

Dermatology Management System

A full-featured clinical and dermatology management system designed to digitize and streamline clinic operations, including patient management, appointments, diagnosis, inventory, billing, and reporting.

Overview

This project provides a complete solution for managing a dermatology clinic with clear role separation between Doctors and Receptionists.

It follows real clinic workflows where receptionists handle bookings and payments, while doctors handle diagnosis and treatment.

Technology Stack

- Backend: Django + Django REST Framework
 - Frontend: React Native (Expo)
 - Database: SQLite
-

System Architecture

The system follows a client–server architecture:

- **Backend (Django):**
 - Business logic and data validation
 - Authentication and authorization
 - Database management
 - Reporting and analytics
 - REST API endpoints
- **Frontend (React Native):**
 - Doctor and Receptionist dashboards
 - Patient and appointment management
 - Inventory and billing UI
 - Data visualization and reports

All communication is done using JSON over HTTP via APIs.

Project Structure

Backend

```
backend-1/
└── clinic/
    ├── models.py
    ├── serializers.py
    ├── views.py
    └── urls.py
    └── migrations/
└── clinical_backend/
└── db.sqlite3
└── requirements.txt
└── seed_data.py
```

Frontend

```
DermaSkincareApp/
└── app/
└── components/
└── context/
└── doctor/
└── receptionist/
└── assets/
└── hooks/
└── src/api/
└── types/
```

Backend Features (Django)

Authentication

- Login for doctors and receptionists
- Role-based access control

Patient Management

- Add, edit, and view patients
- Store personal and medical information
- Track allergies, conditions, and surgeries

Appointment Management

- Book appointments
- Status tracking: booked, checked-in
- Link appointments to doctors and services

Service Management

- Laser and diagnosis services
- Price, duration, and category support

Medical Records & Diagnosis

- Store diagnosis notes per visit
- Link records to appointments
- Maintain full patient history

Medication & Prescriptions

- Medication management
- Prescriptions linked to medical records
- Track dosage and duration

Treatment Plans & Sessions

- Create treatment plans
- Track individual treatment sessions
- Suitable for laser and beauty services

Inventory Management

- Inventory items with expiry dates and minimum stock
- Stock transactions: add, use, expired
- Low stock and expiring item alerts

Billing & Invoices

- Generate invoices per appointment
- Track total amount, discounts, and payment method
- Store payment status

Patient Files

- Upload and store documents, photos, and lab results

Reports & Analytics

- Appointments statistics
 - Inventory usage
 - Revenue and patient analytics
-

Backend Models

Patient
Doctor
Receptionist
Service
Appointment
AppointmentService
Invoice
InvoiceItem
MedicalRecord
Medication
Prescription
PrescriptionMedication
TreatmentPlan
TreatmentSession
Allergy
PatientAllergy
MedicalCondition
PatientMedicalCondition
SurgeryType
PatientSurgery
InventoryItem
StockTransaction
PatientFile
LaserSession

See `backend-1/clinic/models.py` for full field definitions.

API Endpoints

Core

`/login/`
`/patients/`
`/doctors/`
`/receptionists/`
`/services/`
`/appointments/`

Medical & Treatment

```
/medical-records/  
/medications/  
/prescriptions/  
/treatment-plans/  
/treatment-sessions/
```

Medical History

```
/allergies/  
/patient-allergies/  
/medical-conditions/  
/patient-medical-conditions/  
/surgery-types/  
/patient-surgeries/
```

Inventory & Billing

```
/inventory/  
/stock-transactions/  
/invoices/
```

Reports

```
/reports/analytics/  
/reports/appointments/  
/reports/inventory/  
/reports/patients/
```

Backend Setup

```
cd backend-1  
pip install -r requirements.txt  
python manage.py migrate  
python manage.py runserver
```

Optional demo data:

```
python seed_data.py
```

Backend runs at:

```
http://localhost:8000/
```

Frontend Features (React Native / Expo)

Authentication

- Login screen
- Context-based authentication state

Receptionist Screens

- Dashboard with appointment statistics and calendar
- Add, edit, and manage patients
- Book and manage appointments
- Invoice creation and payment tracking
- Inventory management with alerts

Doctor Screens

- Dashboard with today's sessions
- Patient history and visit tracking
- Diagnosis and prescription management
- Inventory usage
- Reports and analytics

Shared Screens

- Home tab navigation
 - Role-based layouts
 - Patient quick view modal
-

Key Components

- DiagnosisTemplatePills
 - PatientInfoBar
 - PrescriptionTable
 - ReusablePhotoUploader
 - ServiceTabs
 - InventoryTable
 - InventoryCharts
 - Sidebar and DoctorSidebar
-

Backend–Frontend Integration

- API communication
- JSON data exchange
- Frontend performs all operations through backend endpoints
- Backend must be running before using the frontend

