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1. Topic analysis.

1. Customer: Government (Polish).
2. Users: Director of the Facility, Prison Staff, Security Personnel, Medical Personnel, Classification Committee, Legal Representatives, Court Personnel, Law Enforcement Agencies, Government Officials, Administrators.
3. Goal: More organized storing of data about prisoner stays in the facilities.
4. Purpose: Storing and searching for information about prisoners stays, facilities and prisoners.
5. Possible scenarios of use:
    1. Prisoner staff looking up the information about prisoner stay: duration, realise information, history of incidents, what kind of rehabilitation programs they took part in, to find more information about the prisoner.
    2. Law enforcement agencies looking up the information of prisoners: personal information, what kind of sentence they have, in which facility they are currently housed in.
    3. Classification Committee looking up the information about facilities, to correctly reassign the prisoner to the facility.
    4. The medical staff looking up medical record of prisoners, to find out what kind of medical treatment they were receiving during the stay.
    5. Prison staff managing the information about the security measures at the facility.
    6. Security personnel checking the security measures implemented.
    7. Prison staff connecting prisoner to facility by adding their stay.
    8. Prisoner staff checking in which kind of rehabilitation programs the prisoner partook in to assign them to another.
    9. Medical personnel adding the end-date to the medication to indicate that prisoner does not need it anymore.
6. Limitations:
    - Limited mostly to information related to prisoner stay at the facilities in Poland – medical documents connected to the stay, medication taken during the stay, information about visits during the stay and the information about people that visited, the information about prisoner stays and release information, attendance in rehabilitation programs recorded during the stay, incidents recorded during stay, and the prisoner's involvement in them.
    - Additionally, the database contains information about:
        - all the facilities that prisoners can be housed in (facilities outside the country could be added if needed),
        - both information of prisoners that are currently housed in a facility, but also about the ones that are awaiting to be housed in one of the facilities,
        - only current security measures of the facility,
        - all rehabilitations programs that were implemented by the facility over the years,
        - sentences, that were given both before the prisoner's stay and during it,
        - medical condition of the prisoner and medical documents related to it (documented either before the sentence or during it),
        - other important medical documents, recorded before stay.
7. Possible queries:
    - list all facilities,
    - list all current rehabilitation programs for the facility,
    - list all the prisoners currently staying in the facility,
    - retrieve information about a specific prisoner's stay, based on the stay ID,
    - list all the sentences of the prisoner,

- list all the incidents that happened in the specific facility,
- see where the prisoner is currently housed in,
- see what the prisoners' medical conditions are,
- see what kind of medication prisoner is taking during stay,
- see if there are prisoners who were the perpetrators in more than 5 incidents during stay,
- see which prisoners partook in more than 3 rehabilitation programs,
- see how many positive results were in the specific rehabilitation program.

