

Login Test Case

Test 1 - Login in as Patient

- For context: User Identifier starting with P is for Patients.

```
Enter User Identifier (or 'E' to exit): P1
Enter Password: Password8*
Login successful for user: Alice Brown
```

Test 2 - Login as Doctor

- For context: User Identifier starting with S is for Staff members. Based on their roles, their own menus will be displayed.

```
Enter User Identifier (or 'E' to exit): S1
Enter Password: pwd
Login successful for user: John Depp
This is your first login. You need to change your password.
Enter new password: Password8*
Confirm new password: Password8*
Notice: Password updated successfully.
```

Test 3 - Login with incorrect password

- Password was changed to Password8*

```
Enter User Identifier (or 'E' to exit): P1
Enter Password: pwd
Error: Invalid credentials. Please try again.
Enter User Identifier (or 'E' to exit): 
```

Patient Test Cases:

Patient Menu:

```
--- Patient Menu ---
1. View Medical Record
2. Update Personal Information
3. View Available Appointment Slots
4. Schedule an Appointment
5. Reschedule an Appointment
6. Cancel an Appointment
7. View Scheduled Appointments
8. View Past Appointment Outcome Records
9. Logout
```

Test 1 - View Medical Record:

- Since this is the first instance of running the application, there are no past diagnosis, treatments, and appointments.

```
Choose an option: 1
=== Medical Record ===
Patient Identifier: P1
Name: Alice Brown
Date of Birth: 1980-05-14
Gender: Female
Blood Type: A+
Contact Info: alice.brown@example.com
Phone Number: N/A

--- Diagnoses History ---
N/A

--- Treatments History ---
N/A

--- Past Appointments ---
N/A
```

Test 2 - Update Personal Information:

```
Choose an option: 2
Enter new contact information (email): (empty to keep current)
Enter new phone number: (empty to keep current) 87654321
Notice: Updated contact information.
```

- Verifying changes to Personal Information:

```
Choose an option: 1
=== Medical Record ===
Patient Identifier: P1
Name: Alice Brown
Date of Birth: 1980-05-14
Gender: Female
Blood Type: A+
Contact Info: alice.brown@example.com
Phone Number: 87654321

--- Diagnoses History ---
N/A

--- Treatments History ---
N/A

--- Past Appointments ---
N/A
```

Test 3.1 - View Available Appointment Slots (Enter valid index)

- Context: We have included 1 doctor pre-loaded for testing purposes

```
Choose an option: 3

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to view available slots (or 'E' to exit): 0

--- Available Slots for Dr. John Depp ---
0: 2024-11-18 @ 09:30
1: 2024-11-19 @ 09:30
```

Test 3.2 - View Available Appointment Slots (Enter incorrect index / 'E')

- Enter 'E' to return the previous menu

```
Choose an option: 3

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to view available slots (or 'E' to exit): E
Exiting to previous menu.
```

- Enter invalid index

```
Choose an option: 3

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to view available slots (or 'E' to exit): 2
Error: Invalid index. Returning to the previous menu.
```

Test 4.1 - Schedule an Appointment (Valid Doctor index + Appointment index)

```
Choose an option: 4

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to schedule an appointment: 0

--- Available Slots for Dr. John Depp ---
0: 2024-11-18 @ 09:30
1: 2024-11-19 @ 09:30
Enter the index of available time slot to schedule: 0
Scheduled appointment for Alice Brown with Dr. John Depp at 2024-11-18 @ 09:30
```

- Verifying that schedule has changed

```
Choose an option: 4

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to schedule an appointment: 0

--- Available Slots for Dr. John Depp ---
0: 2024-11-19 @ 09:30
Enter the index of available time slot to schedule: 0
```

Test 4.2 - Schedule an Appointment (Valid Doctor index + Invalid Appointment index)

```
Choose an option: 4

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to schedule an appointment: 0

--- Available Slots for Dr. John Depp ---
0: 2024-11-19 @ 09:30
Enter the index of available time slot to schedule: 1
Error: Invalid slot index. Returning to the previous menu.
```

Test 4.3 - Schedule an Appointment (Invalid Doctor index)

```
Choose an option: 4

--- Available Doctors ---
0: Dr. John Depp (Identifier: S1)
Enter the index of the doctor to schedule an appointment: 1
Error: Invalid index. Returning to the previous menu.
```

