**CSE 222**

**PROJECT FINAL REPORT - GROUP 1**

**Prison Management System**

**1. Group Members**

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**2. Problem Deﬁnition**

The problem is to manage a prison fast, easily and safely. In big institutions such as prisons  
most of the time the problem is weak communication and information among the  
personnel. Our aim is to solve this communication and information problem. Prisons have  
personnel such as administrator, governor, chief jailer, jailers, staff members (e.g. cook,  
cleaning, healthcare), prisoners etc.; or rooms such as cells, wards, dining hall etc.  
All this information is kept tracked by the system and only authorized personnel can use this  
system. We call them users. Users can reach any data and do actions about their authorities  
in the prison. For example; registering, head counting, shifting, adding daily food menus etc.  
As a Result by using this system, we will be able to handle weak communication and  
information problem such that users can access everything immediately.

**3. Users of the System**

The prison system has users such as administrator, governor, jailers, chief jailer and staff members(cooks , healthcare personnels and cleaning personnels).

* **Administrator** manage the system by adding and removing governor.
* **Governor** can enter and remove information about the prisoners such as name, surname, T.C number, criminal record, the number of the ward and prisoner’s relative information. Also, governor can add and remove another users.

He/She keeps the information of these users. This information is name, surname, T.C number and user’s profession.

* **Chief jailer** manages other guards. He/She assigns them to the necessary departments. Chief jailer also manages visitor entrance and exit.
* **Jailers** enter the census details of the prisoners every morning and evening. He/She can access prisoners' information.
* **Healthcare personnels** enter prisoners’ health information into the system. Arranges the appointment system for health check.
* **Cleaning personnels** arranges the hours of cleaning. He/She enters the cleaning information of the wards into the system.
* **Cooks** organize the menu and enter the menu into the system.

