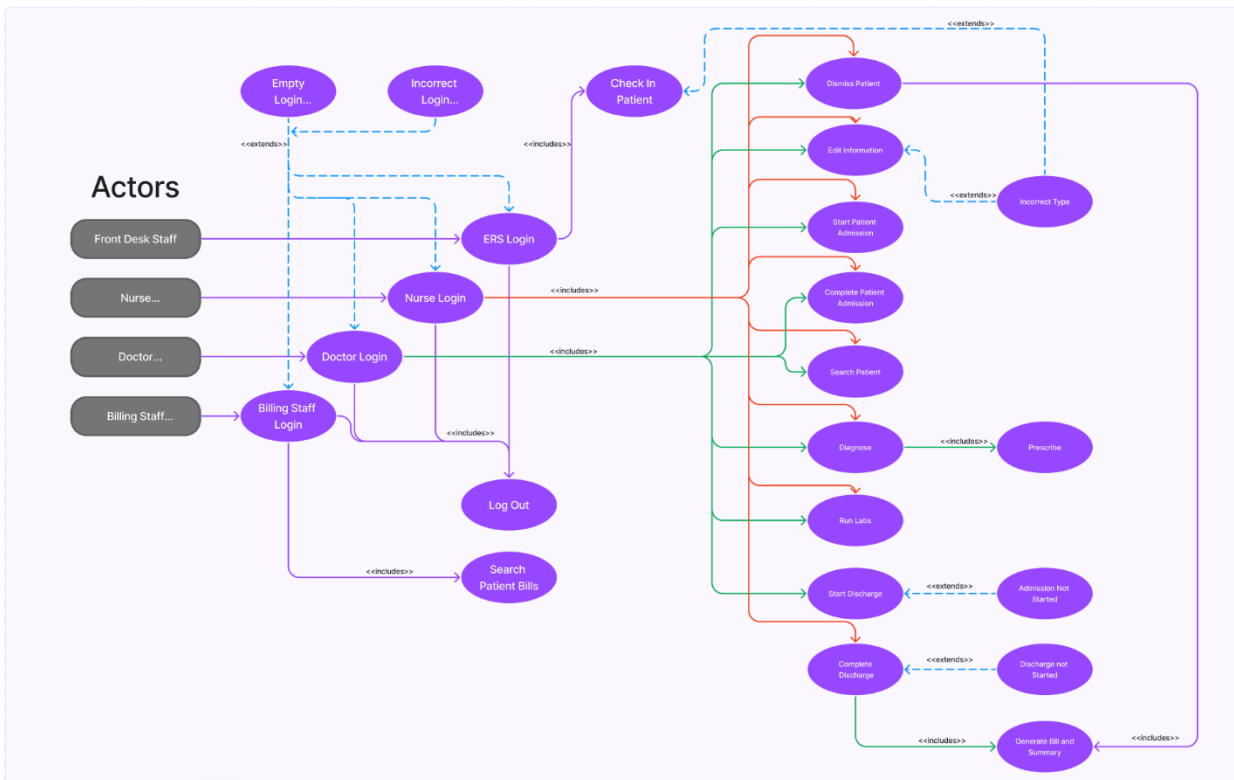


## Use Case Diagram



<b>Use Case Name</b>	ERSLogin
<b>Participating Actors</b>	Initiated by Front Desk Worker
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The front desk worker initiates the process by entering their unique username and password into the ERS System.</li> <li>2. The system verifies the entered credentials against the database.</li> <li>3. If the credentials are valid, the system redirects the worker to the main dashboard.</li> </ol>
<b>Entry Condition</b>	The front desk worker is at the workstation with the CARES System login screen ready.
<b>Exit Condition</b>	The front desk worker gains access to the CARES system and is presented with the main dashboard appropriate to their role.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	CheckInPatient LogOut
<b>Extended Relationships</b>	IncorrectLogin EmptyLogin

