

# CSE 222

## 2<sup>nd</sup> PROJECT 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
<b>FR1</b>	Administrator (e.g. Secretary of Justice) shall be able to add or remove Governor or Chief Jailer.
<b>FR2</b>	Governor shall be able to add or remove prisoners.
<b>FR3</b>	Governor shall be able to add or remove personnel (Jailers, Cooks, Health Personnel).
<b>FR4</b>	Chief Jailer shall be able to manage visitors.
<b>FR5</b>	Chief Jailer shall be able to manage jailers (Work Departments, Shift Hours).
<b>FR6</b>	Jailers shall be able to update prisoner census data.
<b>FR7</b>	Jailers shall be able to declare state of alert.
<b>FR8</b>	Healthcare Personnel shall be able to manage and update prisoners health status.
<b>FR9</b>	All Users shall be able to login successfully and safely.

## Non-Functional Requirements

Requirement ID	Description of the Requirement
<b>NFR1</b>	Hardware should be able to run at least Java SE13.
<b>NFR2</b>	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.
<b>NFR3</b>	System should be able to provide information on user's request in less than 1 second in optimal conditions.
<b>NFR4</b>	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.
<b>NFR5</b>	Personnel having access to the system (especially administrators) should do the training course provided by our experienced staff.
<b>NFR6</b>	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.
<b>NFR7</b>	Customer buying the system is required to report the maximum capacity of the prison (maximum number of prisoners, staff, administrators of the system etc.)
<b>NFR8</b>	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.
<b>NFR9</b>	Reinstalling the system should be done by professionals in case of failure