2. ERD Diagram.
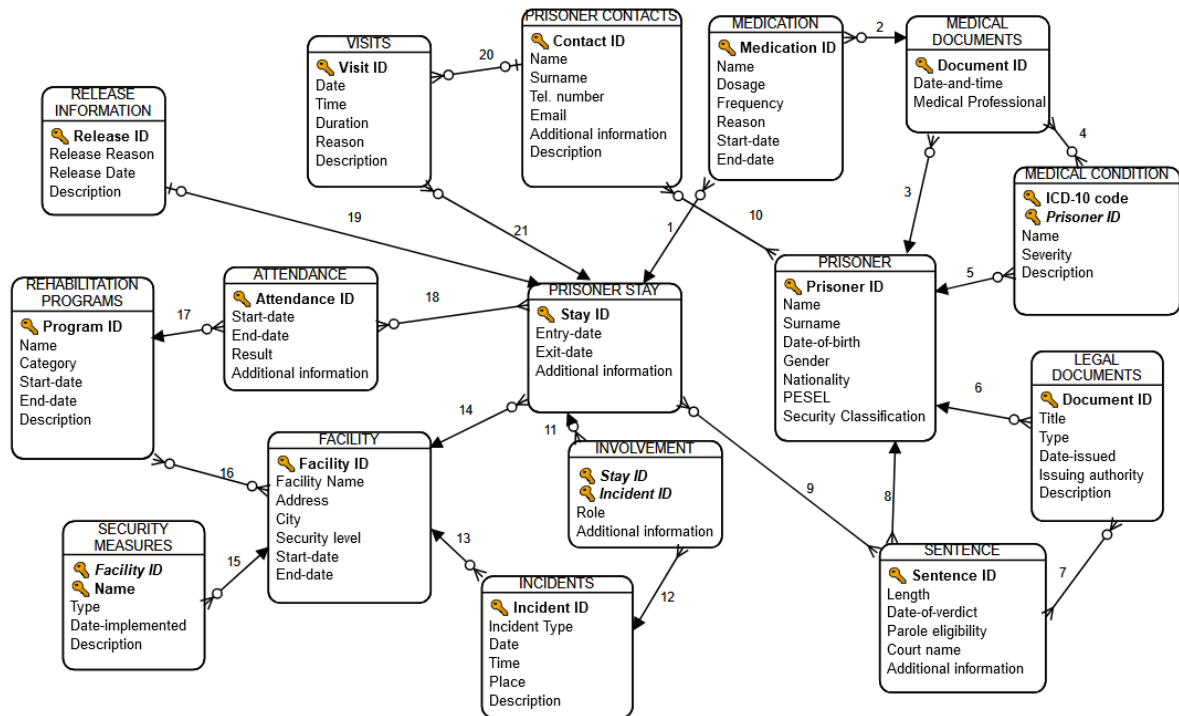
3. Description of ERD components.

1. Definitions of the entities.

About size estimate: The real number of entities could vary significantly from the size estimate, depending on the number of prisoners and number of prisoners stays currently residing in the database. Both prisoner stays and prisoner depend on the data retention duration, which in turn is dependent on the release date.

About strings: only include Polish and English alphabetical characters, spaced allowed unless specified so.

1. Medication		
Definition	set of medications administered to prisoners during their stays in the facility	
Size estimation	approximately 1,750,000 entries	
Adding criteria	entry gets added when the appropriate medical document gets added describing the need to administer the medication to the prisoner (one medication could be prescribed a few times)	
Deletion criteria	Deleted: - when the prisoner stay connected to it gets deleted, - when medical document connected to it gets deleted, - when prisoner connected to it gets deleted	
List of attributes	**Definition**	**Data type/Domain**
Medication ID (primary key)	unique identifier for each medication data	String consisting of 7 digits (Integers: 0-9)
Name	name of the medication	String, alphanumeric characters, special characters are allowed maximum: 100 characters
Dosage	dosage information for the medication (numeric value)	Positive floating-point number, maximum: 15 characters
Frequency	frequency of medication administration (numeric value)	Positive integer, maximum: 5 characters
Reason	short description of reason for prescribing the medication	String, alphanumeric characters, special characters are allowed, maximum: 500 characters
Start-date	the date when the medication was first administered	Date
End-date	the date when the medication was last administered	Date

2. Medical Documents	
Definition	set of medical documents related to prisoners' health records, mostly related to time spent in prison, but containing other important medical documents

Size estimation	entry gets added when the medical documents of the prisoner become known or begin to exist	
Adding criteria	approximately 700,000 entries	
Deletion criteria	Deleted: - when prisoner connected to it gets deleted	
List of attributes	Definition	Data type/Domain
Document ID	unique identifier for each medical document	String consisting of 7 digits (Integers: 0-9)
Date-and-time	date and time when the medical document was created	Date + Time
Medical Professional	name of the medical professional associated with the document	String, only letters (and spaces), maximum: 150 characters

3. Medical Condition		
Definition	set of the medical conditions diagnosed in prisoners	
Size estimation	approximately 700,000 entries	
Adding criteria	entry gets added when the appropriate medical document gets added	
Deletion criteria	Deleted: - when medical document connected to it gets deleted, - when prisoner connected to it gets deleted	
List of attributes	Definition	Data type/Domain
ICD-10 code (primary key)	International Classification of Diseases code for the medical condition	String, alphanumeric characters in form of LCC.X, where L is a letter, C is a digit (0-9), X is a digit (0-9)
Prisoner ID (primary key)	- (foreign key from "Prisoner" entity.)	-
Name	name of the medical condition	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Severity	severity level of the medical condition	String – possibly: "Mild", "Moderate", "Severe", "Critical", "Stable", "Other", maximum: 50 characters
Description	description of the medical condition	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