**4. Requirements**

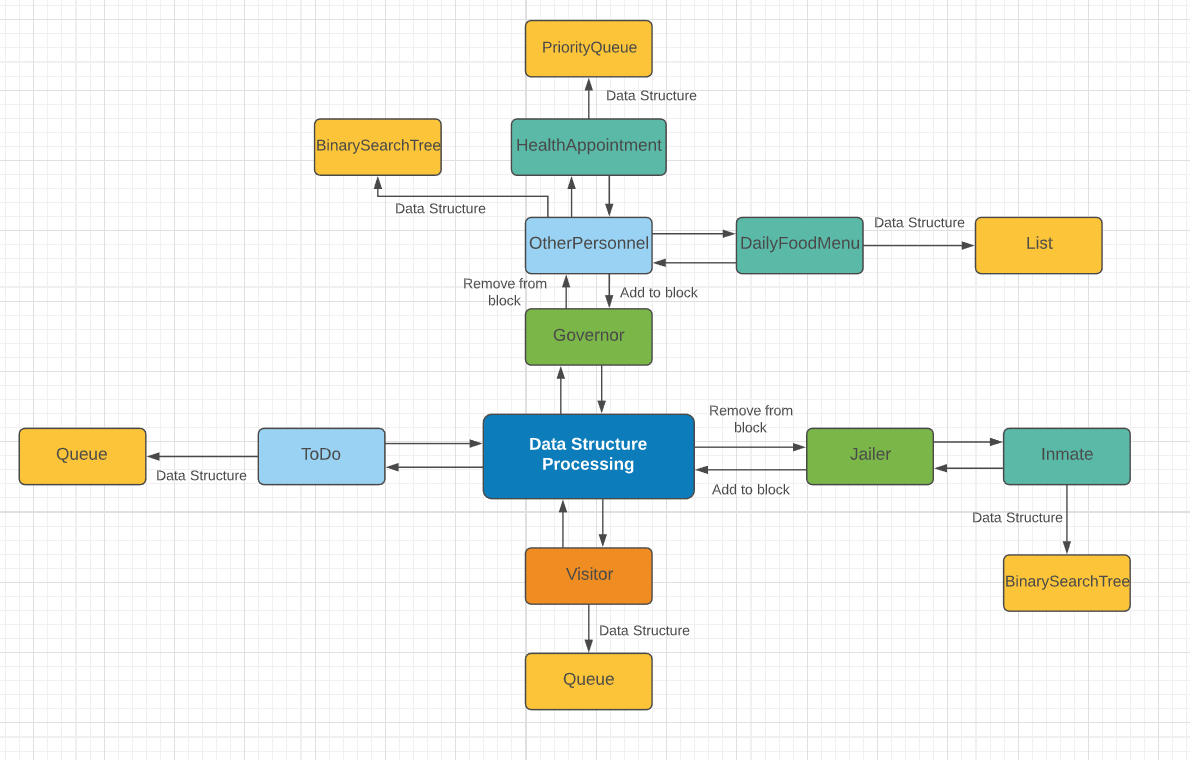
**Functional Requirements**

|  |  |
| --- | --- |
| **Requirement**  **ID** | **Description of the Requirement** |
| **FR1** | Administrator (e.g. Secretary of Justice) shall be able to add or remove  Governor. |
| **FR2** | Governor shall be able to add or remove prisoners. |
| **FR3** | Governor shall be able to add or remove personnel  (Jailers, Cooks, Health Personnel). |
| **FR4** | Chief Jailer shall be able to manage visitors. |
| **FR5** | Chief Jailer shall be able to manage jailers (Work Deportments, Shift Hours). |
| **FR6** | Jailers shall be able to update prisoner census data. |
| **FR7** | Jailers shall be able to declare state of alert. |
| **FR8** | Healthcare Personnel shall be able to manage and update prisoners health status. |
| **FR9** | All Users shall be able to login successfully and safely. |
| **FR10** | Cooks shall be able to organize the menu and enter the menu into the system. |
| **FR11** | Cleaning personnel shall be able to arrange the hours of cleaning. |

**Non-Functional Requirements**

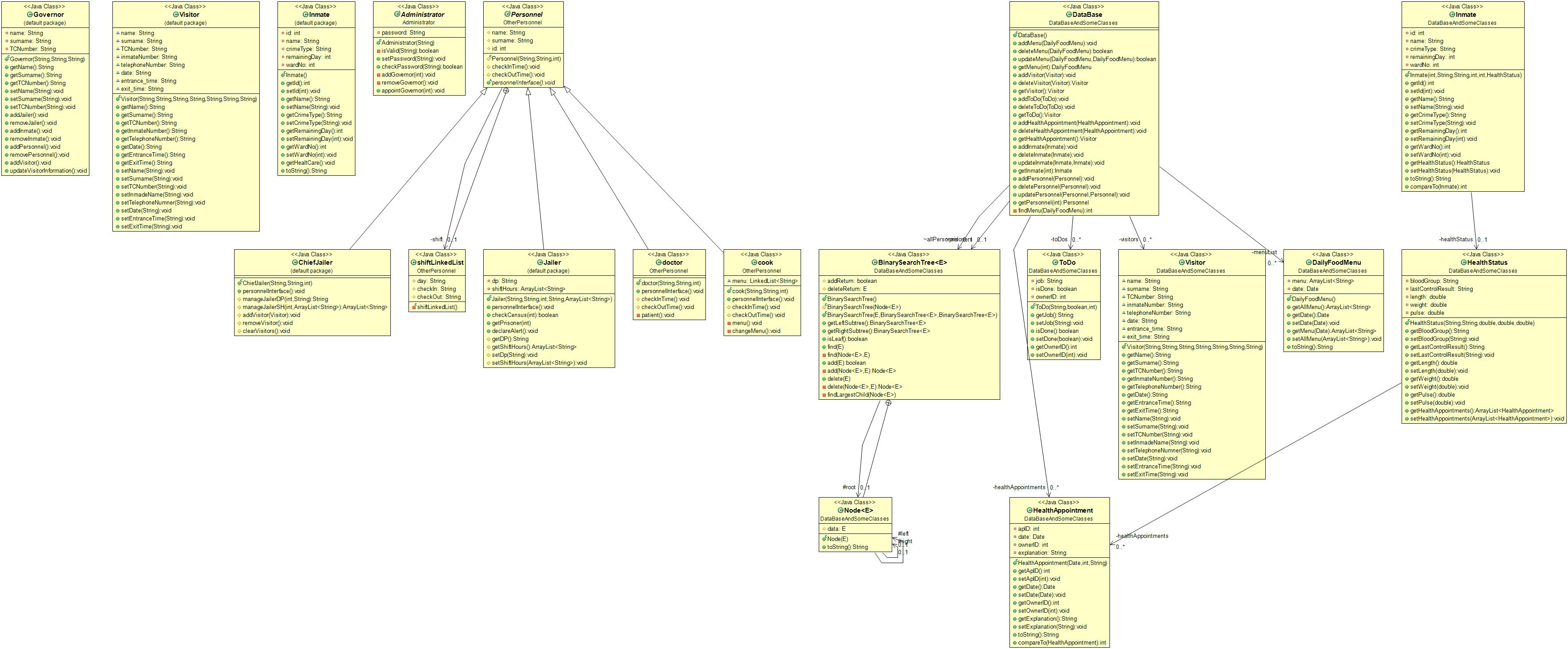
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| --- | --- |
| **Requirement**  **ID** | **Description of the Requirement** |
| **NFR1** | Hardware should be able to run at least Java SE13. |
| **NFR2** | System can operate on any hardware. The seller is not in charge of any leaks in security if customer decides to change their hardware or their operating system. |
| **NFR3** | System should be able to provide information on user’s request in less than 1 second in optimal conditions. |
| **NFR4** | Anyone outside the prison ( such as visitor ) does not have any access to prisoners’ information. Visitors need to be conﬁrmed by prison’s prisoner’s to be able to enter the jail. |
| **NFR5** | Personnel having access to the system (especially administrators) should do the training course provided by our experienced staff. |
| **NFR6** | System should be easy to use and user experience should be simple enough so that even the elderly personnel is able to catch up fast. |
| **NFR7** | Customer buying the system is required to report the maximum capacity of the prison (maximum number of prisoners, staff, administrators of the  system etc.) |
| **NFR8** | For registering someone new into the system they are required to be in possession of an either id card, residential permit or a passport, otherwise they become a temporary prisoner until their identiﬁcation is conﬁrmed. |
| **NFR9** | Reinstalling the system should be done by professionals in case of failure |

