

Smart Appointment Booking System - Complete User Manual & Guide

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PART 1: SYSTEM OVERVIEW

What is the Smart Appointment Booking System?

The Smart Appointment Booking System is a web-based platform that allows patients to book medical appointments with doctors, manage their health records, and receive automatic notifications.

Key Features:

- Easy appointment booking
- Real-time availability checking
- Automatic email confirmations
- Medical records management
- Doctor availability tracking
- Secure login with protection against unauthorized access

System Requirements:

- Modern web browser (Chrome, Firefox, Safari, Edge)
- Internet connection
- Email address for account creation

PART 2: FOR PATIENTS

2.1 Creating a Patient Account

Step-by-Step Guide:

1. Visit the Application

- Open your web browser
- Go to: <http://localhost:8080/swagger-ui.html>

2. Register Account

- Click on "Authentication" section
- Click "POST /api/v1/auth/register"
- Click "Try it out" button
- Fill in the registration form:

```
{  
    "username": "john.doe",  
    "email": "john@example.com",  
    "password": "SecurePassword123!",  
    "firstName": "John",  
    "lastName": "Doe",  
    "role": "PATIENT"  
}
```

Password Requirements:

- Minimum 8 characters
- At least 1 uppercase letter (A-Z)
- At least 1 lowercase letter (a-z)
- At least 1 number (0-9)
- At least 1 special character (!@#\$%^&*)

3. Submit & Verify

- Click "Execute"
- You should see "HTTP 201" response
- Response shows your account created successfully

2.2 Logging In

Step-by-Step Guide:

1. Go to Login

- Click "POST /api/v1/auth/login"
- Click "Try it out"

2. Enter Credentials

```
{  
  "usernameOrEmail": "john.doe",  
  "password": "SecurePassword123!"  
}
```

3. Submit Login

- Click "Execute"
- Response shows:
 - token: Your JWT authentication token
 - refreshToken: Use this to get new token when expired
 - userId: Your unique ID
 - role: PATIENT

4. Save Your Token

- Copy the token value
- You'll use this for all API requests
- Authorization header: Bearer {token}

If Account is Locked:

- **You see:** "Account locked... Try again in 14 minutes"
- **What happened:** You entered wrong password 5 times
- **What to do:** Wait 15 minutes or contact administrator

2.3 Viewing Your Profile

Step-by-Step Guide:

1. Get Your User Info

- Go to "Users" section
- Click "GET /api/v1/users/{id}"
- Click "Try it out"
- Enter your user ID
- Add header: Authorization: Bearer {your-token}

- Click "Execute"

2. You'll See:

- Your username
- Your email
- Your name
- Phone number
- Account role

2.4 Booking an Appointment

Step-by-Step Guide:

1. View Available Doctors

- Go to "Doctors" section
- Click "GET /api/v1/doctors/available"
- Click "Try it out"
- Click "Execute"
- See list of available doctors with:
 - Doctor name
 - Specialization
 - Consultation fee
 - Available hours

2. Choose Doctor & Service

- Note the doctor ID
- Check their specialization
- Review consultation fee
- Verify their available hours

3. Book Appointment

- Go to "Appointments" section
- Click "POST /api/v1/appointments"
- Click "Try it out"
- Fill in the form:

```
{  
  "patientId": 1,  
  "doctorId": 1,  
  "serviceId": 1,  
  "appointmentDate": "2025-11-10",
```

```
        "startTime": "14:00",
        "endTime": "14:30",
        "reasonForVisit": "General Checkup"
    }
```

4. Submit Booking

- Click "Execute"
- If successful: "HTTP 201 Created"
- Response shows:
 - Appointment ID
 - Status: PENDING (waiting for doctor confirmation)
 - Date and time

What Happens Next:

- Doctor receives your booking
- Email notification sent to doctor
- Email confirmation sent to you
- Within 24 hours, doctor confirms or reschedules
- You receive confirmation email

If You See "Conflict" Error:

- **Error:** HTTP 409
- **Reason:** Doctor already has appointment at that time
- **Solution:** Try a different time slot

