# LOGIN & AUTHENTICATION

| **Test Case** | **Expected Outcome** | **Result** |
| --- | --- | --- |
| 1. Authentication | User has to login with a valid hospital ID.  **[Exception Handling]**  If user enters an invalid hospital ID, an error message is displayed, and User is prompted to try again.  The default password that every user has is “password”  User is then prompted to change their password.  **[Exception Handling]**  During password verification, if user enters a password that is different from the one that they have set, an error message is displayed, and User is prompted to renter their new password. | **[ Invalid hospital ID]**    **[ User enters non-matching passwords ]**    **[ User enters wrong password ]**    **[ User successfully logins ]** |

# INFORMATION ACCESS

| **Test Case** | **Expected Outcome** | **Result** |
| --- | --- | --- |
| 1. View Medical Record | All the Patient’s information and medical records are being printed out. | **[ Patient’s Medical Record ]** |
| 1. Update Personal Information | Patient is prompted to update their email address. Patient is unable to update other personal information.  **[ Error Handling ]**  If Patient enters an invalid email format, an error message is displayed and Patient is redirected back to Patient Menu. | **[ Patient Information successfully updated ]**    **[ Updated Patient Email ]**    **[ Invalid Email Format ]** |

# NURSE

| **Test Case** | **Expected Outcome** | **Result** |
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| 1. Login as Nurse to register new Patient | Nurse can view the Nurse Menu and choose to “Register New Patient” or “Exit”.  **[Backtracking]**  Entering “0” allows the Nurse to go back to the Hospital Management System Menu.  **[Register New Patient]**  Nurse is prompted to enter the following details:   * Name (String), Date of Birth (DateTime), Gender (String), Blood Type (String) and email address (String) * Error checking is done at every step for invalid inputs .   Upon successful registration, a new Patient ID is generated and the Patient is successfully added to the database. | **[ Nurse successfully registers Patient ]**    **[ Returned to the Hospital Management System Menu after entering “0” ]** |

