

# Prison Management System

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November 19, 2024

## Introduction

This project represents a management system for a prison facility, including important elements such as handling cell occupants, prisoner data, guard data and serving meals through a dining hall.

## Development Process

Initially, I started off with the main idea of adding and removing prisoners from cells and displaying cells, thus I developed the classes **Main.java**, **Prison.java**, **Cell.java** and **Prisoner.java**. Later on I developed my **Guard.java** and **Dininghall.java** classes. I also created two interfaces which had functions that could be used for the same idea, namely getting the name and ID of my prisoners and guards and also displaying the prisoners in cells and displaying the meals served in my dining hall class. My project needed a better way to handle data input and output, so I created the classes **InputDevice.java** and **OutputDevice.java**, which I implemented in such a way that the application would allow me to read data from a file and display the output in another file. I also added some sorting methods for the prisoners and guards, such as displaying prisoners by sentence in descending order or the guards by their clearance level in descending order. I also added an exception class for my project that would not allow me to have duplicates. I can add two prisoners that can have the same name but their ID must be different. This applies for the guards as well. The project also does not allow me to add a meal that already exists.

## Functionalities

- Prisoner management: adding, removing, displaying, sorting
- Guard management: adding, removing, displaying, sorting
- Dining hall management: adding, removing, displaying
- Data management: using files, handling commands, parsing input, validating input, providing output

- Duplicate prevention: `DuplicateEntryException` for every methods that concern adding.

## **Future Objectives and Conclusion**

This project is still in development, I am considering adding more functionalities to my guards and prisoners, something related to the clearance level of the guards or the sentence length of the prisoners for example. I would also like to learn how to use a database for my project, I think it would allow me to navigate through my prison data easier. Nevertheless, I hope you like my ideas incorporated into this project so far and I am looking forward to see what other functionalities I will be adding.