2.5 Viewing Your Appointments

Step-by-Step Guide:

1. View All Your Appointments

- Go to "Appointments" section
- Click "GET /api/v1/appointments"
- Click "Try it out"
- Click "Execute"
- See list showing:
 - Appointment ID
 - Doctor name
 - Date and time

- Status (PENDING, CONFIRMED, COMPLETED, CANCELLED)
- Reason for visit

2. View Specific Appointment

- Click "GET /api/v1/appointments/{id}"
- Enter appointment ID
- Click "Execute"
- See full details:
 - Doctor details
 - Medical notes
 - Prescription (if completed)
 - Follow-up appointment date

2.6 Canceling an Appointment

Step-by-Step Guide:

1. Select Appointment

- Find the appointment ID you want to cancel

2. Cancel Appointment

- Go to "Appointments" section
- Click "DELETE /api/v1/appointments/{id}"
- Enter appointment ID
- Click "Execute"
- Response: "Appointment cancelled successfully"

3. What Happens:

- Appointment status changed to CANCELLED
- Doctor receives cancellation notification
- Appointment slot becomes available again

2.7 Updating Your Profile

Step-by-Step Guide:

1. Update Profile

- Go to "Users" section
- Click "PUT /api/v1/users/{id}"
- Enter your user ID

- Fill in what you want to update:

```
{  
  "firstName": "Jonathan",  
  "lastName": "Smith",  
  "phoneNumber": "+919999999999"  
}
```

2. Submit Changes

- Click "Execute"
- Response shows updated profile

2.8 Resetting Password

If You Forgot Your Password:

1. Contact Administrator

- Email: admin@system.com
- Provide: Your username or email
- Admin will reset your password

2. New Password Steps:

- Admin sends temporary password
- Login with temporary password
- Update your password immediately
- Use new password for future logins

PART 3: FOR DOCTORS

3.1 Doctor Registration & Setup

Step-by-Step Guide:

1. Register Doctor Account

- Go to "Authentication" → "POST /api/v1/auth/register"
- Fill form with role: "DOCTOR"

```
{  
  "username": "dr.jane.smith",  
  "email": "jane@hospital.com",  
  "password": "DrPassword123!",  
  "firstName": "Jane",  
  "lastName": "Smith",  
  "role": "DOCTOR",  
  "isDoctor": true  
}
```

```
    "role": "DOCTOR"  
}
```

2. Login

- Use same credentials
- Save your JWT token

3. Create Doctor Profile

- Go to "Doctors" → "POST /api/v1/doctors"
- Fill in medical details:

```
{  
  "userId": 2,  
  "specialization": "Cardiology",  
  "licenseNumber": "LIC001",  
  "yearsOfExperience": 10,  
  "consultationFee": 500.00,  
  "availableFrom": "09:00",  
  "availableTo": "17:00"  
}
```

3.2 Viewing Appointments

Step-by-Step Guide:

1. View All Your Appointments

- Go to "Appointments" → "GET /api/v1/appointments"
- Click "Execute"
- Filter by your doctor ID

2. View Appointment Details

- Click specific appointment
- See:
 - Patient details
 - Reason for visit
 - Date and time
 - Current status

3.3 Confirming Appointments

Step-by-Step Guide:

1. Find Pending Appointment

- Go to appointments list
- Look for status: "PENDING"

2. Confirm Appointment

- Click "PATCH /api/v1/appointments/{id}/status"
- Enter appointment ID
- Fill:

```
{  
  "status": "CONFIRMED"  
}
```

3. Submit

- Click "Execute"
- Patient receives confirmation email

3.4 Completing Appointments

Step-by-Step Guide:

1. After Consultation

- Click "PUT /api/v1/appointments/{id}"
- Add medical information:

```
{  
  "diagnosis": "Patient shows signs of hypertension",  
  "prescription": "Take Lisinopril 10mg once daily",  
  "followUpRequired": true,  
  "followUpDate": "2025-11-24"  
}
```

2. Update Status

- Go to "PATCH /api/v1/appointments/{id}/status"
- Set status: "COMPLETED"