**5. Detailed System Modules**

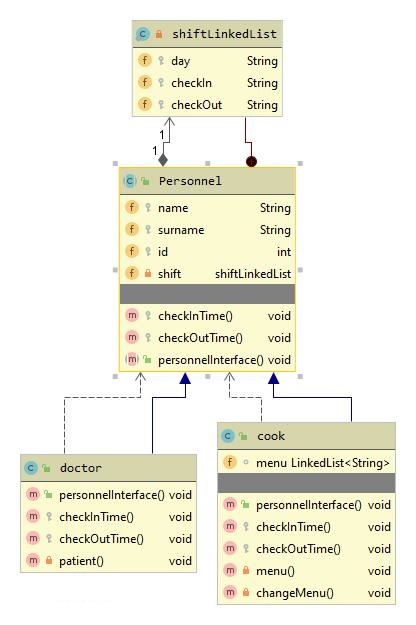
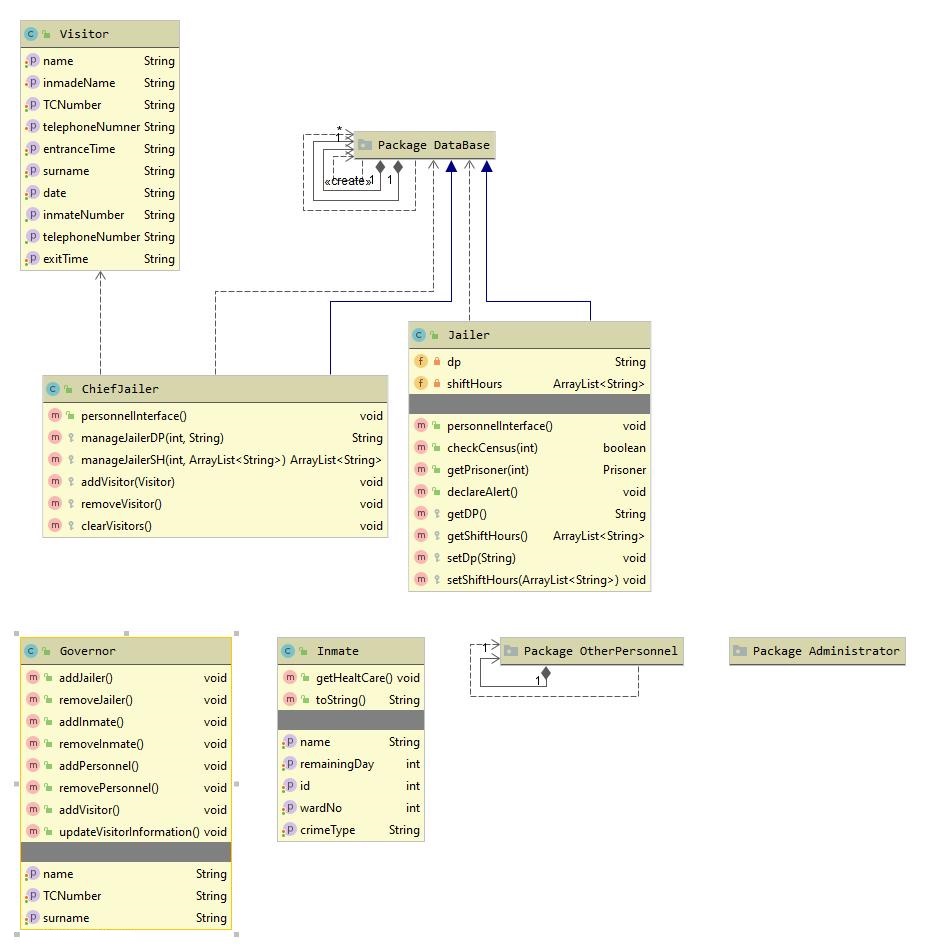