Frontend Setup

```
cd DermaSkincareApp  
npm install  
npx expo start
```

Screenshots

Receptionist Dashboard

The dashboard features a sidebar with icons for Home, Book Appointment, Add Patient, Process Payment, Logout, and a search bar. The main area displays "Today's Appointments" with a table for patients like Omar Samy, Mohamed Ali, rahma kamal, Marwan Sameh, and Amina Radwan. A calendar for December 2025 shows the 20th as the current date. A sidebar on the right lists appointments for December 20, 2025.

| Patient Name | Service | Time | Status | Action |
|--------------|----------------|----------|------------|--------|
| Omar Samy | Skin Diagnosis | 09:00 AM | Checked In | → |
| Mohamed Ali | Skin Diagnosis | 09:00 AM | Pending | → |
| rahma kamal | Skin Diagnosis | 09:30 AM | Pending | → |
| Marwan Sameh | Skin Diagnosis | 10:00 AM | Pending | → |
| Amina Radwan | Beauty Facial | 10:30 AM | Pending | → |

| Appointments on 2025-12-20 | | | | | | |
|----------------------------|-------------|------------|---|--|--|--|
| 09:00 AM | Omar Samy | Checked In | → | | | |
| 09:00 AM | Mohamed Ali | Pending | → | | | |
| 09:30 AM | rahma kamal | Pending | → | | | |
| 10:00 AM | Marwan | Check In | → | | | |

New Patient

The form includes fields for Name (Tala omran), Age (45), Gender (Male/Female), and ID (0100054684). A large red "Add Patient" button is at the bottom. A "Recently Added" section lists three previous entries: toka samr, youssef borray, and ammar ahmed, each with an "Edit" button.

| New Patient Record | |
|--------------------|--|
| Name | Tala omran |
| Age | 45 |
| Gender | <input checked="" type="radio"/> Male <input type="radio"/> Female |
| ID | 0100054684 |

| Recently Added | |
|----------------|------------------------------|
| toka samr | Female • Age 89 • 010454145 |
| youssef borray | Male • Age 21 • 01064489798 |
| ammar ahmed | Male • Age 20 • 010235757275 |

Appointment Booking

The screenshot shows the 'Book Appointment' page. On the left is a vertical sidebar with icons for Home, Book Appointment, Doctor, Patient, Services, and Logout. The main area has a header 'Book Appointment' with a subtitle 'Schedule a new patient visit'. Below is a form titled 'Appointment Details' with fields: 'Patient' (Tala omran), 'Doctor' (Dr. nour - dermatologist), 'Service Type' (Beauty Facial), 'Date' (2025-12-22), 'Time' (09:00 AM), 'Initial Status' (Booked), and 'Additional Notes'.

Payments

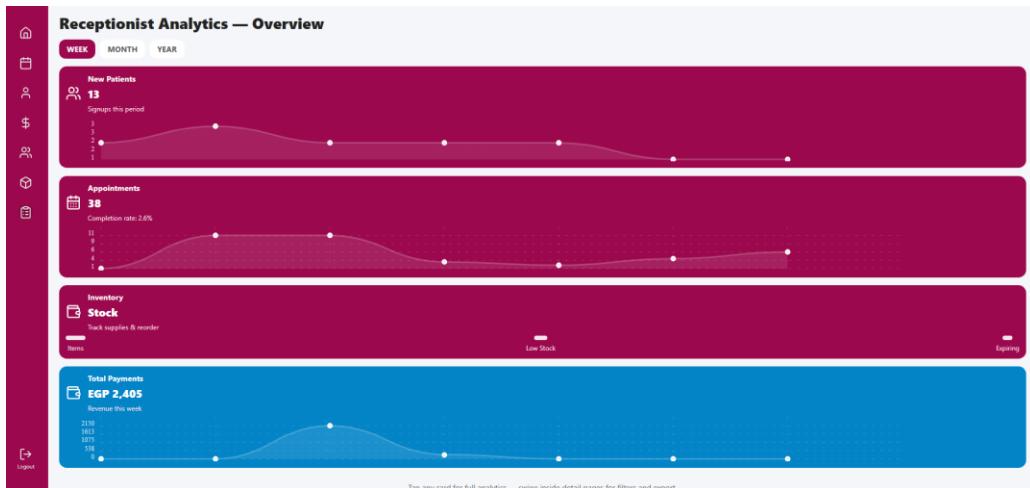
The screenshot shows the 'Payments Dashboard'. The sidebar includes icons for Home, Book Appointment, Doctor, Patient, Services, and Logout. The main area has a header 'Payments Dashboard' with a subtitle 'Process new invoices, edit existing records, and review comprehensive payment history.' Below is a 'New Invoice & Processing' section with 'Invoice Details' (Patient ID: ammar ahmed, 010235757275, Gender: male | Age: 20) and a table for 'DESCRIPTION', 'QTY', 'PRICE', and 'AMOUNT'. It also shows 'Subtotal: LE 150.00', 'Discount (LE): 0', 'Insurance: AXA Insurance 10%', 'Insurance Coverage (%): 10%', and 'Insurance Amount: LE 15.00'. The 'TOTAL DUE:' is LE 135.00. To the right is a 'Search Patient' field, 'Payment Processing' section (Payment Status: Pending Payment, Current: Pending), 'Payment Method' (Visa / Card), 'Insurance Provider' (AXA Insurance), and 'Insurance Coverage (%)' (10%). Buttons include 'Save Changes', 'Back', and 'Done'.