Test 5.1 - Reschedule an Appointment (Valid Current Appointment index + Valid Appointment index)

```
Choose an option: 5

--- Your Scheduled Appointments ---
0: Appointment Identifier: APT1731808007292, Time: 2024-11-18 @ 09:30, Status: Pending
Enter the index of the appointment to reschedule: 0

--- Available Slots for Dr. John Depp ---
0: 2024-11-19 @ 09:30
Enter the index of available time slot to reschedule: 0
Scheduled appointment for Alice Brown with Dr. John Depp at 2024-11-19 @ 09:30
```

- Verifying appointment has changed

```
Choose an option: 7

--- Your Scheduled Appointments ---
Appointment Identifier: APT1731808007292, Time: 2024-11-19 @ 09:30, Status: Pending
```

Test 5.2 - Reschedule an Appointment (Valid Current Appointment index + Invalid Appointment index)

```
Choose an option: 5

--- Your Scheduled Appointments ---
0: Appointment Identifier: APT1731808458576, Time: 2024-11-18 @ 09:30, Status: Pending
Enter the index of the appointment to reschedule: 1
Error: Invalid appointment index. Please try again.
```

Test 5.3 - Reschedule an Appointment (Invalid Current Appointment index)

```
Choose an option: 5

--- Your Scheduled Appointments ---
0: Appointment Identifier: APT1731808458576, Time: 2024-11-18 @ 09:30, Status: Pending
Enter the index of the appointment to reschedule: 1
Error: Invalid appointment index. Please try again.
```


Test 5.4 - Reschedule an Appointment (No Current Appointment)

```
Choose an option: 5  
Notice: No appointments to reschedule.
```

Test 6.1 - Cancel an Appointment (No current Appointment)

```
Choose an option: 6  
Notice: No scheduled appointments found to cancel.
```

Test 6.2 - Cancel an Appointment (Valid Current Appointment index)

```
Choose an option: 6  
  
--- Your Scheduled Appointments ---  
0: Appointment Identifier: APT1731808633273, Time: 2024-11-19 @ 09:30, Status: Pending  
Enter the index of the appointment to cancel: 0  
Appointment APT1731808633273 canceled.
```

- Verifying no existing current appointment

```
Choose an option: 7  
  
--- Your Scheduled Appointments ---  
Notice: No available appointments found.
```

Test 7.1 - View Scheduled Appointments (No appointments)

```
Choose an option: 7  
  
--- Your Scheduled Appointments ---  
Notice: No available appointments found.
```

Test 7.2 - View Scheduled Appointments (Has appointments)

```
Choose an option: 7  
  
--- Your Scheduled Appointments ---  
Appointment Identifier: APT1731808758030, Time: 2024-11-18 @ 09:30, Status: Pending
```

Test 8 - View Past Appointment Outcome Records (No past outcome records)

```
Choose an option: 8  
  
--- Your Past Appointments ---  
Notice: No available appointments found.
```

Test 9 - Logout

```
Choose an option: 9  
You have been logged out.  
Enter User Identifier (or 'E' to exit): █
```

Doctor Test Cases

Doctor Menu:

```
--- Doctor Menu ---
1. View Patient Records
2. Update Patient Records
3. View Schedule
4. Set Availability
5. Accept or Decline Appointment
6. View Upcoming Appointments
7. Record Appointment Outcome
8. Logout
```

Test 1.1 – View Patient Records (No patients)

```
Choose an option: 1
No patients assigned.
```

Test 1.2 - View Patient Records (Have patients + Valid Patient index)

```
Choose an option: 1

--- Assigned Patients ---
0: Patient Name: Alice Brown, Identifier: P1
Choose patient index to view medical records: 0
Medical Record for Patient Identifier: P1
=== Medical Record ===
Patient Identifier: P1
Name: Alice Brown
Date of Birth: 1980-05-14
Gender: Female
Blood Type: A+
Contact Info: alice.brown@example.com
Phone Number: N/A

--- Diagnoses History ---
N/A

--- Treatments History ---
N/A

--- Past Appointments ---
N/A
```

Test 1.3 - View Patient Records (Have patients+ Invalid Patient index)

```
Choose an option: 1

--- Assigned Patients ---
0: Patient Name: Alice Brown, Identifier: P1
Choose patient index to view medical records: 1
Error: Invalid index.
```

Test 2.1 – Update Patient Records (Have patients + Valid Patient index + Add Diagnosis)

```
Choose an option: 2

--- Assigned Patients ---
0: Patient Name: Alice Brown, Identifier: P1
Choose patient index to update medical records: 0
1. Add Diagnosis
2. Add Treatment
3. Add Prescription
Choose an option: 1

Enter Diagnosis Identifier: 1
Enter Diagnosis Details: Test
Notice: Diagnosis added for Patient: Alice Brown
```