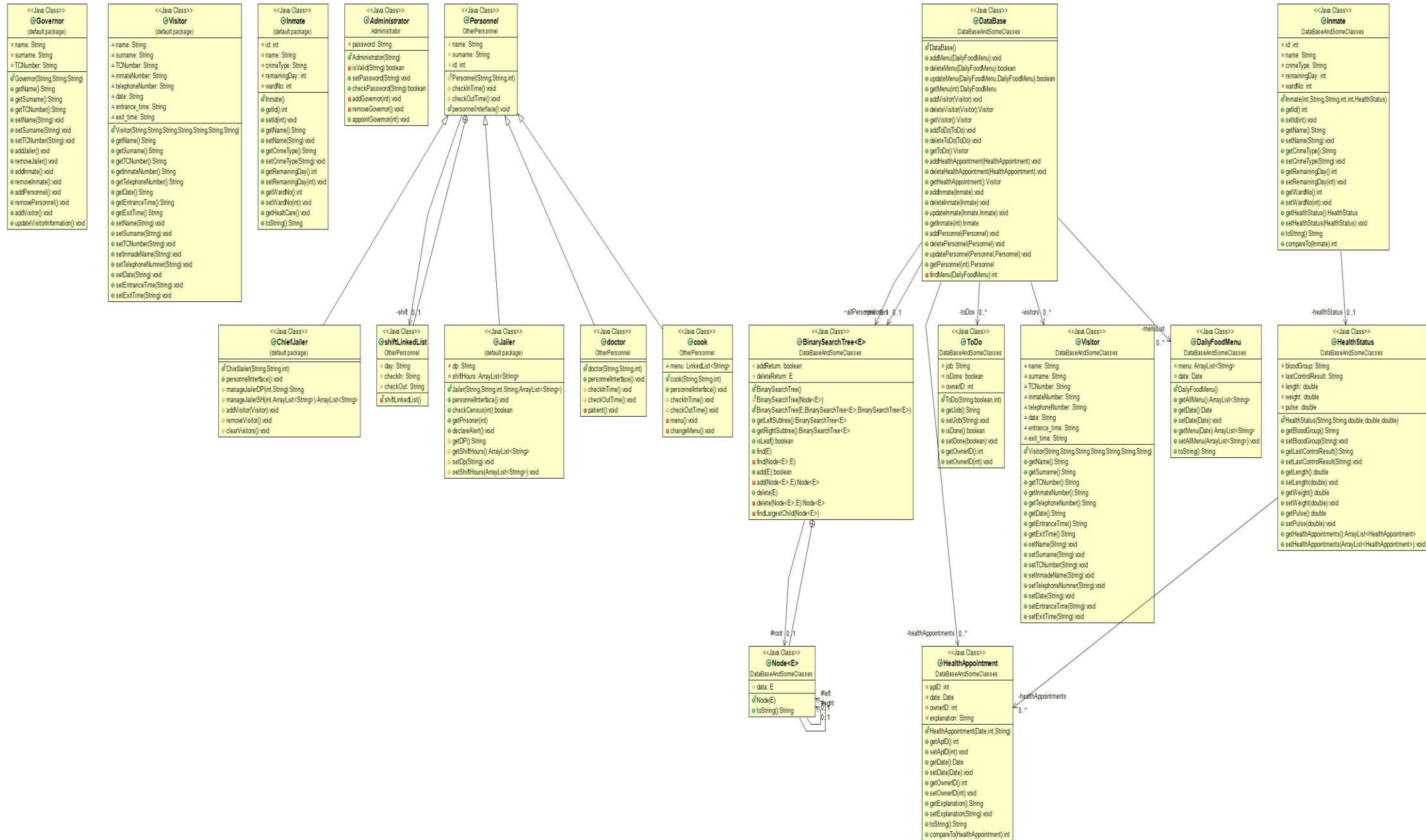
```

graph TD
    DSP[Data Structure Processing]
    G[Governor]
    J[Jailer]
    V[Visitor]
    T[ToDo]
    I[Inmate]
    OP[OtherPersonnel]
    HM[HealthAppointment]
    DF[DailyFoodMenu]
    PQ1[PriorityQueue]
    PQ2[PriorityQueue]
    BS1[BinarySearchTree]
    BS2[BinarySearchTree]
    Q1[Queue]
    Q2[Queue]
    L[List]

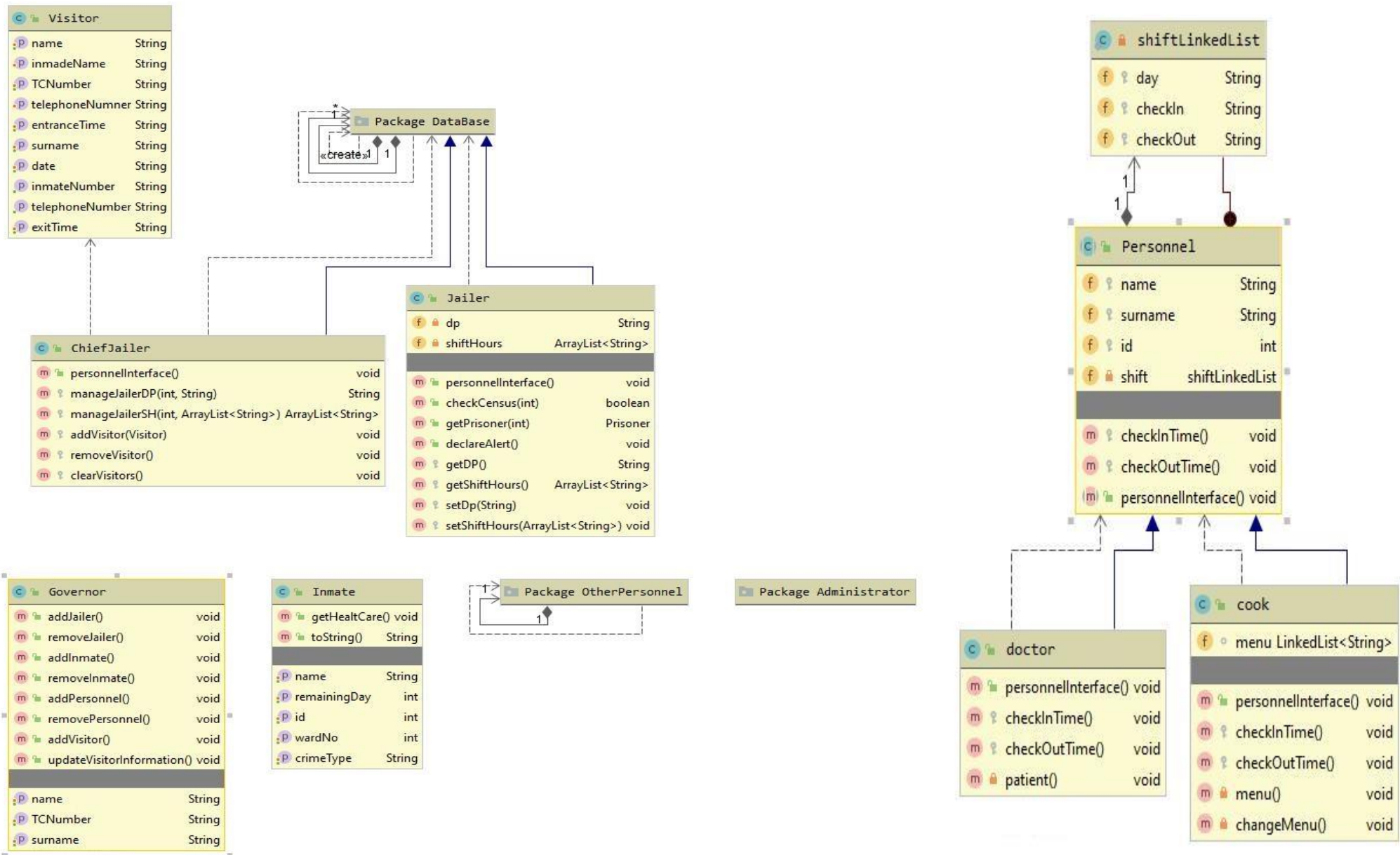
    DSP --> G
    G --> DSP
    DSP --> J
    J --> DSP
    DSP --> V
    V --> DSP
    DSP --> T
    T --> DSP
    DSP --> I
    I --> DSP
    DSP --> OP
    OP --> DSP
    DSP --> BS1
    BS1 --> DSP
    DSP --> PQ1
    PQ1 --> DSP
    DSP --> BS2
    BS2 --> DSP
    G --> OP
    OP --> G
    OP --> HM
    HM --> OP
    OP --> DF
    DF --> OP
    OP --> BS1
    BS1 --> OP
    OP --> PQ2
    PQ2 --> OP
    J --> I
    I --> J
    I --> BS2
    BS2 --> I
    V --> Q1
    Q1 --> V
    T --> Q2
    Q2 --> T
    DF --> L
    L --> DF
  
