• Use breadcrumbs or headers to keep users aware of where they are.

• Keep primary actions on the right, cancel/secondary on the left.

• For actions like “Save”, I would use sticky bottom bars for long forms.

• Ensure loading states, empty states, and error states are all defined.

**Design Prioritization**

This refers to identifying which pages, features, or sections of the system should be designed and developed first based on their importance and impact on the user experience.

Here’s a breakdown of the prioritization steps for the KUMANI Health System:

1. **Patient Registration Page**

Why Prioritize It: This is one of the first touchpoints in the system. It needs to be streamlined, clear, and easy for receptionists or front desk staff to use. Given that the form-heavy nature, scanning, and queueing functions can be complex, it’s crucial to get this right early.

What to Focus On:

• Clean form layouts

• Easy input fields with dropdowns or pre-filled suggestions

• Efficient patient ID scanning and document uploads

• Clear validation and error handling

2. **Doctor Consultation View**

Why Prioritize It: Doctors interact with a large portion of the system. This view should provide quick access to key patient information like vitals, lab results, and prescriptions. The goal is to create a seamless experience for the doctor to deliver care efficiently.

What to Focus On:

• Easy access to patient history, vitals, and lab reports

• A clean, distraction-free UI

• Integrated prescription tools (with autofill options for medications)

• A streamlined workflow for tracking patient progress and updates

3. **Payment and Billing View**

Why Prioritize It: Billing is essential for the hospital’s cash flow, and it often involves complex calculations with taxes, insurance, discounts, etc. The interface needs to be clear, easy to use, and mistake-proof.

What to Focus On:

• Clear invoice breakdowns

• Easy-to-use payment processing features

• Quick editing options for billing adjustments

• Integration with insurance and payment gateways

4. **Pharmacy POS Interface**

Why Prioritize It: Pharmacists will frequently use this interface to manage prescriptions and sell medications. A smooth, efficient POS system helps minimize errors and delays.

What to Focus On:

• Simple medication lookup and prescription verification

• A streamlined checkout process

• Barcode scanning support for speed

• Clear tracking of available inventory and stock updates

5. **BI Dashboard**

Why Prioritize It: The BI (Business Intelligence) Dashboard is crucial for decision-makers like CEOs and Finance staff. It provides insights into the hospital’s performance, such as revenue, patient demographics, and operational efficiency. The design needs to convey data quickly and clearly.

What to Focus On:

• Key performance indicators (KPIs)

• Customizable charts, graphs, and reports

• Data visualization tools that are easy to interpret

• Role-specific views (e.g., CEO vs. Finance staff

6. **Lab Results Entry Page**

Why Prioritize It: Lab technicians interact with this page to input results, which are often part of critical patient care decisions. The design should prioritize simplicity, accuracy, and efficiency.

What to Focus On:

• Easy entry for numerical and text data

• Auto-population of standard test results

• Validation to ensure correct data is entered

• Integration with patient profiles for direct updates

7. **Appointment Scheduling UI**

Why Prioritize It: This interface is used by patients and staff to schedule appointments. A well-designed scheduling UI will ensure better resource allocation and minimize booking conflicts.

What to Focus On:

• Calendar integration with available time slots

• Simple, clear appointment booking forms

• Reminder notifications

• Quick access to reschedule or cancel appointments

**Visual Language & Components;**

**Inputs, Dropdowns, Search Bars:**

These are the most used form elements. They should be intuitive, responsive, and accessible.

Design Tips:

• Use clear labels and placeholders.

• Show error states with red highlights and validation messages.

• Include icons for dropdowns or date pickers.

• Search bars should have auto-suggest and filters for faster access to records.

**Table Views with Actions:**

Most modules (patients, billing, lab results, inventory, etc.) rely on tables to display structured data.

Design Tips:

• Include action columns (edit, delete, view).

• Support sorting, filtering, and pagination.

• Use alternating row colors for readability.

• Allow bulk actions like select all, export, or archive.

**Modals, Side Drawers:**

Used for quick data entry, detailed views, or confirmations without leaving the main screen.

• Design Tips:

• Use modals for short forms or confirmations (e.g., “Are you sure you want to discharge this patient?”).

• Use side drawers for more detailed forms or multi-step processes.

• Keep a consistent close button and background blur to focus attention.