<b>Use Case Name</b>	NurseLogin
<b>Participating Actors</b>	Initiated by Nurse
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The front desk worker initiates the process by entering their unique username and password into the CARES System.</li> <li>2. The system verifies the entered credentials against the database.</li> <li>3. If the credentials are valid, the system redirects the Nurse to the main dashboard.</li> </ol>
<b>Entry Condition</b>	The Nurse is at the CARES System login interface on a workstation.
<b>Exit Condition</b>	The nurse has successfully logged into the system and is presented with the nurse-specific dashboard, with access to all necessary functionalities for their role.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	CheakInPatient LogOut SeePatient SearchPatient EditInformation StartPatientAdmission RunLabs StartDischarge
<b>Extended Relationships</b>	IncorrectLogin EmptyLogin

<b>Use Case Name</b>	DoctorLogin
<b>Participating Actors</b>	Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The Doctor initiates the process by entering their unique username and password into the CARES System.</li> <li>2. The system verifies the entered credentials against the database.</li> <li>3. If the credentials are valid, the system redirects the Doctor to the main dashboard.</li> </ol>
<b>Entry Condition</b>	The Doctor is at the CARES System login interface on a workstation.
<b>Exit Condition</b>	The Doctor has successfully logged into the system and is presented with the nurse-specific dashboard, with access to all necessary functionalities for their role.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	CheakInPatient LogOut SeePatient SearchPatient EditInformation CompletePatientAdmission RunLabs CompleteDischarge
<b>Extended Relationships</b>	IncorrectLogin EmptyLogin

<b>Use Case Name</b>	BillingStaffLogin
<b>Participating Actors</b>	Initiated by BillingStaff
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>4. The BillingStaff initiates the process by entering their unique username and password into the CARES System.</li> <li>5. The system verifies the entered credentials against the database.</li> <li>6. If the credentials are valid, the system redirects the BillingStaff to the main dashboard.</li> </ol>
<b>Entry Condition</b>	The Doctor is at the CARES System login interface on a workstation.
<b>Exit Condition</b>	The Doctor has successfully logged into the system and is presented with the nurse-specific dashboard, with access to all necessary functionalities for their role.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	SearchPatient SearchPatientBills
<b>Extended Relationships</b>	IncorrectLogin EmptyLogin

<b>Use Case Name</b>	CheckInPatient
<b>Participating Actors</b>	Initiated by EmergencyRoomStaff
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The EmergencyRoomStaff greets the patient and requests their first name, last name, address, insurance, emergency contact and, DOB and enters it into the CARES System</li> <li>2. The system creates and stores a new Patient and assigns a unique identifier to the Patient.</li> <li>3. The CARES system returns a message validating the storage of the patient.</li> </ol>
<b>Entry Condition</b>	The patient arrives at the emergency room and the EmergencyRoomStaff is ready to check them in using the CARES system, AKA they are logged in
<b>Exit Condition</b>	The EmergencyRoomStaff submits the patient information into the CARES system and their information is stored. OR The EmergencyRoomStaff cancels check in.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	ERSLogin Logout
<b>Extended Relationships</b>	IncorrectType CancelCheckIn

<b>Use Case Name</b>	SearchPatientBills
<b>Participating Actors</b>	Initiated by BillingStaff
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The BillingStaff selects the option to search for patient bills within the CARES system.</li> <li>2. The staff enters the patient's unique identifier or other identifying information into the search function.</li> <li>3. The system searches the database and displays a list of patients matching the search criteria.</li> <li>4. The BillingStaff selects the correct patient record to view detailed billing information.</li> <li>5. The system displays the patient's billing history, including itemized charges, payments, and balance due.</li> </ol>
<b>Entry Condition</b>	The BillingStaff is logged into the CARES system and needs to access a patient's billing information.
<b>Exit Condition</b>	<p>The BillingStaff has successfully retrieved the patient's billing records from the CARES system. OR</p> <p>The CARES system is unable to find the patient and alerts BillingStaff</p>
<b>Quality Requirements</b>	
<b>Included Relationships</b>	<p>LogOut</p> <p>SearchPatientBills</p>
<b>Extended Relationships</b>	None

<b>Use Case Name</b>	LogOut
<b>Participating Actors</b>	Initiated by any authenticated User (EmergencyRoomStaff, Nurse, Doctor, BillingStaff)
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The User navigates to the log out option within the CARES system interface.</li> <li>2. The system terminates the user's session.</li> <li>3. The system returns to the login screen, ensuring that no unauthorized access to the user's session can occur after they leave the workstation.</li> </ol>
<b>Entry Condition</b>	The user is logged into the CARES system and has completed their tasks.
<b>Exit Condition</b>	The user has successfully logged out of the CARES system
<b>Quality Requirements</b>	
<b>Included Relationships</b>	None
<b>Extended Relationships</b>	None