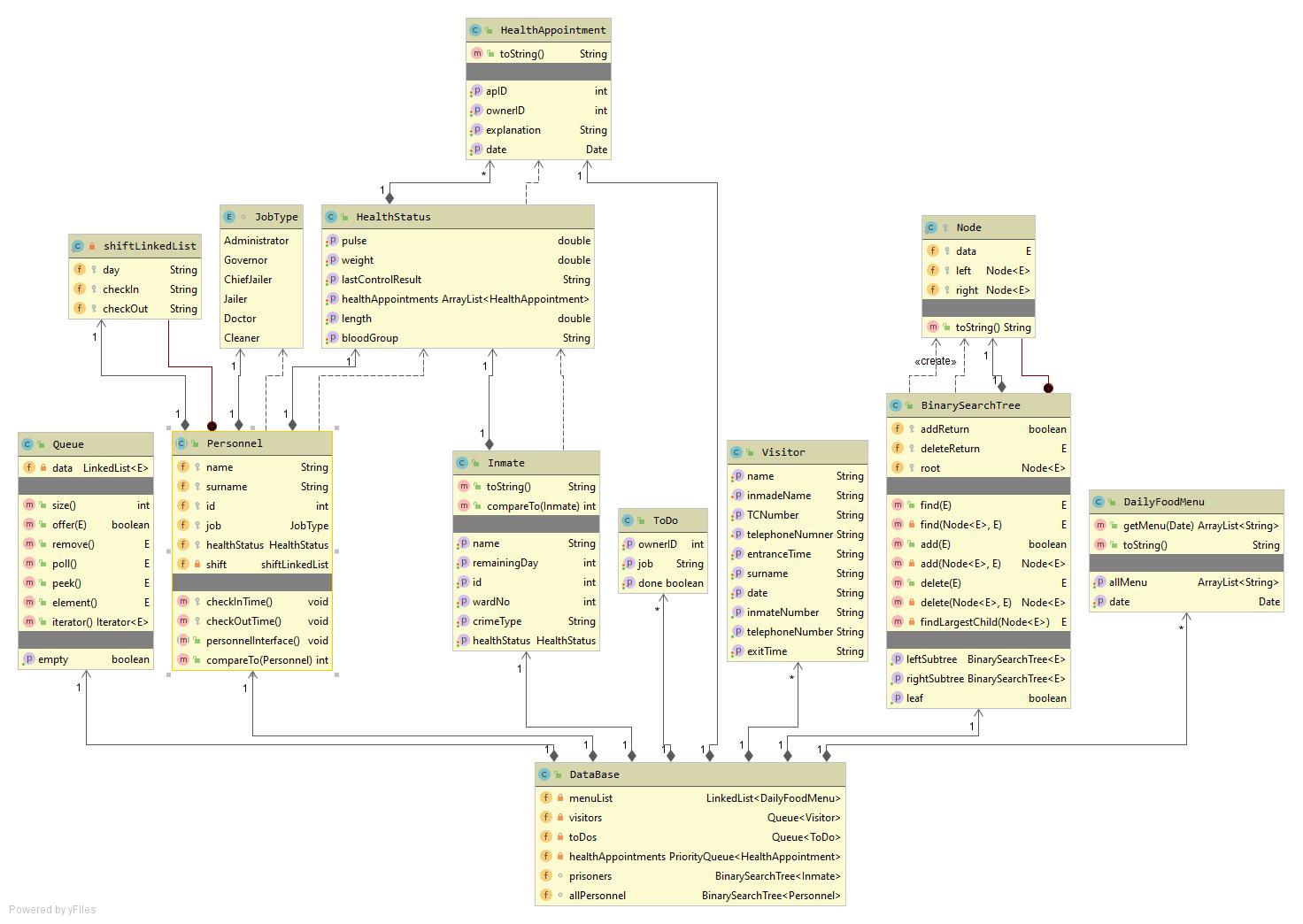
**6. Class Diagrams**

* All Classes in one Diagram



* Class Diagrams Separately





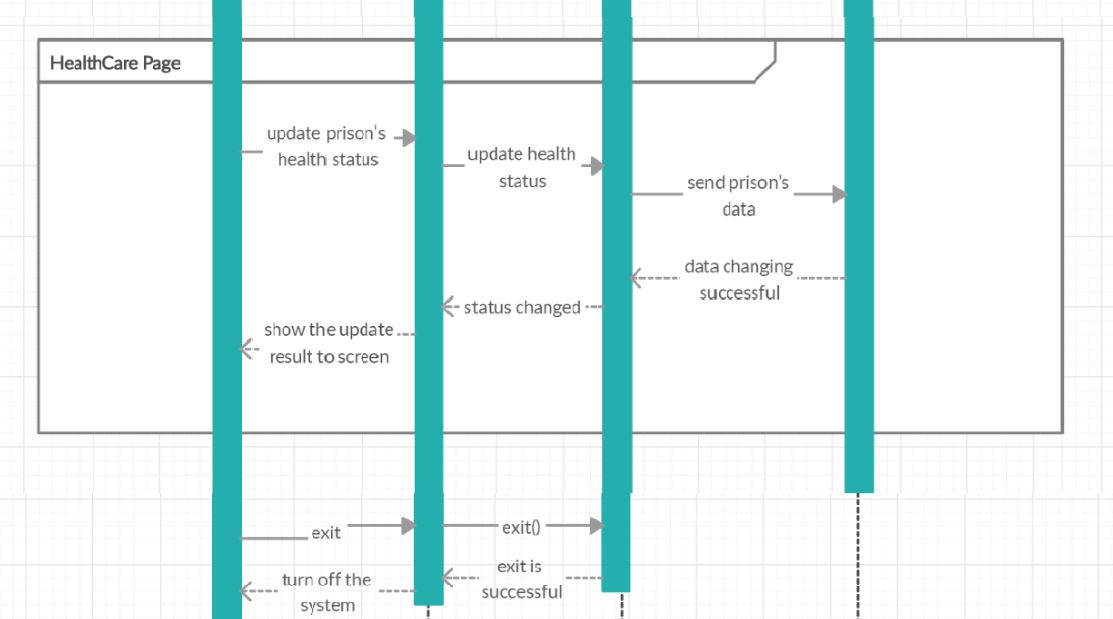
**7. Sequence Diagrams(Has Changed)**





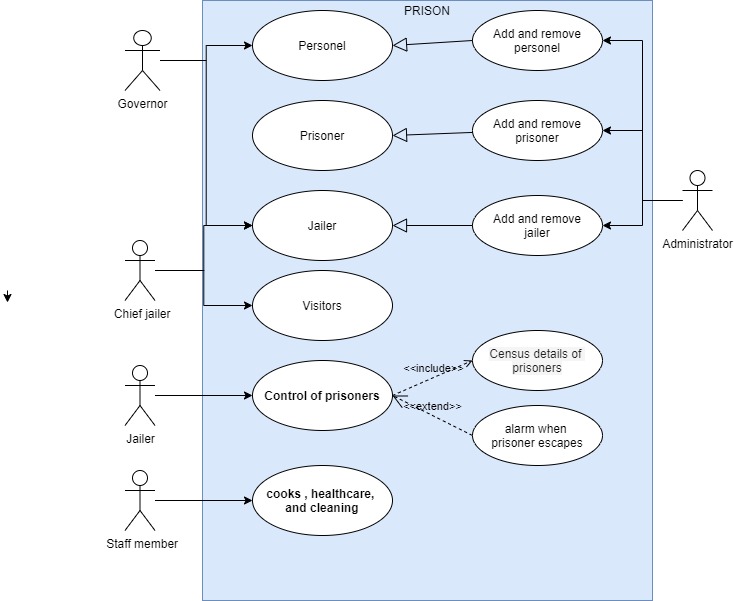




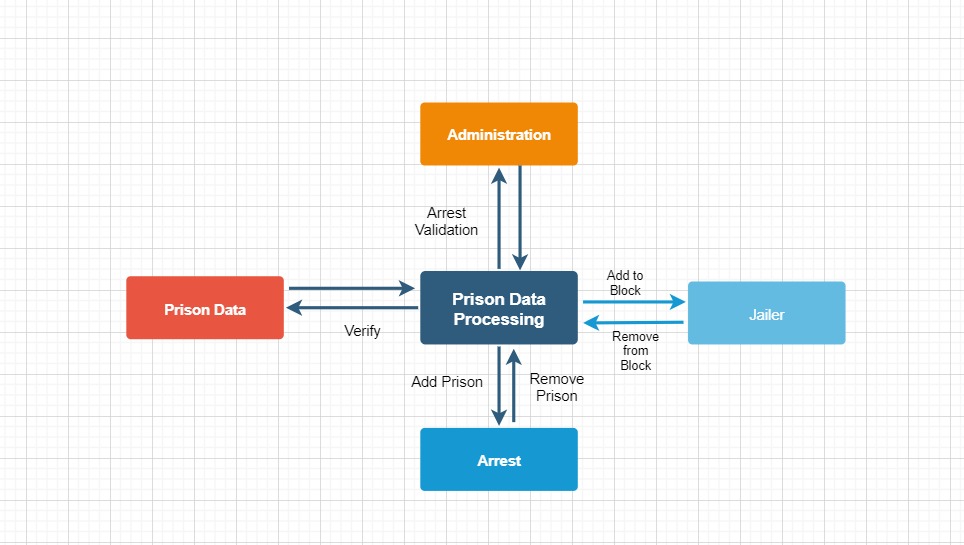


**8. Other Diagrams**

* Use Case Diagram



* Basic Module diagram



**9. Implementation Details(Has Changed)**

In this project most of the implementation part belongs to java so there is nothing from outside of java.

**Changes**

We planned to make **GUI** interface for our project but there are other homeworks, projects and exams was in last 1 month and also there is no anybody in our group who was experienced with java GUI before. So In this conditions we didn’t do GUI we made a **menu-driven** program instead.

A sample menu:

**Password Security for the System**

To store our passwords safely we used an encryption method called hashing and salting. In other word salted hash. In this method hash is ascii code of each character in the password minus(-) 19. Salt is a random string of characters that is different for every single user. We mixed hash and salt to make strong encryption. In this way even if two user has same password the encryption will be entirely different.

**How to store system Data?**

To store our entire data, we used files. After each insertion, deletion or updating the files are updated.

**SOFTWARE REQUIREMENTS**

|  |  |
| --- | --- |
| **Java SE Version** | Java 13 and above |
| **IDE** | NetBeans, Eclipse and IntelliJ IDEA |