3. Patient Gets:

- Medical notes
- Prescription details

- Follow-up appointment scheduled

3.5 Managing Your Availability

Step-by-Step Guide:

1. Update Your Schedule

- Go to "Doctors" → "PUT /api/v1/doctors/{id}"
- Update available hours:

```
{  
  "availableFrom": "10:00",  
  "availableTo": "18:00"  
}
```

2. Apply Changes

- Click "Execute"
- New times apply immediately

PART 4: FOR ADMINISTRATORS

4.1 Administrator Access

Login as Admin:

1. Register Admin Account

- Use role: "ADMIN"

2. Admin Permissions:

- View all users
- Manage user accounts
- Unlock locked accounts
- View login attempt statistics
- View all appointments
- Manage doctors

4.2 Managing User Accounts

View All Users:

- Go to "Users" → "GET /api/v1/users"
- See complete user list

Delete User:

- Go to "Users" → "DELETE /api/v1/users/{id}"
- Enter user ID
- Account deleted permanently

4.3 Managing Login Security

View Failed Login Attempts:

- Go to "Admin - Login Throttling"
- Click "GET /api/v1/auth/admin/login-attempts/{username}"
- See:
 - Failed attempt count
 - Whether account is locked
 - Remaining lock time
 - Max allowed attempts

Unlock Locked Account:

- Go to "Admin - Login Throttling"
- Click "POST /api/v1/auth/admin/unlock/{username}"
- Account unlocked immediately
- User can login again

4.4 Monitoring System Health

Check API Health:

- Go to: <http://localhost:8080/actuator/health>
- Response shows:
 - Application status: UP/DOWN
 - Database connection: UP/DOWN
 - Cache status

View Metrics:

- Go to: <http://localhost:8080/actuator/metrics>
- See:
 - Number of requests
 - Average response time
 - Memory usage
 - Thread count

PART 5: API USAGE GUIDE (WITH CURL COMMANDS)

5.1 Registration Example

```
curl -X POST http://localhost:8080/api/v1/auth/register \
-H "Content-Type: application/json" \
-d '{
  "username": "john.doe",
  "email": "john@example.com",
  "password": "SecurePassword123!",
  "firstName": "John",
  "lastName": "Doe",
  "role": "PATIENT"
}'
```

Response:

```
{
  "success": true,
  "message": "User registered successfully",
  "data": {
    "id": 1,
    "username": "john.doe",
    "email": "john@example.com"
  }
}
```

5.2 Login Example

```
curl -X POST http://localhost:8080/api/v1/auth/login \
-H "Content-Type: application/json" \
-d '{
  "usernameOrEmail": "john.doe",
  "password": "SecurePassword123!"
}'
```

Response:

```
{  
    "success": true,  
    "message": "Login successful",  
    "data": {  
        "token": "eyJhbGciOiJIUzUxMiJ9...",  
        "refreshToken": "eyJhbGciOiJIUzUxMiJ9...",  
        "tokenType": "Bearer",  
        "userId": 1,  
        "username": "john.doe"  
    }  
}
```

5.3 Book Appointment Example

```
curl -X POST http://localhost:8080/api/v1/appointments \  
-H "Authorization: Bearer {your-token}" \  
-H "Content-Type: application/json" \  
-d '{  
    "patientId": 1,  
    "doctorId": 1,  
    "serviceId": 1,  
    "appointmentDate": "2025-11-10",  
    "startTime": "14:00",  
    "endTime": "14:30",  
    "reasonForVisit": "General Checkup"  
}'
```

5.4 Get All Appointments Example

```
curl -X GET http://localhost:8080/api/v1/appointments \  
-H "Authorization: Bearer {your-token}" \  
-H "Content-Type: application/json"
```

PART 6: TROUBLESHOOTING

Problem 1: Cannot Register Account

Error: Email already exists

Solution:

- Use different email address
- Email must be unique for each account
- Check you're not using existing email

Problem 2: Account Locked After Failed Login

Error: "Account locked for 14 minutes 59 seconds"

Why it happens:

- You entered wrong password 5 times
- System locks account for 15 minutes to prevent brute force attacks