<b>Use Case Name</b>	IncorrectLogin
<b>Participating Actors</b>	Initiated by any authenticated User (EmergencyRoomStaff, Nurse, Doctor, BillingStaff)
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The User enters their username and password.</li> <li>2. The CARES system validates the credentials against the database.</li> <li>3. If the credentials are incorrect, the system displays an error message indicating the login attempt has failed.</li> </ol>
<b>Entry Condition</b>	The User attempts to log in to the CARES system.
<b>Exit Condition</b>	The User either successfully logs in after re-entering credentials OR The User remains at the login screen
<b>Quality Requirements</b>	Login error messages should not reveal which part of the credentials is incorrect to avoid aiding potential unauthorized users.
<b>Included Relationships</b>	None
<b>Extended Relationships</b>	None

<b>Use Case Name</b>	EmptyLogin
<b>Participating Actors</b>	Initiated by any authenticated User (EmergencyRoomStaff, Nurse, Doctor, BillingStaff)
<b>Flow of Events</b>	<ol style="list-style-type: none"><li>1. The User hits login without any username and password.</li><li>2. The CARES system prompts the User to enter their username and password.</li></ol>
<b>Entry Condition</b>	The User attempts to log in to the CARES system without any text in the username and password textbox
<b>Exit Condition</b>	The User either successfully logs in after entering credentials OR The User remains at the login screen
<b>Quality Requirements</b>	
<b>Included Relationships</b>	None
<b>Extended Relationships</b>	None

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<b>Use Case Name</b>	EditInformation
<b>Participating Actors</b>	Initiated by EmergencyRoomStaff Initiated by Nurse Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The EmergencyRoomStaff/Nurse/Doctor clicks the “Edit Information” button on the portal dashboard.</li> <li>2. The dashboard enables the searched patient’s information to be changed by each field box.</li> <li>3. The EmergencyRoomStaff/Nurse/Doctor fills in what fields of the the patient that needs to be filled/updated. Each field remains unchanged until the EmergencyRoomStaff/Nurse/Doctor clicks the submit button</li> <li>4. The EmergencyRoomStaff/Nurse/Doctor clicks the submit button.</li> <li>5. The CARES System checks to make sure that all fields were inputted correctly (no errors in numbers or data type)</li> <li>6. The CARES System displays the edited information in the patient’s display portal.</li> </ol>
<b>Entry Condition</b>	The EmergencyRoomStaff/Nurse/Doctor is logged into the CARES System
<b>Exit Condition</b>	The EmergencyRoomStaff/Nurse/Doctor has clicked the submit button for all additions/changes made to the patient’s information and the CARES System does not throw any errors in the enter fields.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogin DoctorLogin Logout
<b>Extended Relationships</b>	IncorrectType

<b>Use Case Name</b>	IncorrectType
<b>Participating Actors</b>	Initiated by EmergencyRoomStaff Initiated by Nurse Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"><li>1. This use case extends the CheckInPatient use case and the EditInformation use case.</li><li>2. The exception is initiated by the CARES System whenever an EmergencyRoomStaff/Nurse/Doctor puts in any information that is of the wrong type for the field and hits a submit button.</li><li>3. Displays an error to the user</li></ol>
<b>Entry Condition</b>	The EmergencyRoomStaff/Nurse/Doctor is entering/editing information into the system
<b>Exit Condition</b>	The EmergencyRoomStaff/Nurse/Doctor has clicked the submit buttons for all additions/changes made to the patient's information and the CARES System displays an error message for each type of field that is wrong.