```

## 6. Class Diagrams

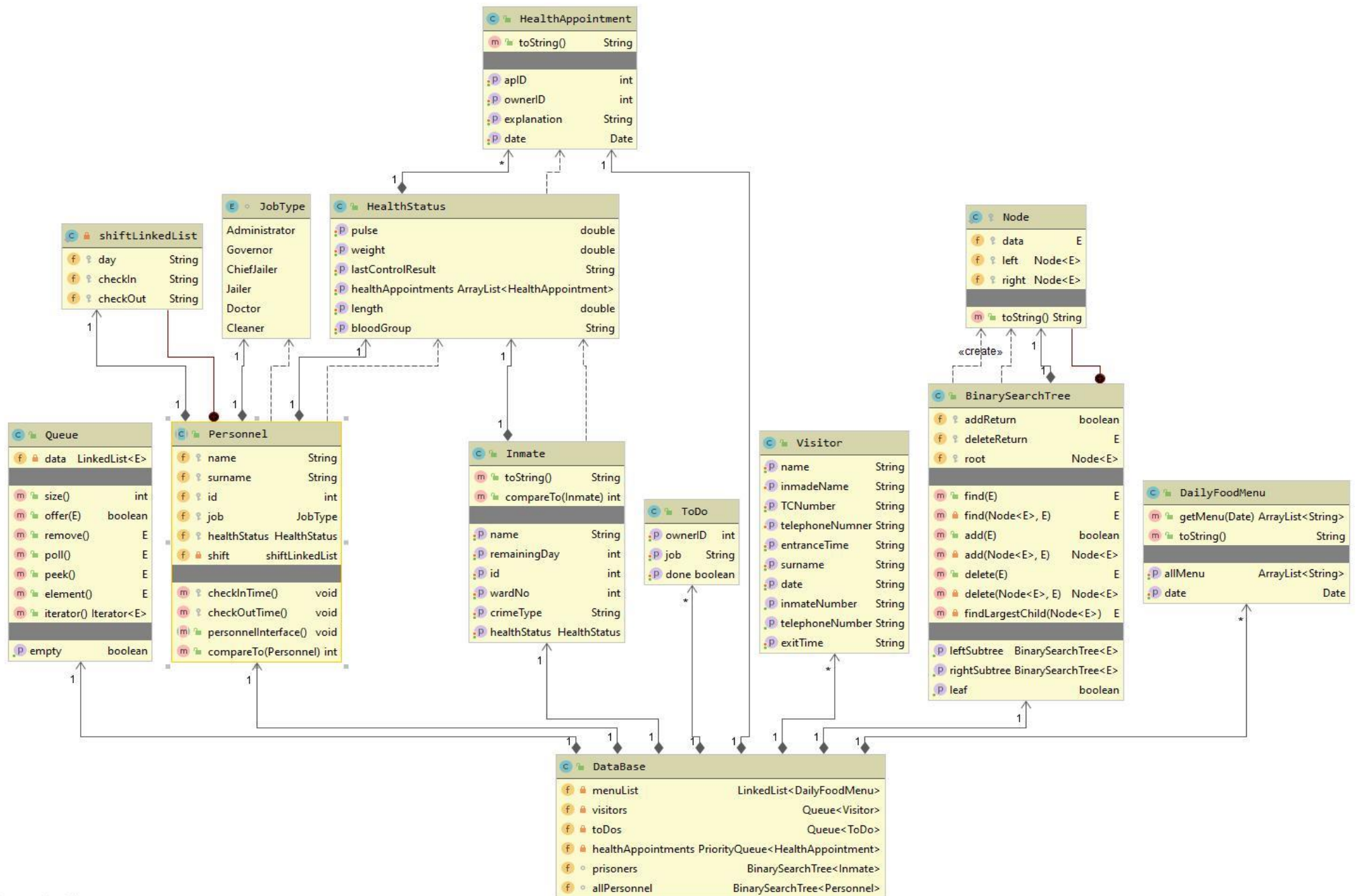
- All Classes in one Diagram



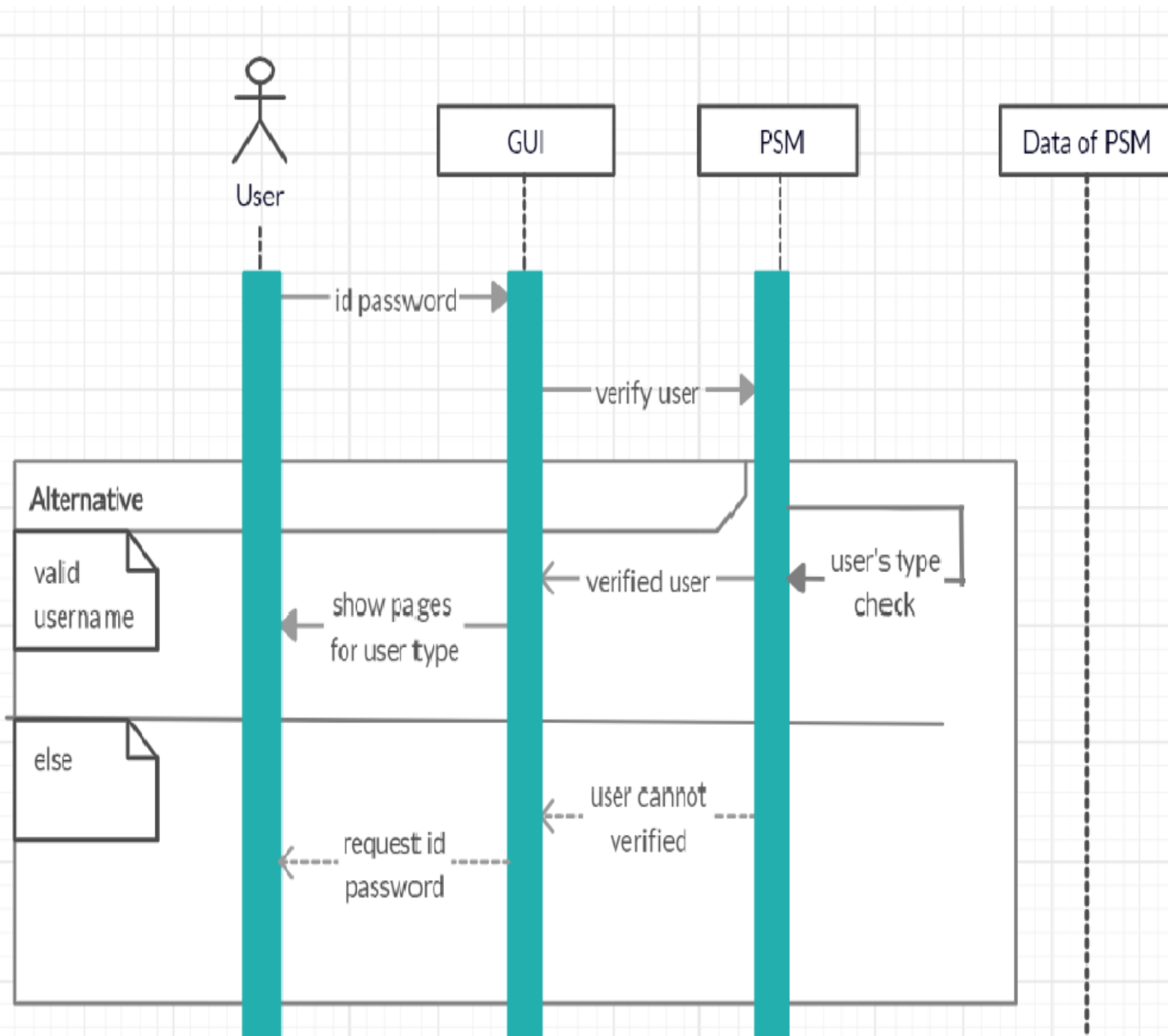
- Class Diagrams Separately







## 7. Sequence Diagrams





Governor Page

add all type  
of personnel

add method  
call