Receptionist Inventory

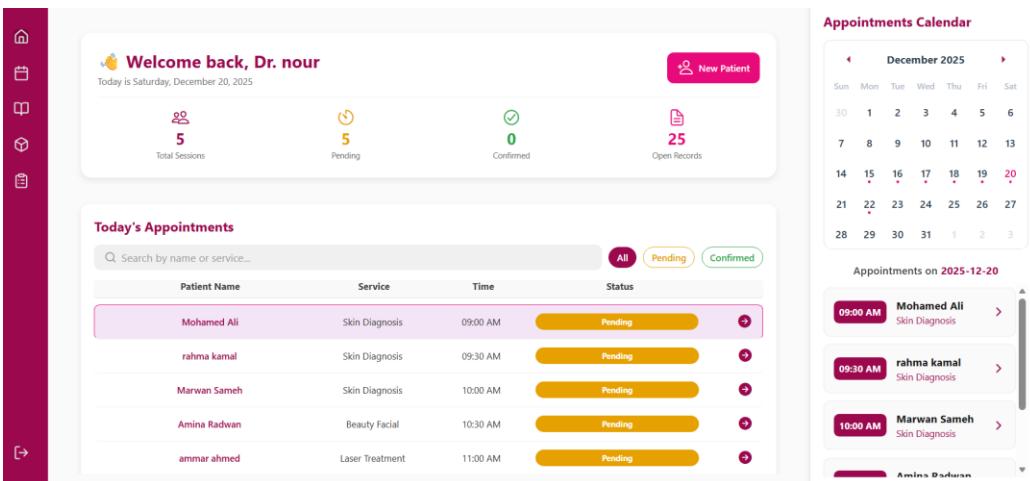
The screenshot shows the 'Stock & Inventory Management' page. The sidebar includes icons for Home, Book Appointment, Doctor, Patient, Services, and Logout. The main area has a header 'Stock & Inventory Management' with a subtitle 'Receptionist View: Add, Track, and Report Stock Levels'. It shows 'Total Items: 7 | Total Quantity: 153 | Low Stock: 2 | Expiring Soon: 7'. Below is a 'Add New Inventory Item' form with fields: 'Item Name' (Type or pick an existing item...), 'Category' (Select the Material Type), 'Quantity' (1.0), 'Unit' (Select unit), 'Supplier' (Type or select known supplier...), and 'Expiry Date' (Select expiry date). A 'Save Stock Item' button is at the bottom. To the right is a 'Current Inventory Details' table with 7 items:

| Item Name | Category | Qty | Supplier / Expiry |
|-------------------------|------------------------------|------------|---|
| BD Syringe 1cc Insulin | Consumable (Syringe/Needle) | 49 unit | Becton, Dickinson Exp: 2025-12-31 |
| Dysport 300U | Hyaluronic Acid Filler | 10 syringe | Becton, Dickinson Exp: 2025-12-10 ▲ EXPIRED |
| GLOVES | Equipment/Tool | 15 pack | GlobeMed Exp: 2026-02-07 |
| Isopropyl Alcohol Wipes | Cleaning/Sterilization | 2 wipe | CleanPro Exp: 2025-12-26 |
| Xeomin 100U | Botulinum Toxin (Neurotoxin) | 6 vial | Merz Exp: 2025-12-30 |
| alcohol | Cleaning/Sterilization | 0 bottle | PharmiSupply Exp: 2026-01-10 |
| wipes | Cleaning/Sterilization | 71 wipe | Quaqua Exp: 2025-12-31 |

