A prison facility in *NoReturn* Island wants a system in place to manage the place.

Read the following information carefully and perform the tasks that follow:

a) The staff working at the prison can categorized as either prison guards or administrative personnel.

b) There are four (4) blocks with each block containing a fixed number of prisoners, number of prison cells, an allocated budget, and a block in-charge (a prison guard tasked with managing the entire block).

c) Each cell has a unique cell_ID.

d) The administrative personnel working at the prison can provide various services, their attributes are a unique admin_ID, full name, salary, address, experience (in years) and a department working in (where departments can either be management, healthcare, or support).

e) There are several prison guards with each of them having the attributes: unique guard_ID, full name, block_working_in, salary, address, and experience (in years).

f) There may be hundreds of prisoners locked up in the facility. The data kept for each of the prisoners is their unique inmate_ID, full name, age, city, crime, sentence_type (can be 3 years, 4 years, life sentence, death sentence etc), *block_lockedup_in, *cell_lockedup_in.

*Block*blockLocked = arg;*

g) The lone prison superintendent is the one at the helm of affairs at NoReturn's prison facility. His full name is of only concern for this exercise. The decision taken by superintendent are enforced and followed across the entire prison. He can assign guards to different blocks, can change a block in-charge at any time, and can even terminate a prison guard.

h) Although the superintendent can move a prisoner to a different block and also to a different cell. But at any stage, the superintendent cannot alter the prisoners' personal records or their sentence type.

i) The superintendent can also terminate an administrative personnel but he cannot move them to a different department.

j) Any new prisoner arriving at the prison must first go through the superintendent who can assign him to any block of his choice.

k) A block in-charge can at any stage, view all the information about prisoners locked up in his block.

l) An auditor is a completely independent entity that can just monitor the performance of the superintendent.

Perform the following tasks:

1. Identify all the classes and their attributes.

2. Create an abstract function show_details in Staff. Then override this function in all of its child classes. [consider points (d) and (e) for reference]

3. Create appropriate constructors for each class. Must make sure you take care of assigning a unique ID wherever it is required.

4. Create a function admit_prisoner in Superintendent. The function should let the superintendent admit a prisoner and assign him to a block. It is up to you to think which parameter can be most appropriate for this function. After accepting the prisoner, its data must also be written to a file named "prisoners.txt".

5. Identify all the functions in point (g and h) and write code for their implementation. These should not be global functions remember.

6. Write a member function terminates that allows superintendent to terminate contract for a specific administrative personnel.

7. Create a standalone class Auditor. This class must be able to directly view the total number of prisoners in the prison facility at any given point in time.

8. Write a global function compare_guards. This function should be able to compare two employees (either admin staff or guards) to display which one is more experienced. (Do nothing in case of a tie).

9. What is one obvious blunder in the scenario? (This question requires nothing but common sense)
