1. **Task analysis**

Introduction:

The purpose of the prison database is to carefully supervise and collect information about people who are serving or have served a sentence and to maintain order in the prison.

Customer of the database: The custumer of my database will be a prison management or government when creating a new facility or changing the database in an existing prison.

User of the database: End users include prison staff, administrators, and law enforcement personnel operating within the Prison Facility. These people communicate directly with the database, using its functionalities for tasks related to inmate management, security and administrative functions.

Purpose of the Database:

The purpose of the database will be to manage information about current and former inmates. It will streamline day-to-day operations such as assigning prisoners to programs, assigning cells and collecting visitation data. Additionally, the database will enhance security measures by recording and analyzing incidents.

Possible Scenarios of Database Use:

-Inmate Admission:

Capture and update personal details during inmate intake.

Generate unique inmate identifiers for tracking purposes.

Security Incident Management:

Log and document security incidents, including altercations and contraband discoveries.

Categorize incidents by severity and type for analysis.

-Sentence Management:

Monitor inmate sentences and release dates.

Automatically calculate and update sentence durations based on legal parameters.

-Facility Resource Allocation:

Manage inmate assignments to specific cells or housing units.

Allocate staff resources based on inmate population and security needs.

-Visitation Scheduling:

Maintain a schedule of inmate visitation hours.

Allow authorized personnel to schedule and manage inmate visitations.

Generate visitation logs for security and administrative purposes.

Assumptions and limitations of the designed database:

- I Assume that the data entered into the database is accurate and up-to-date. Any errors in data entry or outdated information could compromise the reliability of the database.

- One assumption is that there are consistent definitions for data elements across the database. Inconsistencies in defining terms or variables can lead to misinterpretation or confusion

- Last Assumption is that data is entered into the database promptly. Delays in data entry can affect the real-time accuracy of the information and compromise the database's utility for time-sensitive analyses. In the worst scenario prison lose tracking of a prisoner which can lead to escape.

Inquiries to the database:

- Stay modification status (If another sentence is added to a prisoner who is already serving a time)

- Possibility to view information only about active stays

- Option to display all information about specyfic prisoner from all entitites

3. **Description of ERD diagram**

Definition of entities:

Stay - Set of current and past stays of prisoners in prison, an entry is added when a new prisoner is admitted and will never be deleted.

~ 10,000 entries.

Personal Items - It is used to store information about items that have been confiscated during imprisonment . Is added when a new prisoner enters a prison and will never be deleted.

~ 100,000 entries.

Sentences - Refers to judicial rulings, constituting formal judgments issued by a court or another competent institution is added when the judgment is final and will never be deleted.

~ 30,000 entries.

Prisoners - An entity describing and storing general information about all prisoners who have ever served or are serving a sentence in this prison. Is added when a new inmate first serves his sentence in that prison and will never be deleted.

~ 4,000 entries.

Allocation to prison cells - Is used to track prison cell allocations and their changes during a given stay in prison. Is added when a new inmate enters a prison, old prisoner wants to change his cell or when prisoner as a punishment go to isolation cell and will never be deleted.

~ 5,500 entries

Prison cells – Is describing general information about all prison cells and their occupancy.

~ 220 entries

Allocation to Programs - An entity that allows to track prisoners allocation to resocialization programs, changes of programs and theirs status(is it active or past) during certain stays.

~ 5,500 entries

Programs - Is used to describe information about specific resocialization programs and hold information about their occupancy and capacity. Is added and removed when a new program replaces an old one.

~ 20 entries

Prison Visits – Is used to save specific information about visiting a prisoner, purpose of it, date and how long it took. Is added when someone visit a prisoner and will never be deleted.

 ~ 30,000 entries

Visitors – An entity that collect all necessary data about a Visistors. is added when a visitor comes for a visit to the prison for the first time and will never be deleted.

~ 4,000 entries.

Incidents – Is used to describe specific information about incidents that happened in prison. Is added when there is an incidnet in prison and will never be deleted.