**Icons for Status:**

Status indicators provide quick visual feedback.

• Common Statuses:

• Pending – yellow dot or clock icon

• Approved – green checkmark

• Rejected – red cross or warning sign

• Critical – red alert icon

• Design Tips:

• Keep icon sizes consistent.

• Pair icons with text labels if clarity is needed.

• Use color consistently across the system.

**Charts and Report Visuals**

Especially for dashboards and analytics, visualizing data helps in better decision-making.

• Design Tips:

• Use cards to highlight KPIs (e.g., “Patients Admitted Today: 45”).

• Use bar graphs for comparisons (e.g., Revenue by Department).

• Use line graphs for trends (e.g., Monthly Patient Visits).

• Include legends, tooltips, and labels for clarity.

**Complete Flow**

1. **Entry Point: Login & Authentication**

• Login Page → User enters credentials (username/password or biometric).

• Authentication Check → Redirect to Role-Based Dashboard.

• Roles: Admin, Receptionist, Nurse, Doctor, Lab Tech, Pharmacist, Cashier, HR, CEO, Finance.

2. **Role-Based Dashboards**

Each user sees a different dashboard with quick actions and stats.

a. Admin Dashboard

• User Management

• System Settings

• Access Logs

• Module Access Controls

b. Receptionist

• Register New Patient

• View Today’s Appointments

• Search Patients

• Assign Patients to Doctors

c. Nurse

• View Assigned Patients

• Enter/Update Vital Signs

• Assist with Rounds

• Nurse Notes

d. Doctor

• View Appointments / Assigned Patients

• Access Medical Records (Labs, Imaging, Vitals)

• Prescribe Medications

• Request Labs / Radiology

• Discharge or Refer Patients

e. Lab Technician

• View Lab Requests

• Enter Lab Results

• Approve or Reject Samples

f. Pharmacist

• View Prescriptions

• Dispense Drugs

• Manage Inventory

• Raise Restock Alerts

g. Cashier

• View Bills

• Process Payments (cash, insurance, mobile)

• Print Receipts

• Daily Financial Summary

h. HR Staff

• Employee Profiles

• Attendance / Leave

• Payroll

• Staff Performance

i. CEO / Finance / Clinical Officer

• BI Dashboard

• Patient Flow Analytics

• Revenue Reports

• Clinical KPIs

• Staff Performance, Inventory & Wastage Summary

1. **System Modules & Flows**

Patient Registration Flow (Receptionist)

1. New Patient → Fill Registration Form → Assign MRN

2. Capture ID/Insurance Scan (optional)

3. Assign Queue Number / Consult Room

4. Route to OPD or IPD

OPD Flow (Doctor & Nurse)

1. Patient Checked In → Nurse Takes Vitals

2. Doctor Reviews Vitals, History

3. Orders Labs / Imaging

4. Prescribes Medications

5. Closes Visit or Refers

IPD Flow

1. Admit Patient → Allocate Ward & Bed

2. Nurse Notes, Med Admin Logs

3. Daily Reviews by Doctor

4. Lab/Radiology Updates

5. Discharge Summary → Bill Generation

Billing & Payment Flow

1. Auto-generate invoice (based on services used)

2. Adjust Insurance Coverage

3. Process Payment

4. Generate Receipt & Financial Report

Lab & Radiology Flow

1. Doctor Requests Lab/Radiology

2. Technician Receives Request → Conducts Test

3. Enters Result → Result Notified to Doctor

4. Lab Result Appears in Patient’s EMR

Pharmacy Flow

1. Doctor Prescription Received

2. Pharmacist Confirms & Dispenses

3. Stock Auto-Updated

4. Refill / Reorder Notification if stock is low

HR & Payroll Flow

1. Add Staff → Set Role & Permissions

2. Track Attendance

3. Auto-Generate Payslip

4. Performance Review

BI Dashboard Flow

1. Real-time KPIs by role (CEO, Finance, Clinical Head)

2. Graphs (Patients, Revenue, Lab Turnaround, Occupancy Rate)

3. Filters by date, department, location

1. **Notifications & System Features**

• Global Notification Bell → Lab Results Ready, Low Inventory, Appointment Alerts

• Search Bar → Global Search: Patients, Staff, Meds, Bills

• Help/Support → Embedded Help or Chat

• Settings → Personalize Dashboard, Change Password