Solution:

1. Wait 15 minutes
2. Or contact administrator to unlock
3. Try login again after 15 minutes

Problem 3: "Appointment Conflict" Error

Error: HTTP 409 Conflict

Why:

- Doctor already has appointment at that time
- Time slots cannot overlap

Solution:

1. Choose different time slot
2. Check doctor's available hours
3. Try different date

Problem 4: Cannot Create Appointment

Error: HTTP 401 Unauthorized

Why:

- JWT token missing or expired
- Token not sent in Authorization header

Solution:

1. Get new token by logging in again
2. Add Authorization header: Bearer {token}
3. Use exact token from login response

Problem 5: Cannot View Appointments

Error: HTTP 403 Forbidden

Why:

- You don't have permission
- Role doesn't allow this action

Solution:

- Use correct account with proper role
- Admin needed for viewing all users
- Patient can only see their own appointments

Problem 6: "Invalid Email Format"

Error: Email validation failed

Solution:

- Email must have format: user@domain.com
- Cannot have spaces
- Must include @ symbol and domain

Problem 7: "Password Too Weak"

Error: Password does not meet requirements

Requirements:

- Minimum 8 characters
- 1 uppercase letter (A-Z)
- 1 lowercase letter (a-z)
- 1 number (0-9)
- 1 special character (!@#\$%^&*)

Example Valid Password: MyPassword123!

PART 7: FREQUENTLY ASKED QUESTIONS (FAQ)

Q1: How do I change my password?

A: Contact system administrator

- Admin can reset your password
- You'll receive temporary password via email
- Login and change to new password immediately

Q2: How long is my login token valid?

A: 24 hours

- After 24 hours, token expires
- Use refresh token to get new access token
- Login again if refresh token expired

Q3: Can I book multiple appointments?

A: Yes

- Book as many as you need
- Each appointment needs unique time slot
- Doctor must have availability

Q4: What happens after I book an appointment?

A:

1. Appointment status: PENDING
2. Doctor receives notification
3. Doctor confirms or reschedules
4. You receive email notification
5. Status changes to CONFIRMED

Q5: Can I cancel appointment?

A: Yes

- Go to Appointments → DELETE
- Enter appointment ID
- Appointment cancelled
- Doctor notified

- Slot becomes available

Q6: How do doctors confirm appointments?

A:

1. Doctor views appointment
2. Reviews patient details
3. Updates status to CONFIRMED
4. Patient receives confirmation email

Q7: What is rate limiting?

A:

- Maximum 200 requests per minute per IP
- Prevents system overload
- Returns HTTP 429 if exceeded
- Wait a minute and retry

Q8: Why is my account locked?

A:

- You entered wrong password 5 times
- System locks for 15 minutes
- Wait 15 minutes or ask admin to unlock
- Protects against unauthorized access

Q9: What is progressive delay?

A:

- After wrong password:
 - 1st attempt: No delay
 - 2nd attempt: 1 second delay
 - 3rd attempt: 2 second delay
 - 4th attempt: 4 second delay
 - 5th attempt: Locked for 15 minutes

Q10: How do I contact support?

A:

- Email: admin@system.com
- Call: +91-XXXX-XXXX-XXXX
- Available: 9 AM - 5 PM IST

APPENDIX: QUICK REFERENCE

HTTP Status Codes

Code	Meaning	Action
200	Success	Request completed
201	Created	Resource created
400	Bad Request	Check input format
401	Unauthorized	Login required
403	Forbidden	No permission
404	Not Found	Resource doesn't exist
409	Conflict	Appointment conflict
423	Locked	Account locked
429	Too Many Requests	Rate limited, wait 1 min
500	Server Error	Contact support

Appointment Status

Status	Meaning
PENDING	Awaiting doctor confirmation
CONFIRMED	Doctor confirmed
COMPLETED	Appointment finished
CANCELLED	Appointment cancelled

User Roles

Role	Permissions
PATIENT	Book appointments, view own profile
DOCTOR	View patients, confirm appointments, add notes
ADMIN	Manage all users, unlock accounts, view stats

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