~ 50 entries.

Prison role in incident – is used to describe prisoner role in incident and his punishment.

~ 150 entries.

Atributes:

Prisoners

- ID_of_ prisoner (identification number of a prisoner, consisting of 8 random digit number)

- Name (name of a given prisoner)

- Surname (surname of a given prisoner)

- Gender (Female or Male option)

- Date of Birth (day-month-year writen in numbers)

Personal Items

- ID_of_item (identification number of an item, consisting of 10 random digit number)

- Item description (description of the seized item, ~ 5 words)

- Is_returned (informs whether the item is returned, option Yes/No)

- Date of receipt of the item (day-month-year written in numbers, when the item was receipt)

- Item return date (day-month-year written in numbers of, a date when the item will be return or was returned)

Stay

- ID_of_stay (identification number of stay, consisting of 6 random digit number)

- Date_of_begining (day-month-year written in numbers , a date when the stay started)

- Date_of_end (day-month-year written in numbers , a date when the stay ended or will end)

- Status (two options: active/finished)

Prisoner role in incident

- Id_role (identification number of role in incident, consisting of 5 random digit number)

- Punishment (description of punishment after incident, 5-10 words)

- Role (One word to describe role in incident)

- More information about Role (specfic describtion of role in incident , ~ 10-50 words)

Incidents

- ID_of_incident (identification number of incident, consisting of 4 random digit number)

- Date of incident (day-month-year written in numbers , a date when the incident happend)

- Description of incident (specfic describtion of incident, ~ 50-150 words)

- Type of incident (very short describtion what type of incident this was , ~ 3 words)

- Number of participants (number of people who participated in incident, 1-3 digit number)

Prison Visits

- ID_of_visits (identification number of visits, consisting of leter v and 6 random digit number)

- Purpose (short desciption of the reason for the visit, ~ 3 words)

- Time (how long the visit took in minutes , 2 digit number)

- Date (day-month-year written in numbers , a date when the visit took happen)

Visitors

- ID_of_visitor (identification number of visits, consisting of one letter d and 6 random digit number)

- Visitor Name (name of a given visitor)

- Visitor Surname (Surname of a given Visitor)

- Birth Date (day-month-year writen in numbers)

- Pesel (a Polish identity number, consisting of 11 digits, out of which first 6 represent birth date)

- Address (City-street-number)

- Prison Relation (vistor relation with prisoner, short description ~ 5 words)

Allocation to Programs

- ID_of_program_allocation (identification number of program allocation, consisting of one letter p and 6 random digit number)

- Program Start Date (day-month-year writen in numbers, day of starting the program)

- Program end date (day-month-year writen in numbers, day of finishing the program)

- Assessment of progress (short description of progress during atending the program, ~ 5-10 words)

- Status (two options: finished/active)

Programs

- Name of Program (name of program, ~ 3-5 words)

- Resocialization Description (short description of resocjalization, ~ 10 words)

- Capacity (how many places program have , 2 digit number)

- Occupancy (how many places in program are occupied, 1-2 digit number)

Allocation to prison cells

- ID_of_cell_allocation (identification number of cell allocation, consisting of one letter c and 6 random digit number)

- Date_of_start (day-month-year writen in numbers, day when prisoner was allocated to prison cell)

- Date_of_end (day-month-year writen in numbers, day when prisoner left/change prison cell)

- Status (two options: current/finished)

Prison Cells

- Prison cell number (prison cell number, number from 1 to 220)

- Type (six options: Double Cells/Isolation Cells/ Open cells/Normal Cells(4 people in cell)/maximum-security cells/specialized cells (Cells equipped for specific purposes, such as medical cells for healthcare needs))

- Capacity (capacity of the cell, 1 digit number)

- Occupancy (occupancy of the cell, 1 digit number)

Sentences

- ID_of_sentence (identification number of cell allocation, consisting of one letter s and 6 random digit number)

- Type (~ 3 words description of type of the sentence)

- Date_of_sentence (day-month-year writen in numbers, the day when the judgment became final)

- Description (description of sentence ~ 10-20 words)

- Punishment Time (number in months)

Definition of relationships between entities:

Visits in prison during stay - relationship between Stay and Prison Visits entities, represents prisoner visits during specific stay, One stay can have one, zero or more visits, each visit must have exactly one stay.