valid personel

Personnel info  
sended

added

personnel  
added

show addition  
information

remove any  
type of  
personnel

remove method  
call

valid personel

Personnel info  
sended

added

Personnel  
added

show addition  
information

## Chief Jailer Page

manage jailers  
and visitors

method call

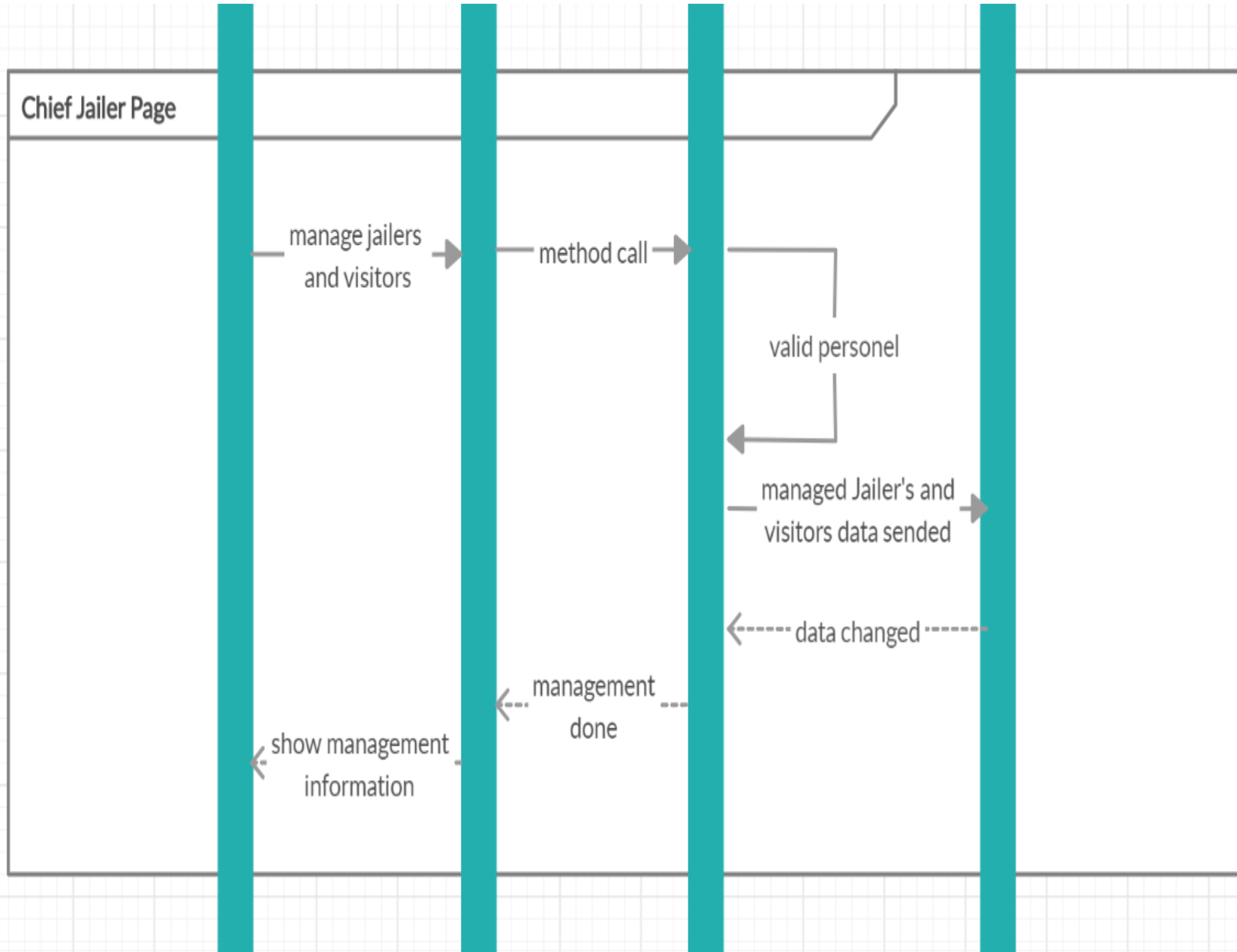
valid personel

managed Jailer's and  
visitors data sende

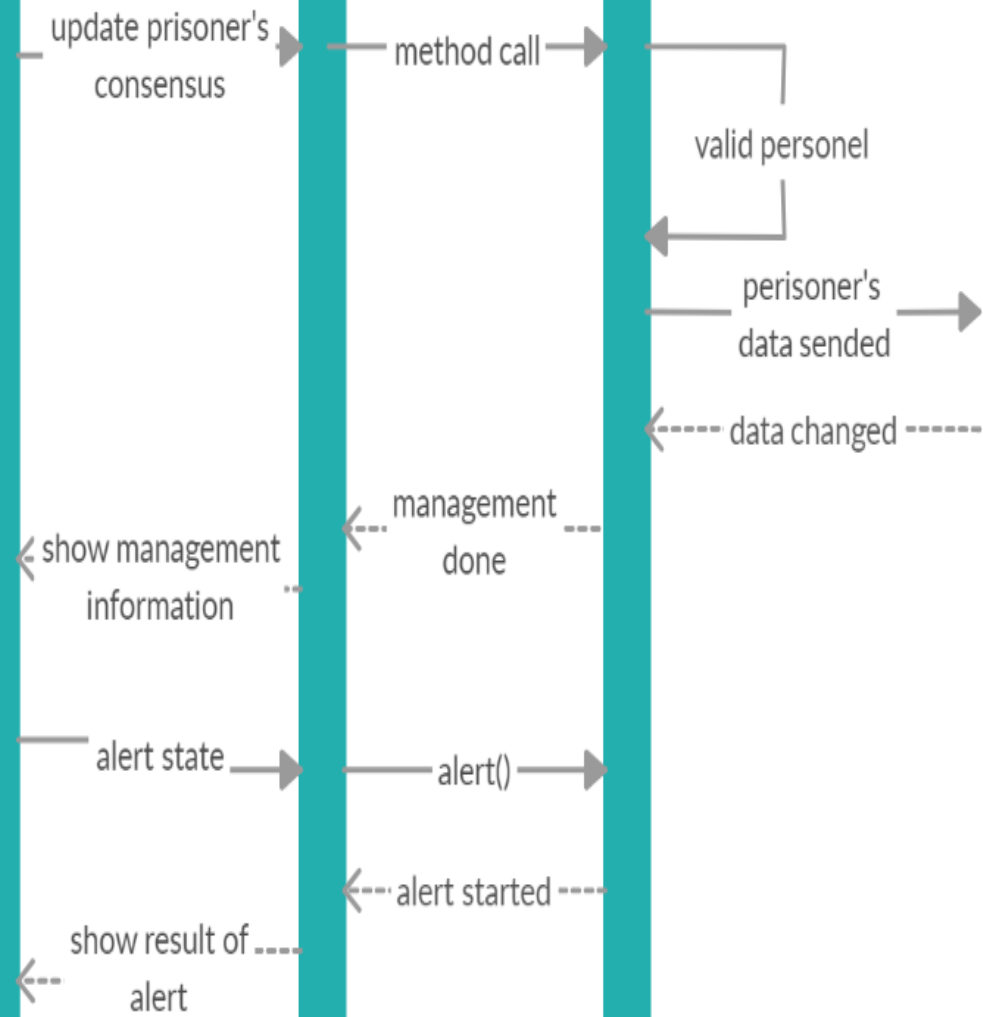
data changed

management  
done

show management  
information



## Jailer Page



## HealthCare Page

update prison's  