<b>Use Case Name</b>	StartPatientAdmission
<b>Participating Actors</b>	Initiated by Nurse Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The Nurse/Doctor clicks the “Request Admission” button in the portal dashboard</li> <li>2. The dashboard responds with a message saying “sent Admission Request”</li> <li>3. The CARES System sends the request to the Doctor, who is the only staff member that can approve the admission.</li> <li>4. The Doctor, who could be signed in, will be able to click the “Approve Admission” button.</li> </ol>
<b>Entry Condition</b>	The Nurse/Doctor is logged into the CARES System
<b>Exit Condition</b>	The Nurse/Doctor has clicked the “Request Admission” button, and the request is sent with no runtime error. In the case of the Nurse, there is nothing more for them to do. In the case of the Doctor, they are required to hit the “Approve Admission” button in order to move on.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogin DoctorLogin Logout
<b>Extended Relationships</b>	

<b>Use Case Name</b>	CompletePatientAdmission
<b>Participating Actors</b>	Initiated by Nurse Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. In the case of the Doctor, the Doctor presses the “Approve Admission” button.</li> <li>2. That allows the Nurse/Doctor to click the button “Complete Admission”, and then the Nurse/Doctor can continue on with any tests and treatments</li> </ol>
<b>Entry Condition</b>	The Nurse/Doctor are logged into the CARES System.
<b>Exit Condition</b>	The Nurse/Doctor has clicked “Complete Admission” the CARES System makes sure that Admission was started and approved by the Doctor before moving on.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogin DoctorLogin Logout
<b>Extended Relationships</b>	AdmissionNotStarted

<b>Use Case Name</b>	AdmissionNotStarted
<b>Participating Actors</b>	Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"><li>1. This use case extends the StartDischarge use case</li><li>2. The exception is initiated by the CARES System whenever a Nurse/Doctor clicks the “Complete Admission” button when the admission process has not been started by the Nurse/Doctor.</li></ol>
<b>Entry Condition</b>	The Doctor goes to click the “Start Discharge” button.
<b>Exit Condition</b>	The Doctor is informed by the system that he pateint has not yet been admitted

<b>Use Case Name</b>	RunLabs
<b>Participating Actors</b>	Initiated by Nurse Initiated by Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"><li>1. The Nurse/Doctor has clicked the “Run Labs” button with any of the checkboxes for corresponding Lab types.</li><li>2. The CARES System produces lab results for the labs chosen and displays them in the result section of the patient dashboard.</li></ol>
<b>Entry Condition</b>	The Nurse/Doctor is logged into the CARES System.
<b>Exit Condition</b>	The CARES System has produced the requested labs’ results in the result section of the dashboard.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogin DoctorLogin Logout
<b>Extended Relationships</b>	



<b>Use Case Name</b>	Diagnose
<b>Participating Actors</b>	Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The doctor selects the Diagnose option for the specific patient</li> <li>2. The doctor selects the condition of the patient from the list.</li> <li>3. The CARES system updates the patient's profile with the diagnosis.</li> <li>4. The doctor adds notes/comments for the patient.</li> <li>5. The diagnosis is complete, and the doctor can now prescribe medication or log out.</li> </ol>
<b>Entry Condition</b>	The doctor must be logged into the CARES System and patient must be checked into the system.
<b>Exit Condition</b>	The doctor can log out of the CARES system after the successful diagnosis of a patient.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogin DoctorLogin Prescribe Logout
<b>Extended Relationships</b>	

<b>Use Case Name</b>	Prescribe
<b>Participating Actors</b>	Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. After the diagnosis is complete, the doctor selects the medicine/(s) to be prescribed from the list of medications available based on the patient's diagnosis/condition.</li> <li>2. The CARES system adds the prescriptions to the patient's profile.</li> <li>3. The doctor adds comments and instructions about the medication for the patient.</li> </ol>
<b>Entry Condition</b>	The Doctor has already completed the diagnosis and is at the CARES System prescription interface.
<b>Exit Condition</b>	The CARES system successfully adds prescription to patient's profile and the doctor can log out.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	Diagnose DoctorLogin NurseLogin Logout
<b>Extended Relationships</b>	

<b>Use Case Name</b>	StartDischarge
<b>Participating Actors</b>	Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The doctor is at the discharge interface and starts the discharge of the specific patient after the orders come in from the doctor.</li> <li>2. After the discharge has been started, the doctor can later complete the discharge.</li> <li>3. The CARES system begins the discharge process for the selected patient.</li> <li>4. The doctor can add notes/comments for the patient.</li> </ol>
<b>Entry Condition</b>	The nurse must be logged in and at the CARES System discharge interface.
<b>Exit Condition</b>	The nurse successfully starts the patient's discharge, which can be completed by the doctor.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogIn LogOut
<b>Extended Relationships</b>	