# APPOINTMENT MANAGEMENT

| **Test Case** | **Expected Outcome** | **Result** |
| --- | --- | --- |
| 1. Viewing Available Appointment Slots as a Patient | Patient is prompted to enter the date that they wish to view the available appointment slots.  Displays a list of time slots belonging to the specific doctor.  **[ Exception Handling ]**  If Patient enters an invalid date format that doesn’t follow (yyyy-MM-dd) an error message is displayed and Patient is redirected to the Patient menu.  **[ Backtracking ]**  Patient is redirected to the Patient menu after the available appointment slots is displayed. | **[ Viewing available appointment slots ]**    **[ Invalid date format ]** |
| 1. Scheduling an appointment as a Patient | Patient is prompted to enter the doctor’s ID that they would like to schedule an appointment, the time and the date of the appointment.  **[Exception Handling]**  If Patient enters an unavailable appointment timeslot,an error message is displayed and Patient is redirected to the Patient Menu  If Patient enters an invalied DoctorID, an error message is displayed and Patient is redirected to the Patient Menu.  **[ Backtracking ]**  Entering “9” in the Patient menu allows the Patient to go back to the login menu. | **[ Appointment Scheduled ]**    **[ Timeslot unavailable ]**    **[ Invalid DoctorID ]** |
| 1. Viewing Scheduled Appointments as Patient | All the appointments with status of PENDING and COMPLETED are being printed together with the appointment details that include:   * AppointmentID * Date * Appointment Time * Doctor * Status * Consultation Notes   **[ Backtracking ]**  Patient is redirected to Patient Menu after scheduled appointments are displayed | **[ Scheduled Appointments displayed ]** |
| 1. Rescheduling an appointment as a Patient | Patient is prompted to input the new appointment ID of the appointment they wish to reschedule together with the new date and time  **[ Error Handling ]**  If invalid appointment ID was entered, an error message will be printed and Patient is redirected to Patient Menu | **[ Rescheduling of Appointment ]**    **[ Invalid Appointment ID ]** |
| 1. Cancelling an appointment as a Patient | Patient is prompted to input the appointment ID of the appointment they wish to cancel  Appointment status gets updated from CONFIRMED to CANCELLED  **[ Error Handling ]**  If invalid appointment ID was entered, an error message will be printed and Patient is redirected to Patient Menu | **[ Cancelling of Appointment ]**    **[ Invalid Appointment ID ]** |
| 1. Accepting or Declining Appointment Requests as a Doctor | All the appointments that Patients have scheduled are visible.  **[ Accept Appointment ]**  When appointment has been accepted, appointment status is updated from PENDING to CONFIRMED.  **[ Decline Appointment ]**  When appointment has been declined, appointment status is updated to AVAILABLE to indicate that the slot is free for other Patients  **[ Error Handling ]**  If invalid appointment ID was entered, an error message will be printed and Doctor is redirected to Doctor Menu  If Doctor enters an invalid choice other than “1” or “2” when deciding to accept/decline the appointment, an error message will be printed and Doctor is redirected to Doctor Menu | **[ List of Appointments to accept/decline]**    **[ Appointment accepted ]**    **[ Invalid choice ]**    **[ Invalid Appointment ID ]**    **[ Patient updated list of Scheduled Appointments ]** |
| 1. View Upcoming Appointments as Doctor | All the confirmed appointments, together with the Patient ID, date, start & end time and consultation notes are printed.  **[ Backtracking ]**  Doctor is immediately directed back to the Doctor Menu after all confirmed appointments are printed | **[ List of CONFIRMED Scheduled Appointments]** |
| 1. Set Availability for Appointments as Doctor | Doctor is prompted to input the date, start and end time to indicate when he is unavailable for appointments  Status of appointment is updated from AVAILABLE to NOT\_AVAILABLE  **[ Error Handling ]**  If Doctor enters an invalid date format that doesn’t follow (yyyy-MM-dd) an error message is displayed and Doctor is redirected to the Doctor menu.  If Doctor enters an invalid time format that doesn’t follow (HH:mm) an error message is displayed and Doctor is redirected to the Doctor menu.  If Doctor enters a time where he currently has a CONFIRMED appointment, an error message is displayed and Doctor is redirected to the Doctor menu. | **[ Successful setting of availability ]**      **[ Invalid Date or Time ]** |
| 1. Recording Appointment Outcome as Doctor | Doctor is prompted to input the relevant details for appointment outcome:   * AppointmentID * Consultation Notes * Diagnosis Name, Date * Treatment Name, Date, Details * Medication Name, Dosage   + Doctor is also prompted to enter yes/no to add another medication   Patients are now able to view their past appointment outcome records that consist of:   * AppointmentID * Date * Appointment Time * Doctor * Status * Consultation Notes   Appointment status updated from CONFIRMED to COMPLETED | **[ Recording Appointment Outcome ]** |
| 1. Viewing of Past Appointment Outcome Records | Displays the CONFIRMED appointments that belong to the patient together with the appointment outcome record | **[ Viewing of Past Appointment Outcome Records as Patient ]** |

# MEDICAL RECORD MANAGEMENT

| **Test Case** | **Expected Outcome** | **Result** |
| --- | --- | --- |
| 1. View Medical Records as Doctor | Displays the list of patients under the doctor’s care  **[ View Medical Record ]**  Doctor is then prompted to input the hospital ID of the patient whose medical record they would like to view  A list of the medical records that belongs to that patient is printed out  **[ Error Handling ]**  If the doctor inputs a hospital ID of a patient that is not under his care, an error message is printed and Doctor is redirected back to the Doctor menu. | **[ List of Patients in the Hospital ]**    **[ Medical Records of a Patient that is under Doctor’s Care ]**    **[ Patient not under Doctor’s Care ]** |
| 1. Update Patient Medical Record as Doctor | Doctor is prompted to enter the appointment ID of the medical record that they would like to update and the relevant details:   * New Diagnosis Name, Date * New Treatment name, Date, Details * New Medication Name, Dosage   + Doctor is prompted to enter yes/no to add another medication   **[ Error Handling ]**  If doctor enters an appointment ID that does not belong to them, an error message is printed and Doctor is redirected to Doctor Menu. | **[ Updating Patient Medical Record ]**    **[ Patient not under Doctor’s Care ]** |
| 1. View updated Medical Record as Patient | Displays the updated medical record | **[ Updated Patient Medical Record ]** |