health status

update health  
status

send prison's  
data

data changing  
successful

status changed

show the update  
result to screen

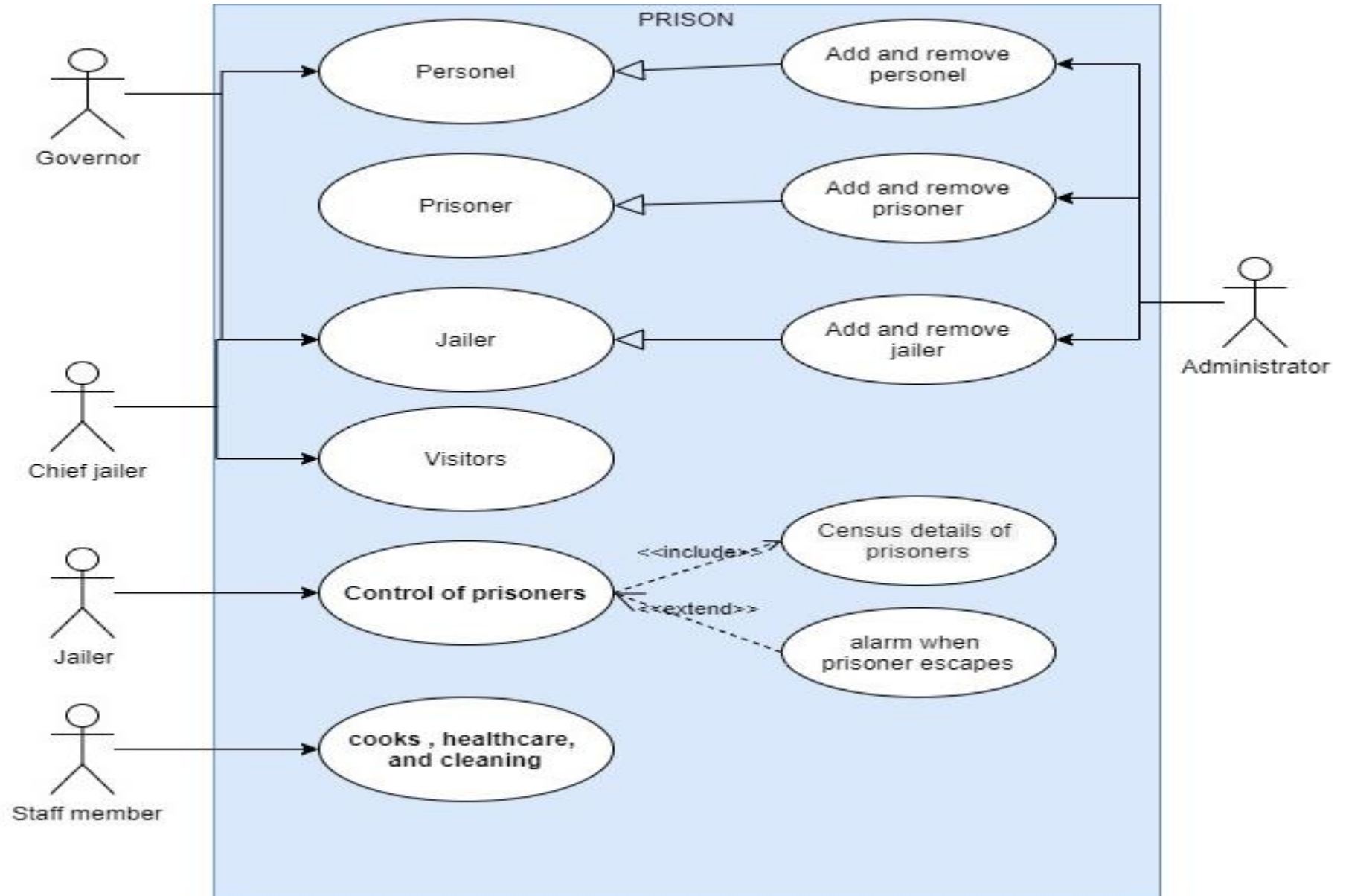
exit

exit()

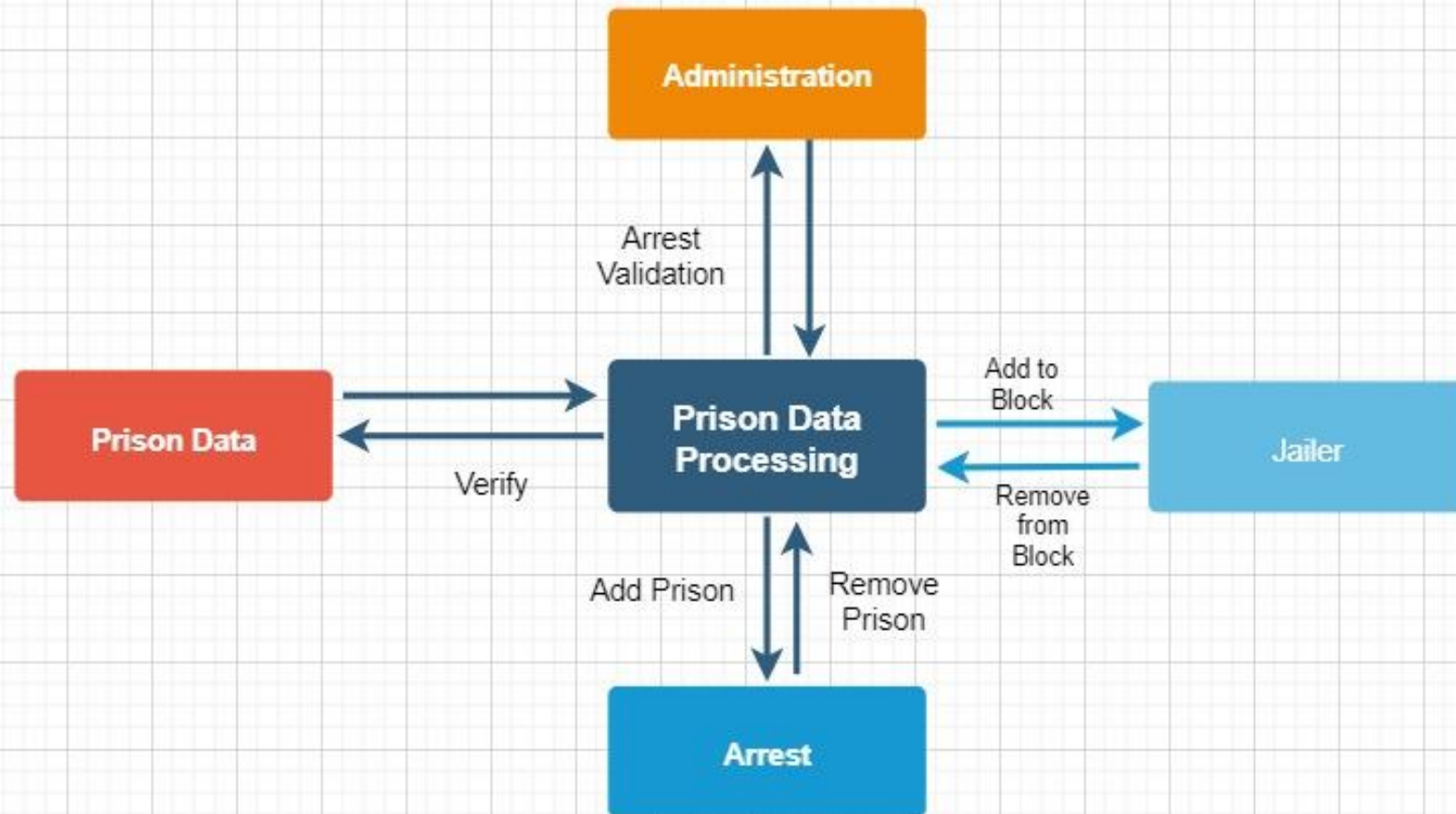
turn off the  
system

exit is  
successful

## 8. Other Diagrams (Use Case Diagram)



## 8. Other Diagrams (Basic Module diagram)





## 9. Implementation Details

In this project most of the implementation part belongs to java so there is no need things from outside of java.