Test 2.2 – Update Patient Records (Have patients + Valid Patient index + Add Treatment)

```
Choose an option: 2

--- Assigned Patients ---
0: Patient Name: Alice Brown, Identifier: P1
Choose patient index to update medical records: 0
1. Add Diagnosis
2. Add Treatment
3. Add Prescription
Choose an option: 2

Enter Treatment Identifier: 1
Enter Treatment Details: Test Treatment
Notice: Treatment added for Patient Identifier: Alice Brown
Notice: Treatment added successfully.
```


Test 2.3 – Update Patient Records (Have patients + Valid Patient index + Add Prescription)

```
Choose an option: 3

=== Inventory ===
0: Name: Paracetamol
1: Name: Ibuprofen
2: Name: Amoxicillin
Enter the index of the medicine to add (or -1 to finish): 0
Enter quantity for Paracetamol: 1
Added: Paracetamol (Quantity: 1)
Enter the index of the medicine to add (or -1 to finish): 1
Enter quantity for Ibuprofen: 1
Added: Ibuprofen (Quantity: 1)
Enter the index of the medicine to add (or -1 to finish): 2
Enter quantity for Amoxicillin: 1
Added: Amoxicillin (Quantity: 1)
Enter the index of the medicine to add (or -1 to finish): -1
Notice: Prescription added for Patient: Alice Brown
Notice: Prescription added successfully to patient record.
Notice: Prescription added: Pres1731809675039 Medicines: Paracetamol x 1, Ibuprofen x 1, Amoxicillin x 1 Status: Pending
Notice: Prescription added to PrescriptionHandler for pharmacist access.
```

Test 3 – View Schedule

```
Choose an option: 3

--- Available Timeslots ---
2024-11-19 @ 09:30

--- Upcoming Appointments ---
Appointment Identifier: APT1731809321318, Patient Identifier: P1, Scheduled Time: 2024-11-18 @ 09:30
```

Test 4 – Set Availability

```
Choose an option: 4
Enter availability date (YYYY-MM-DD): 2024-11-20
Enter time (HH:MM): 10:00
Notice: Availability added for Dr.John Depp: 2024-11-20 @ 10:00
```

Test 5.1 – Accept or Decline Appointment (No requests)

```
Choose an option: 5
Notice: No appointments to manage.
```

Test 5.2 – Accept or Decline Appointment (Have requests)

```
Choose an option: 5

--- Appointment Requests ---
0: Appointment Identifier: APT1731809321318, Time: 2024-11-18 @ 09:30, Status: Pending
Select appointment index to manage: 0
Accept or Decline (A/D): A
Notice: Appointment APT1731809321318 accepted.
```

Test 6 – View Upcoming Appointment

```
Choose an option: 6
Appointment Identifier: APT1731809321318, Time: 2024-11-18 @ 09:30, Status: Confirmed
```

Test 7 – Record Appointment Outcome

```
Choose an option: 7

--- Confirmed Appointments ---
0: Appointment Identifier: APT1731809321318, Time: 2024-11-18 @ 09:30, Status: Confirmed
Select appointment index to record an outcome: 0
Enter services provided: Test services
Enter any additional notes: test notes
Do you want to add a prescription? (Y/N): N
Notice: Outcome added for Patient: Alice Brown
Notice: Outcome recorded successfully (no prescription).
```

Test 8 – Verifying changes on Patient's medical record

```
Choose an option: 1

--- Assigned Patients ---
0: Patient Name: Alice Brown, Identifier: P1
Choose patient index to view medical records: 0
Medical Record for Patient Identifier: P1
=== Medical Record ===
Patient Identifier: P1
Name: Alice Brown
Date of Birth: 1980-05-14
Gender: Female
Blood Type: A+
Contact Info: alice.brown@example.com
Phone Number: N/A

--- Diagnoses History ---
2024-11-17 10:12 - Diagnosis Identifier: 1, Notes: Test

--- Treatments History ---
2024-11-17 10:12 - Treatment Identifier: 1, Description: Test Treatment

--- Past Appointments ---
===== Appointment Outcome =====
Appointment Date: 2024-11-18
Appointment Identifier: APT1731809321318
Services: Test services
Prescription: No Prescription
Notes: test notes
=====
```

Pharmacist Test Cases

Pharmacist Menu:

```
--- Pharmacist Menu ---
1. View Prescription Records
2. View Pending Prescription Records
3. Update Prescription Status
4. View Inventory
5. Submit Replenishment Request
6. View Replenishment Requests
7. Logout
```