Visitor Description - relationship between Visitors and Prison Visits entities, gives information about who was a visitor in a specific visitation of a prisoner, visitors can have one or more prison visits, prison visits must have one visitator.

Incidents in prision during stay - relationship between Stay and Prison role in incident entities, represent role in incidents during stay, Prisoner role in incident must have one stay, Stay can have zero, one or more Prisoner role in incident.

Prisoner role in incident - relationship between Incidents and Prison role in incident entities, represent prisoner role in specyfic incidents, Prisoner role in incident must have one incident, Incident must have one or more Prisoners role in incident

Program Description - relationship between Allocation to Programs and Programs entities, gives information about programs which prisoners are or were allocated during stay, Allocation to Programs must have one Program, Programs can must have one or more Allocations.

Allocation to program during stay - relationship between Allocation to Programs and Stay entities, connects allocation to resocialization Programs with certain stay, Stay must have one or more allocation to program, Allocation to program must have one stay.

Allocation to prison cells during stay - relationship between Allocation to prison cells and Stay entities, represents in which cell prisoner was allocated during stay, Stay

must have one or more allocation to prison cells, allocation to prison cells must have one stay.

Prison cell information - relationship between Allocation to prison cells and Prison cells entities, gives information about prison cells which prisoners are or were allocated during stay, Prison cells must have one or more allocations, Allocations to prison cells must have one prison cell.

Assigment of personal belongings - relationship between Stay and Personal Items entities, represent the assignment of a prisoner's personal belongings that were seized during his stay, Personal Items must have one stay, Stay can have zero, one or more personal items.

Linking sentence infromation with prisoners - relationship between Prisoners and Sentences entities, represents connecting the prisoner with his sentences, Prisoner must have one or more Sentences, Sentences must have one prisoner.

Relation of sentences and stay - relationship between Stay and Sentences entities,

represents sentences that add up to stay, Stay must have one or more Sentences, Sentences must have one stay.

4.RDB Schema

Sentences(<u>ID_of_sentence,</u> Type, Date_of_sentence, Description, Punishment Time, ID_Prisoner REF Prisoners)

Prisoners(<u>ID_of_prisoner</u>, Name, Surname, Gedner, Date of Birth)

Stay(<u>ID_of_stay</u>, Date_of_begining, Date_of_end, Status, ID_Sentences REF Sentences)

Personal Items(<u>ID_of_item</u>, Item description, Is_returned, Date of receipt of the item, Item return date, ID_Stay REF Stay)

Prisoner role in incident(<u>ID_role</u>, Punishment, Role, More information about role, ID_Stay REF Stay, ID_Incidents REF Incidents)

Incidents(<u>Id_of_incident</u>, Date of incident, Description of incident, Type of incident, Number of participants)

Prison Visits(<u>ID_of_visits</u>, Purpose, Time, Date, ID_Stay REF Stay, ID_Visitors REF Visitors)

Visitors(<u>ID_of_visitor</u>, Visitor Name, Visitor Surname, Birth Date, Pesel, Address, Prison Relation)

Allocation to Programs(<u>ID_of_program_allocation</u>, Program Start Date, Program end date, Assessment of progress, Status, ID_Stay REF Stay, ID_Programs REF Programs)

Programs(<u>Name of Program</u>, Resocialization Description, Capacity, Occupancy)

Allocation to prison cells(<u>ID_of_cell_allocation</u>, Date_of_start, Date_of_end, Status, ID_Stay REF Stay, ID_Prison cells REF Prison cells)

Prison cells(<u>Prison cell number</u>, Type, Capacity, Occupancy)