**10. Test cases(Has Changed)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Test ID | Requirement ID | Test Scenario | Test Steps | Test Data | Expected Results | Actual  Results | Pass/Fail |
| T01 | **FR9** | Check Administrator  login with valid data. | 1.Go to app.  2.Enter UserID.  3.Enter Password.  4.Click Login. | UserID = 10123  Password = password1 | User should  login into Application. | As Expected | **Pass** |
| T02 | **FR9** | Check Administrator login with invalid user ID. | 1.Go to app.  2.Enter invalid UserID.  3.Enter Password.  4.Click Login. | UserID = 101  Password = password1 | System should give an error message and should not login | As Expected | **Pass** |
| T03 | **FR9** | Check Administrator login with invalid password. | 1.Go to app.  2.Enter UserID.  3.Enter invalid Password.  4.Click Login. | UserID = 10123  Password = wpassword1 | System should give an error message and should not login | As Expected | **Pass** |
| T04 | **FR1** | Administrator adds a new Governor to the system. | 1.Go to app.  2.Go to add Governor screen.  3.Enter name.  4.Enter UserID.  5.Enter Phone.  6.Set random password. | Name = Ray Holt  UserID = 10123  Password = password1 | Administrator should add Governor to the system. | As Expected | **Pass** |
| T05 | **FR1** | Administrator adds a new Governor to the system but enters invalid user ID. | 1.Go to app.  2.Go to add Governor screen.  3.Enter name.  4.Enter invalid UserID.  5.Enter Phone.  6.Set random password. | Name = Ray Holt  UserID = 101  Password = password1 | System should give an error message that says ID should be 5 digit. | As Expected | **Pass** |
| T06 | **FR1** | Check if the Administrator removed Governor. | 1.Go to app.  2.Go to remove screen.  3.Enter UserID.  4.Click remove. | UserID= 10123 | Administrator should remove Governor from the system. | As Expected | **Pass** |
| T07 | **FR9** | Check Governor  login with valid data. | 1.Go to app.  2.Enter UserID.  3.Enter Password.  4.Click Login. | UserID = 10123  Password = password1 | User should  login into Application. | As Expected | **Pass** |
| T08 | **FR9** | Check Governor login with invalid user ID. | 1.Go to app.  2.Enter invalid UserID.  3.Enter Password.  4.Click Login. | UserID = 101  Password = password1 | System should give an error message and should not login | As Expected | **Pass** |
| T09 | **FR9** | Check Governor login with invalid password. | 1.Go to app.  2.Enter UserID.  3.Enter invalid Password.  4.Click Login. | UserID = 10123  Password = wpassword1 | System should give an error message and should not login | As Expected | **Pass** |
| T10 | **FR2** | Governor adds an Inmate to the system. | 1.Go to app.  2.Go to add Inmate screen.  3.Enter name.  4.Enter InmateID.  5.Enter crimeType  6.Enter remainingDay.  7.Enter wardNo.  8.Click add. | Name = Doug Judy  InmateID = 10009  CrimeType = Theft  RemainingDay = 378  WardNo = 4 | Governor should add Inmate to the system | As Expected | **Pass** |
| T11 | **FR2** | Governor adds an Inmate to the system but enters invalid Inmate ID. | 1.Go to app.  2.Go to add Inmate screen.  3.Enter name.  4.Enter invalid InmateID.  5.Enter crimeType  6.Enter remainingDay.  7.Enter wardNo.  8.Click add. | Name = Doug Judy  InmateID = 1000  CrimeType = Theft  RemainingDay = 378  WardNo = 4 | System should give an error message that says ID should be 5 digit. | As Expected | **Pass** |
| T12 | **FR3** | Governor adds personnel( cook ) to the system. | 1.Go to app.  2.Go to add personnel screen.  3. Enter name.  4.Enter UserID.  5.Set random password.  6.Enter Phone.  7.Enter Type.  8.Enter Shift.  9.Enter start date.  10.Click add. | Name = Love Quinn  UserID = 10345  Password = password3  Block = 3  Type = Cook  Shift = Day  Start Date = 20 March, 2020 | Governor should successfully add personnel( cook ) to the system. | As Expected | **Pass** |
| T13 | **FR3** | Governor adds personnel( health ) to the system. | 1.Go to app.  2.Go to add personnel screen.  3. Enter name.  4.Enter UserID.  5.Set random password.  6.Enter Phone.  7.Enter Type.  8.Enter Shift.  9. Enter start date.  10.Click add. | Name = Alex Karev  UserID = 10456  Password = password4  Block = 5  Type = Health  Shift = Day  Start date =  2 March, 2019 | Governor should successfully add personnel ( health ) to the system. | As Expected | **Pass** |