Test 1 – View Prescription Records

```
Choose an option: 1

=====

Prescription Records:
Pres1731809675039 Medicines: Paracetamol x 1, Ibuprofen x 1, Amoxicillin x 1 Status: Pending

=====
```

Test 2 – View Pending Prescription Records

```
Choose an option: 2

=====

Pending Prescription Records:
Pres1731809675039 Medicines: Paracetamol x 1, Ibuprofen x 1, Amoxicillin x 1 Status: Pending

=====
```

Test 3 – Update Prescription Status

```
Choose an option: 3

--- Prescription Records ---
0: Pres1731809675039 Medicines: Paracetamol x 1, Ibuprofen x 1, Amoxicillin x 1 Status: Pending
Enter the index of the prescription to update status: 0
Notice: Prescription: Pres1731809675039 status updated to Dispensed.
Notie: Deducted 1 units of Paracetamol. Remaining stock: 99
Warning: Paracetamol requires replenishment.
Notie: Deducted 1 units of Ibuprofen. Remaining stock: 49
Notie: Deducted 1 units of Amoxicillin. Remaining stock: 74
```

- Verifying changed status

```
Choose an option: 2

=====

Pending Prescription Records:
Error: No pending prescriptions available.

=====
```

```
Choose an option: 1

=====

Prescription Records:
Pres1731809675039 Medicines: Paracetamol x 1, Ibuprofen x 1, Amoxicillin x 1 Status: Dispensed

=====
```

Test 4 – View Inventory

```
Choose an option: 4

=== All Medicines ===
Name: Paracetamol, Stock: 99, Alert Level: 120
Name: Ibuprofen, Stock: 49, Alert Level: 10
Name: Amoxicillin, Stock: 74, Alert Level: 15
```

Test 5 – Submit Replenishment Request

```
Choose an option: 5

--- Medicine Inventory ---
0: Paracetamol - Current Stock: 99
1: Ibuprofen - Current Stock: 49
2: Amoxicillin - Current Stock: 74
Enter the index of the medicine for replenishment: 0
Enter amount to replenish for Paracetamol: 10
Notice: Request Submitted: 10 units of Paracetamol
```

Test 6 – View Replenishment Request

```
Choose an option: 6

=====

Replenishment Requests by Pharmacist:
Request Identifier: R1711102456, Medicine: Paracetamol, Amount: 10, Status: Pending

=====
```

Administrator Test Cases

Administrator Menu

```
--- Administrator Menu ---
1. Manage Staff
2. Manage Medicine Stock
3. Approve Replenishments
4. View Appointments Details
5. Log out
```

Test 1.1 – Manage Staff -> Add Staff

```
=====
1. Add Staff
2. Update Staff
3. Remove Staff
4. View All Staff
5. Filter Staff
6. Return
Enter an action (1-6): 1
Enter User Identifier: S2
Enter Password: Password8*
Enter Name: Clarke
Enter Gender (Male/Female): Male
Enter Role (Doctor/Pharmacist): Pharmacist
Enter Age: 29
Notice: Staff member added: Clarke (Identifier: S2)
```

Test 1.2 – Manage Staff -> Update Staff

```
--- All Staff ---
0: ID: S1, Name: John Depp, Role: Doctor
1: ID: S2, Name: Clarke Ken, Role: Pharmacist
2: ID: S3, Name: Emilia Toh, Role: Administrator
3: ID: S2, Name: Clarke, Role: Pharmacist
Enter the index to Update: 3
Enter New Name (SPACE for unchanged): Ben
Enter New Role (SPACE for unchanged): Doctor
Notice: Role updated. Staff member changed to: Ben (ID: S2, Role: Doctor)
Enter New Age (SPACE for unchanged):
Notice: Updated staff member: Ben (ID: S2)
```

Test 1.3 – Remove Staff

```
--- All Staff ---
0: ID: S1, Name: John Depp, Role: Doctor
1: ID: S2, Name: Clarke Ken, Role: Pharmacist
2: ID: S3, Name: Emilia Toh, Role: Administrator
3: ID: S2, Name: Ben, Role: Doctor
Enter the index to Remove: 3
Notice: Staff member: S2 removed.
```


Test 1.4 – View All Staff

```
--- All Staff ---  
ID: S1, Name: John Depp, Role: Doctor, Gender: Male, Age: 45  
ID: S2, Name: Clarke Ken, Role: Pharmacist, Gender: Male, Age: 30  
ID: S3, Name: Emilia Toh, Role: Administrator, Gender: Female, Age: 40  
ID: S2, Name: Ben, Role: Doctor, Gender: Male, Age: 29
```