As an important information we will use **java awt and swing library** to make our graphical user interface.

### Some swing GUI examples

Login Form (As a sample):



A sample login form with a light gray background and a thin blue border. It contains two text input fields: 'UserID:' and 'Password:'. Below the password field is a 'Login' button.

Guard add screen (As a sample):



A sample guard add screen with a light gray background. It contains several input fields: 'Guard ID' (text), 'Guard Name' (text), 'Block' (dropdown menu), 'Phone' (text), 'Start Date' (calendar icon), 'Shift' (dropdown menu), and 'Type' (dropdown menu). At the bottom right, there are three buttons: 'Add', 'Remove', and 'Cancel'.

### SOFTWARE REQUIREMENTS

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

## 10. Test cases

Test ID	Requirement ID	Test Scenario	Test Steps	Test Data	Expected Results
T01	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 = 101 Phone = 123564345 Password = password1	Administrator should add Governor to the system.
T02	FR1	Administrator adds a new Chief Jailer to the system.	1.Go to app. 2.Go to add Chief Jailer 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 = Jack Peralta UserID= 102 Password = password2 Block = 2 Phone = 212124343 Type = Chief Shift = Day Start date = 18 May, 2020	Administrator should add Chief Jailer to the system.
T03	FR9	Check Governor Login with valid data.	1.Go to app. 2.Enter UserID. 3.Enter Password. 4.Click Login.	UserID = 101 Password = password1	User should Login into Application.
T04	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 = 1000 CrimeType = Theft RemainingDay = 378 WardNo = 4	Governor should add Inmate to the system

Test ID	Requirement ID	Test Scenario	Test Steps	Test Data	Expected Results
T05	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 = 103 Password = password3 Block = 3 Phone = 03432545423 Type = Cook Shift = Day Start Date = 20 March, 2020	Governor should successfully add personnel( cook ) to the system.
T06	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 = 104 Password = password4 Block = 5 Phone = 02324325235 Type = Health Shift = Day Start date = 2 March, 2019	Governor should successfully add personnel ( health ) to the system.
T07	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 = 105 Password = password5 Block = 3 Phone = 943545346 Type = Jailer Shift = Day Start date = 23 August, 2014	Governor should add personnel to the system.

Test ID	Requirement ID	Test Scenario	Test Steps	Test Data	Expected Results
T08	FR9	Check Chief Jailer Login with valid data.	1.Go to app. 2.Enter UserID. 3.Enter password. 4.Click Login.	UserID = 102 Password = password2	User should Login into application.
T09	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 Phone = 15643234355 InmateID = 1000 Date = 4 October, 2018 Entrance_time = 14:00	Chief Jailer should add visitor to the system.
T10	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.
T11	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= 105 Shift = Night	Chief Jailer should update jailer's shift hours.
T12	FR9	Check Jailer Login with valid data.	1.Go to app. 2.Enter UserID. 3.Enter Password. 4.Click Login.	UserID = 105 Password = password5	User should Login into application.

Test ID	Requirement ID	Test Scenario	Test Steps	Test Data	Expected Results
T13	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.
T14	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.
T15	FR9	Check Health Personnel Login with valid data.	1.Go to app. 2.Enter UserID. 3.Enter Password. 4.Click Login.	UserID = 104 Password = password4	User should Login into application.
T16	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= 1000 Health_problem = Flu	Health Personnel should manage and update health status.
T17	FR1	Check if the Administrator removed Governor.	1.Go to app. 2.Go to remove screen. 3.Enter UserID. 4.Click remove.	UserID= 101	Administrator should remove Governor from the system.
T18	FR1	Check if the Administrator removed Chief Jailer.	1.Go to app. 2.Go to remove screen. 3.Enter UserID. 4.Click remove.	UserID= 102	Administrator should remove Chief Jailer from the system.

Test ID	Requirement ID	Test Scenario	Test Steps	Test Data	Expected Results
T19	FR2	Check if the Governor removed Inmate.	1.Go to app. 2.Go to remove screen. 3.Enter InmateID. 4.Click remove.	UserID = 1000	Governor should remove Inmate from the system
T20	FR3	Check if the Governor removed personnel.	1.Go to app. 2.Go to remove screen. 3.Enter UserID. 4.Click remove.	UserID = 105	Governor should remove personnel from the system