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# PRESCRIPTION MANAGEMENT

| **Test Case** | **Expected Outcome** | **Result** |
| --- | --- | --- |
| 1. View Appointment Outcome Record | Displays the list of appointments containing the medical records with pending medication status  **[ Backtracking ]**  Redirects Pharmacist back to the Pharmacist Menu | **[ List of Appointments and Medical Record with pending medication status ]** |
| 1. Update Prescription Status | Pharmacist is prompted to enter the Medical Record ID that they wish to dispense medicine for.  **[ Error Handling ]**  If the Medical Record ID that the Pharmacist entered as no pending undispensed medications, an error message is displayed and Pharmacist is redirected to Pharmacist Menu.  If the Medical Record consists of a medicine that is currently not in the inventory, an error message is displayed and Pharmacist is redirected to Pharmacist Menu. | **[ Medication Successfully Dispensed ]**    **[ Invalid Medical Record ID ]**    **[ Medicine not available in inventory ]** |
| 1. View Medication Inventory | Displays the medication inventory which consists of:   * Medicine Name * Stock * Low Stock Alert * Status   Displays an alert message when quantity of medicine has went under the quantity set for low stock alert. | **[ View of Medication Inventory ]**    **[ View of Medication Inventory with low stock alert ]** |
| 1. Submit Replenishment Request | Pharmacist is prompted to enter the medicine name that they would like to replenish to send a replenishment request to administrators.  **[ Error Handling ]**  If Pharmacist enters an invalid medicine name, an error message is displayed and Pharmacist is redirected to Pharmacist Menu. | **[ Sending replenishment request ]**    **[ Invalid medicine name ]** |

**ADMINISTRATOR**

| **Test Case** | **Expected Outcome** | **Result** |
| --- | --- | --- |
| 1. View and Manage Hospital Staff | Displays the Manage Staff menu  **[ View All Staff ]**  Displays all Staff with the following details:   * Hospital ID * Name * Role * Gender * Age   **[ Add Staff ]**  Admin is prompted to enter the Staff details which include:   * Role * Identification Number * Name * Gender * Age   **[ Update Staff ]**  Admin is prompted to enter the Staff ID that he wishes to updated followed by:   * New name * New gender * New Age   Admin can leave the inputs as blank if he wishes to not change certain details.  **[ Remove Staff ]**  Admin is prompted to enter the Staff ID of the Staff he wishes to remove.  **[ Error Handling ]**  If invalid Staff details were entered while adding Staff, an error message is displayed and Admin is redirected to Manage Staff Menu.  If invalid Staff ID is entered while updating or removing Staff, an error message is displayed and Admin is redirected to Manage Staff Menu.  **[ Backtracking ]**  Admin can enter “5” if he wishes to exit the Manage Staff Menu and return back to the Administrator Menu | **[ Manage Staff Menu ]**    **[ View All Staff ]**      **[ Successful addition of Staff ]**    **[ Successful update to Staff details ]**    **[ Successful removal of Staff ]**      **[ Invalid Staff Details ]**      **[ Staff Not Found ]** |
| 1. View Appointment Details | Displays the list of scheduled appointment that includes:   * DoctorID * PatientID * Date * Start & End time * Appointment Status * Appointment outcome record (for completed appointments) that includes   + Type of service   + Prescribed Medications   + Consultation notes | **[ Appointment Details ]** |
| 1. View and Manage Medication Inventory | Displays the medication inventory that consists of:   * Medication name * Stock * Low stock alert * Status   together with an alert for medications below the low stock threshold.  Displays an Edit Medication Menu and prompts Admin to select an option.  **[ Add Medicine ]**  Admin is prompted to input the medication name, stock and low stock alert of the medicine they wish to add.  Upon successful addition, medication inventory is displayed again with the newly added medicine and the Admin is redirected to the Edit Medication Menu.  **[ Remove Medicine ]**  Admin is prompted to input the medication name they wish to remove.  Upon successful removal, medication inventory is displayed again without the medicine that was removed and the Admin is redirected to the Edit Medication Menu.  **[ Update Stock Level ]**  Admin is prompted to input the medication name whose stock level they wish to update, together with the new stock and new low stock alert.  Upon a successful update, medication inventory is displayed again with the updated details and the Admin is redirected to the Edit Medication Menu.  **[ Error Handling ]**  If Admin were to enter an invalid medication name when removing a medicine or updating the stock level, an error message will be displayed and Admin will be redirected to the Edit Medication Menu. | **[ Viewing Medication Inventory ]**    **[ Successful addition of medicine ]**    **[ Successful removal of medicine ]**    **[ Invalid medication name ]** |
| 1. Approve Replenishment Requests | Displays the medicine that needs to be replenished.  Admin is then prompted to enter the medication name he wishes to replenish and the quantity to add.  **[ Error Handling ]**  If Admin enters an invalid medication name, an error message is displayed and Admin is redirected to Admin Menu. | **[ Replenishment Request Approved ]**    **[ Invalid Medicine Name ]** |