Filter Menu:

```
Filter by:  
1. Role  
2. Gender  
3. Age  
4. Show All  
5. Return
```

Test 1.5 – Filter Staff -> Role

```
Enter role to filter by (e.g., Doctor, Pharmacist): Doctor  
  
Filtered Staff by Role: Doctor:  
Name: John Depp, Identifier: S1, Role: Doctor, Gender: Male, Age: 45
```

Test 1.6 - Filter Staff -> Gender

```
Choose an option (1-5): 2  
Enter gender to filter by (Male/Female): Male  
  
Filtered Staff by Gender: Male:  
Name: John Depp, Identifier: S1, Role: Doctor, Gender: Male, Age: 45  
Name: Clarke Ken, Identifier: S2, Role: Pharmacist, Gender: Male, Age: 30
```

Test 1.7 - Filter Staff -> Age

```
Choose an option (1-5): 3  
Enter age to filter by: 30  
  
Filtered Staff by Age: 30:  
Name: Clarke Ken, Identifier: S2, Role: Pharmacist, Gender: Male, Age: 30
```

Test 1.8 - Filter Staff -> Show All

```
--- All Staff ---  
ID: S1, Name: John Depp, Role: Doctor, Gender: Male, Age: 45  
ID: S2, Name: Clarke Ken, Role: Pharmacist, Gender: Male, Age: 30  
ID: S3, Name: Emilia Toh, Role: Administrator, Gender: Female, Age: 40
```


Medicine Management Menu

```
--- Medicine Management ---  
1. View Medicine  
2. Add New Medicine  
3. Update Medicine Stock  
4. Update Stock Alert Level  
5. Remove Medicine  
6. Return
```

Test 2.1 – Manage Medicine Stock -> View Medicine

```
=== All Medicines ===  
Name: Paracetamol, Stock: 100, Alert Level: 120  
Name: Ibuprofen, Stock: 50, Alert Level: 10  
Name: Amoxicillin, Stock: 75, Alert Level: 15
```

Test 2.2 - Manage Medicine Stock -> Add New Medicine

```
Enter Medicine Name: Antibiotics  
Enter Initial Stock: 50  
Enter Stock Alert Level: 30  
Notice: Medicine added: Antibiotics, Stock: 50, Alert level: 30
```

Test 2.3 – Manage Medicine Stock -> Update Medicine Stock

```
--- Medicine Inventory ---  
0: Paracetamol (Stock: 100, Alert Level: 120)  
1: Ibuprofen (Stock: 50, Alert Level: 10)  
2: Amoxicillin (Stock: 75, Alert Level: 15)  
3: Antibiotics (Stock: 50, Alert Level: 30)  
Enter the index of the medicine: 3  
Enter new stock amount: 29  
Notice: Updated stock: Antibiotics to 29.
```

Test 2.4 – Update Stock Alert Level

```
--- Medicine Inventory ---  
0: Paracetamol (Stock: 100, Alert Level: 120)  
1: Ibuprofen (Stock: 50, Alert Level: 10)  
2: Amoxicillin (Stock: 75, Alert Level: 15)  
3: Antibiotics (Stock: 29, Alert Level: 30)  
Enter the index of the medicine: 3  
Enter new stock alert level: 20  
Notice: Updated alert level for Antibiotics to 20.
```

Test 2.5 – Remove Medicine

```
--- Medicine Inventory ---
0: Paracetamol (Stock: 100, Alert Level: 120)
1: Ibuprofen (Stock: 50, Alert Level: 10)
2: Amoxicillin (Stock: 75, Alert Level: 15)
3: Antibiotics (Stock: 29, Alert Level: 20)
Enter the index of the medicine: 3
Notice: Antibiotics removed.
Notice: Removed medicine: Antibiotics
```

Test 3.1 – Approve Replenishment Request (No request)

```
Choose an option: 3
Error: No requests found.
```

Test 3.2 – Approve Replenishment Request (Have request)

```
Choose an option: 3
Pending Requests:
0: Request: R1711110314, Medicine: Paracetamol, Requested Amount: 10, Status: Pending
Enter the index: 0
Notice: 10 stocks added to Paracetamol.
New amount: 110
Notice: Request R1711110314 approved.
```

Test 3.3 – View Appointments Details

```
Choose an option: 4

=====
Appointments in the System

Appointment Identifier: APT1731812644223, Time: 2024-11-18 @ 09:30, Status: Confirmed
=====
```