| T14 | **FR3** | Governor adds personnel ( Jailer ) to the system. | 1.Go to app.  2.Go to add personnel screen.  3.Enter name.  4.Enter UserID.  5.Set random password.  6. Enter Block.  7.Enter Phone.  8. Enter Type.  9. Enter Shift.  10.Enter start date.  11.Click add. | Name = Rosa Diaz  UserID = 10567  Password = password5  Block = 3  Type = Jailer  Shift = Day  Start date = 23 August, 2014 | Governor should add personnel to the system. | As Expected | **Pass** |
| T15 | **FR3** | Governor adds any personnel to the system but enters invalid user ID | 1.Go to app.  2.Go to add personnel screen.  3.Enter name.  4.Enter invalid UserID.  5.Set random password.  6. Enter Block.  7.Enter Phone.  8. Enter Type.  9. Enter Shift.  10.Enter start date.  11.Click add. | Name = Rosa Diaz  UserID = 105  Password = password5  Block = 3  Type = Jailer  Shift = Day  Start date = 23 August, 2014 | System should give an error message that says ID should be 5 digit. | As Expected | **Pass** |
| T16 | **FR9** | Check Chief Jailer  Login with valid data. | 1.Go to app.  2.Enter UserID.  3.Enter password.  4.Click Login. | UserID = 10234  Password = password2 | User should Login into application. | As Expected | **Pass** |
| T17 | **FR4** | Chief Jailer adds visitor to the system. | 1.Go to app.  2.Go to add visitors screen.  3. Enter name.  4. Enter TCNumber.  5. Enter Phone.  6. Enter inmateID.  7. Enter date.  8. Enter entrance\_time. | Name = Trudy Judy  TCNumber = 12345367490  InmateID = 10009  Date = 4 October, 2018  Entrance\_time = 14:00 | Chief Jailer should add visitor to the system. | As Expected | **Pass** |
| T18 | **FR4** | Chief Jailer updates visitor’s exit time. | 1.Go to app.  2.Go to visitors screen.  3. Enter visitor’s name.  4. Update exit\_time.  5.Click update. | Name = Trudy Judy  Exit\_time = 15:00 | Chief Jailer should update visitor’s exit time. | As Expected | **Pass** |
| T19 | **FR5** | Chief Jailer updates Jailers’ shift hours. | 1.Go to app.  2.Go to jailers screen.  3.Enter jailer’s UserID.  4.Update shift hours.  5.Click update. | UserID= 10567  Shift = Night | Chief Jailer should update jailer’s shift hours. | As Expected | **Pass** |
| T20 | **FR9** | Check Jailer Login with valid data. | 1.Go to app.  2.Enter UserID.  3.Enter Password.  4.Click Login. | UserID = 10567  Password = password5 | User should Login into application. | As Expected | **Pass** |
| T21 | **FR6** | Jailer updates census data. | 1.Go to app.  2.Go to census screen.  3.Enter census data.  4.Compare number of inmates registered.  5. Click check. | Census = 105  Number of inmates = 105 | Chief Jailer should update census data. | As Expected | **Pass** |
| T22 | **FR7** | Jailer declares state of alert. | 1.Go to app.  2.Go to alert screen.  3.Set alert state true.  4.Click save. | Alert\_state = true. | Jailer should declare state of alert. | As Expected | **Pass** |
| T23 | **FR9** | Check Health Personnel Login with valid data. | 1.Go to app.  2.Enter UserID.  3.Enter Password.  4.Click Login. | UserID = 10456  Password = password4 | User should Login into application. | As Expected | **Pass** |
| T24 | **FR8** | Health Personnel manages and updates prisoners health status. | 1.Go to app.  2.Go health screen.  3.Enter patient’s name.  4.Enter patient’s UserID.  5.Enter patient’s health problem. | Name = Doug Judy  UserID= 10009  Health\_problem = Flu | Health Personnel should manage and update health status. | As Expected | **Pass** |
| T25 | **FR2** | Check if the  Governor removed Inmate. | 1.Go to app.  2.Go to remove screen.  3.Enter InmateID.  4.Click remove. | UserID = 10009 | Governor should remove  Inmare from the system | As Expected | **Pass** |
| T26 | **FR3** | Check if the Governor removed  personnel. | 1.Go to app.  2.Go to remove screen.  3.Enter UserID.  4.Click remove. | UserID = 10567 | Governor should remove personnel from the system | As Expected | **Pass** |
|  |  |  |  |  |  | As Expected | **Pass** |
|  |  |  |  |  |  | As Expected | **Pass** |
|  |  |  |  |  |  | As Expected | **Pass** |
|  |  |  |  |  |  | As Expected | **Pass** |
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|  |  |  |  |  |  | As Expected | **Pass** |
|  |  |  |  |  |  | As Expected | **Pass** |

**RUNNING AND RESULTS**

|  |  |
| --- | --- |
| **Test ID** | **Test Result** |
| **T1** |  |
| **T2** |  |
| **T3** |  |
| **T4** |  |
| **T5** |  |
| **T6** |  |
| **T7** |  |
| **T8** |  |
| **T9** |  |
| **T10** |  |
| **T11** |  |
| **T12** |  |
| **T13** |  |
| **T14** |  |
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| **T18** |  |
| **T19** |  |
| **T20** |  |
| **T21** |  |
| **T22** |  |
| **T23** |  |
| **T24** |  |
| **T25** |  |