<b>Use Case Name</b>	CompleteDischarge
<b>Participating Actors</b>	Nurse
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The nurse is at the CARES System discharge interface and proceeds to complete the patient's discharge.</li> <li>2. The nurse adds discharge instructions and notes for the patient.</li> <li>3. The system successfully discharges the patient and the patient's bill, and summary can now be generated.</li> </ol>
<b>Entry Condition</b>	The Nurse is at the CARES System login interface on a workstation.
<b>Exit Condition</b>	The Nurse successfully completes the discharge of the patient and logs out of the CARES System.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	DoctorLogin Logout
<b>Extended Relationships</b>	DischargeNotStarted

<b>Use Case Name</b>	DismissPatient
<b>Participating Actors</b>	Nurse, Doctor
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. Nurse/Doctor logs into CARES System, and looks up patient using patient ID which was generated upon check-in.</li> <li>2. After the patient has been seen and if they do not require admission to the hospital, the Doctor or nurse can Dismiss the patient.</li> <li>3. The Nurse/Doctor is at the patient's profile and selects the Dismiss Patient option.</li> <li>4. The CARES system successfully dismisses the patient from the system.</li> <li>5. The patient's bill and summary can now be generated.</li> </ol>
<b>Entry Condition</b>	The Nurse/Doctor is logged into the CARES System.
<b>Exit Condition</b>	The Nurse/Doctor successfully dismisses the patient from the CARES System and can now generate the bill and summary.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	NurseLogin DoctorLogin GenerateBillAndSummary Logout
<b>Extended Relationships</b>	

<b>Use Case Name</b>	GenerateBillAndSummary
<b>Participating Actors</b>	Doctor/Nurse
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The Nurse/Doctor is at the specific patient's profile in the CARES system and clicks on the "Dismiss Patient" button or the nurse is at the specific patient's profile and selects the "Complete Discharge" button.</li> <li>2. The discharged/dismissed patient's bill and summary is generated.</li> <li>3. After the generation of the bill and summary, it can be accessed by the billing staff.</li> </ol>
<b>Entry Condition</b>	The patient must be dismissed or discharged first, before the generation of a bill and summary.
<b>Exit Condition</b>	After the successful completion of the bill and summary generation of the patient, the Nurse/Doctor logs out of the CARES System. The generated Bill and Summary can be accessed by the billing staff.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	Login CompleteDischarge DismissPatient LogOut
<b>Extended Relationships</b>	

<b>Use Case Name</b>	DischargeNotStarted
<b>Participating Actors</b>	Doctor, Nurse
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. The doctor can start the discharge of a patient when the discharge has not yet started when they go into completing discharge.</li> <li>2. The nurse cannot access the discharge completion portion if the doctor has not yet started it.</li> </ol>
<b>Entry Condition</b>	The Doctor or Nurse is at the Discharge completion interface.
<b>Exit Condition</b>	Doctor starts discharge which a nurse can complete, or the Nurse is unable to complete discharge as it has not been started.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	Log In Log Out
<b>Extended Relationships</b>	CompleteDischarge

<b>Use Case Name</b>	SearchPatient
<b>Participating Actors</b>	Doctor, Nurse
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. After the front desk has checked a patient in, a Doctor or Nurse can search for a patient within the CARES System.</li> <li>2. The doctor or nurse puts in the patient ID or other identifying information into the "Search" bar.</li> <li>3. The system then searches the database and displays the patient/(s) matching the search in the results.</li> <li>4. The doctor or patient then selects the correct patient whose record they need to update or view.</li> <li>5. The system will then allow the Doctor/Nurse to carry out the functions that they are eligible to access.</li> <li>6. The doctor can diagnose, prescribe medication, etc, and the nurse can admit the patient, etc. from there.</li> </ol>
<b>Entry Condition</b>	The Doctor or Nurse is logged into the CARES system at the Search Patient portal.
<b>Exit Condition</b>	The Doctor or Nurse has accessed the specific patient's profile that was created upon check-in with all the information related to the patient's case.
<b>Quality Requirements</b>	
<b>Included Relationships</b>	Log In Log Out
<b>Extended Relationships</b>	