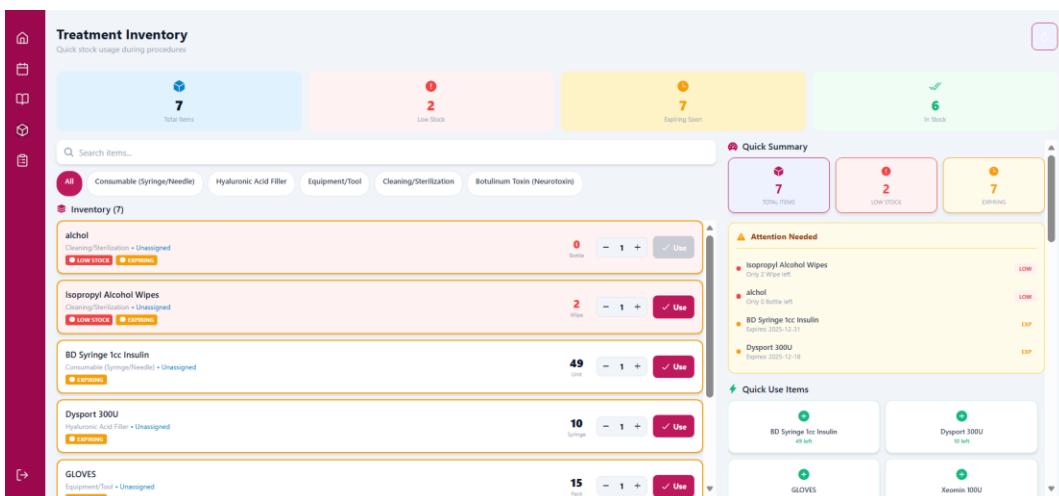
Receptionist Analytics



Doctor Dashboard



Inventory Management



Diagnosis & Prescription

Tala omran
TO | 45 Y/O | ♀ | female | ID: 14
0100054684

ALLERGIES
No known allergies

MEDICAL HISTORY
No medical history

SURGERIES
No previous surgeries

Clinical Diagnosis

*** Clinical Diagnosis**

Search standardized disease
Manage Templates

Search or filter templates...
+ Acne Vulgaris + Melasma + Alopecia Areata + Tinea Capitis + Psoriasis + Eczema + Vitiligo

Acne Vulgaris

Prescription / General Instructions

e.g., Avoid sun exposure, drink water, follow-up in 2 weeks...

Medication Database

Patient Photos (2)
Sort: Newest

Current 12/05/2021, 4:26:41 PM
Current 12/05/2021, 4:26:37 PM

Lab Tests & Scans (0)

Tala omran
TO | 45 Y/O | ♀ | female | ID: 14
0100054684

ALLERGIES
No known allergies

MEDICAL HISTORY
No medical history

SURGERIES
No previous surgeries

Laser Session

Laser Treatment Session

Treatment Area
Face Neck Arms Legs Back Full Body Underarms Bikini
Or specify custom area...

Skin Type (Fitzpatrick Scale)
I II III IV V VI
Very Fair Fair Neutral Brown Dark

Laser Intensity
Low Medium High Very High

Number of Passes
- 1 +

Consumables/inventory Used
Add Consumable from Inventory

Session Notes
Patient tolerance, reactions, recommendations...

A

Edit Info

Name: Amina Radwan P-4
Patient ID: P-4
Age: 30
Gender: female
Phone: 010255666
Email: aminaar2654@gmail.com
Allergies: Peanuts
Notes: No notes
Medical History: High pressure, low pressure
Surgeries: labor

Visit #2 - Visit with Dr. nour
December 17, 2021 • Diagnosis

Visit #1 - Visit with Dr. nour
December 17, 2021 • Diagnosis

Diagnosis:
Complaint:
Findings:
Final Diagnosis: Eczema

Prescriptions

Derma Clinic
Dr. Emily Carter
Name: Amina Radwan
Age: 30
Gender: female
Patient ID: P-4

Medication **Dose** **Frequency** **Duration** **Notes**

| | | | | |
|-----------|-------|--------|---------|--|
| Bufen | 400mg | 1x/day | | |
| Racoclane | 20mg | 1x/day | 30 days | |
| Zytec | 10mg | 1x/day | 7 days | |

Doctor's Signature _____

Thank you for visiting Derma Clinic

Treatment

Patient Photos
Sort by: **Newest** **Oldest**

Current 12/05/2021, 4:26:37 PM
Current 12/05/2021, 4:26:41 PM

Contribution Guidelines

1. Fork the repository
 2. Create a new branch for your feature or fix
 3. Follow coding standards and naming conventions
 4. Add tests where applicable
 5. Submit a clear pull request
-

Notes & Future Enhancements

- Patient portal
 - Before/after image comparison
 - SMS or WhatsApp notifications
 - Advanced analytics dashboards
 - PostgreSQL deployment
 - Cloud file storage
-

Developed By

Biomedical Informatics Students – Nile University

- Nour Sameh
- Sarah Gado
- Nadeen Khaled
- Mohamed Hussien
- Youssef Adel
- Menna Adel

Focused on AI, Healthcare Security, and Clinical Software Systems.

Conclusion

This system models real dermatology clinic workflows:

- Receptionist manages bookings and payments
- Doctor handles diagnosis and medical decisions
- All clinic data is centralized, structured, and secure