<b>Scenario Name</b>	Doctor Starts Patient Discharge and Nurse Completes Patient Discharge
<b>Participating Actors</b>	Brown: Doctor Mark: Patient Ashley: Nurse
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. Dr. Brown walks into Mark's hospital room and informs him that he is ready to be discharged. Mark is ready to go home and waiting by his hospital bed for the discharge to begin.</li> <li>2. Dr. Brown uses his credentials to log into the CARES System and is taken to the main dashboard. The doctor searches Mark on the CARES. system using his patient ID, then selects the discharge option and starts inputting Marks's information for his discharge from the hospital.</li> <li>3. Dr. Brown has started the discharge and informs Ashley that Mark's discharge has been initiated. Dr. Brown leaves his comments in the comment box and logs out of the system.</li> <li>4. Dr. Brown informs Ashley of the specific instructions he wants her to provide to Mark and informs Mark that Ashley will take care of the rest.</li> <li>5. Mark thanks Dr. Brown. Dr. Brown moves onto his next patient.</li> <li>6. Ashley logs into the CARES System using her credentials and is taken to the nurse-specific dashboard. Ashley searches Mark using his patient ID and proceeds to complete the discharge.</li> <li>7. Ashley adds all the necessary discharge instructions as per Dr. Brown's instructions and clicks the "Complete Discharge" button.</li> <li>8. The CARES System responds by generating the bill and summary for Mark which is mailed to Mark's physical address by the Billing Staff.</li> <li>9. Ashley logs out of the system. Mark takes his belongings, thanks Ashley, and leaves the hospital building to go home.</li> </ol>

<b>Scenario Name</b>	Emergency Room Staff Edits a Patient's Information
<b>Participating Actors</b>	Patricia: EmergencyRoomStaff Connor: Patient
<b>Flow of Events</b>	<ol style="list-style-type: none"><li>1. Patricia is stationed at the front desk of the emergency room department. She has logged in to one of the computers at the desk and has the CARES System open and ready to go.</li><li>2. A man enters the emergency room from the public entrance and starts to walk over to the front desk. Patricia checks him in by asking for his information and setting up a patient profile for him.</li><li>3. Connor goes to sit down in the waiting area to be called by a Nurse. He then forgets that he gave Patricia the wrong permanent living address because he recently moved to an apartment across town.</li><li>4. Connor walks up to the front desk again and talks with Patricia about changing his patient information.</li><li>5. Patricia looks Connor by his first and last name in the CARES Patient Dashboard. The CARES System responds when Patricia clicks the "Search Patient" button, displaying the Patient's info if his name was entered correctly.</li><li>6. Patricia changes the permanent address by entering the field the new address. Then, the changes are finalized when she clicks the "Edit Information" button. The CARES System responds by inserting the changes into Connor's patient profile.</li><li>7. Patricia says to Connor that he is all set and can sit back down. Patricia can either leave the CARES System open on her computer or logout by clicking the "Logout" button.</li></ol>

<b>Scenario Name</b>	EmergencyRoomStaffPatientCheckIn
<b>Participating Actors</b>	Sam: EmergencyRoomStaff John: Patient
<b>Flow of Events</b>	<ol style="list-style-type: none"> <li>1. Sam is sitting at the front desk in the emergency room lobby with the login screen for the CARES System open.</li> <li>2. John enters the room and approaches the front desk where Sam is currently seated.</li> <li>3. John approaches Sam at the front desk and asks to be checked in to see a doctor about severe pain in their chest.</li> <li>4. Sam uses his username and password to login into the CARES System by entering them in the appropriate fields and is met with a screen to check in a new patient.</li> <li>5. Sam asks John for their information including his first name, last name, address, insurance, emergency contact and, DOB and enters it into the CARES System in there corresponding "Text Feilds"</li> <li>6. Sam then clicks the "Check-In" Button and logs out of the CARES System for security reasons.</li> <li>7. Sam tells john to take a seat and they will be called when someone is ready for them to be seen.</li> </ol>