4. Legal Documents	
Definition	set of legal documents associated with prisoners
Size estimation	approximately 1,050,000 entries
Adding criteria	entry gets added when the medical documents are delivered to the facility, where prisoner is residing
Deletion criteria	Deleted: - when all the sentences connected to it get deleted,

	- when prisoner connected to it gets deleted	
List of attributes	**Definition**	**Data type/Domain**
Document ID (primary key)	unique identifier for each legal document	String consisting of 7 digits (Integers: 0-9)
Title	title/name of the legal document	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Type	type or category of the legal document	String – possibly: "Sentencing Orders", "Parole Agreements", "Release Documents", "Probation Orders", "Appeal Filings", "Incarceration Records", "Plea Agreements", "Clemency Petitions", "Other", maximum: 50 characters
Date-issued	date when the document was issued	Date
Issuing authority	authority that issued the document	String, alphanumeric characters, maximum: 100 characters
Description	description/details about the legal document	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

5. Sentence	
Definition	set of information about the sentences imposed on prisoners
Size estimation	approximately 525,000 entries
Adding criteria	entry gets added when prisoner entry gets added or when already existing prisoner receives another sentence
Deletion criteria	Deleted: - when prisoner connected to it gets deleted Can only get deleted if the prisoner connected to it no longer exists.

List of attributes	**Definition**	**Data type/Domain**
Sentence ID (primary key)	unique identifier for each sentence	String consisting of 7 digits (Integers: 0-9)
Length	length of the sentence imposed	Positive integers, maximum: 5 characters
Date-of-verdict	date when the verdict was pronounced	Date
Parole eligibility	date when the prisoner becomes eligible for parole	Date
Court name	name of the court that issued the sentence	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Additional information	any additional information related to the sentence	String, alphanumeric characters, special characters

	are allowed, maximum: 1000 characters

6. Prisoner	
Definition	set of individual prisoners in the system
Size estimation	approximately 350,000 entries - could vary significantly depending on the duration of data retention
Adding criteria	entry gets added when it becomes knows that the prisoner will be residing in the polish prison facilities (usually after verdict)
Deletion criteria	Deleted: - when 15 years have passed after prisoner release (current data retention) = when the prisoner stay that has been connected to release information gets deleted, - when 15 years have passed since the entry was added and there were no prisoner stays recorded since (connected to it)

List of attributes	Definition	Data type/Domain
Prisoner ID (primary key)	unique identifier for each prisoner	Positive integers, consists of 7 digit (0-9)
Name	first name of the prisoner	String, only letters, maximum: 100 characters
Surname	last name of the prisoner	String, only letters, maximum: 100 characters
Date-of-birth	date of birth of the prisoner	Date
Gender	gender of the prisoner	String – possibly: "Male", "Female", maximum: 20 characters
Nationality	nationality of the prisoner	String, only letters, maximum: 50 characters
PESEL	Polish identity number	Integer, consists of 11 digits, out of which first 6 represent birth date
Security Classification	classification level based on security risk	String – possibly "High Maximum", "Maximum", "Medium", "Minimum", "Other", maximum: 50 characters

7. Incidents	
Definition	set incidents that occurred within the facilities, related to prisoners
Size estimation	approximately 700,000 entries
Adding criteria	entry gets added when incident occurs
Deletion criteria	Deleted: - when there are no involvements connected to it, - when the facility connected to it gets deleted

List of attributes	Definition	Data type/Domain
Incident ID (primary key)	unique identifier for each	Positive integers, consists of 7

	incident	digit (0-9)
Incident Type	type/category of the incident	String – possibly: "Assaults, "Contraband Possession", "Escape Attempts", "Unauthorized Communication", "Drug-related Incidents", "Property Damage", "Riot or Disturbance", "Harassment or Threats", "Disciplinary Violations", "Medical Emergencies", "Other", maximum: 50 characters
Date	date when the incident occurred	Date
Time	time when the incident occurred	Time
Place	location where the incident occurred	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Description	description/details about the incident	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

8. Involvement		
Definition	set representing the involvement of prisoners in specific incidents	
Size estimation	approximately 1,400,000 entries	
Adding criteria	entry gets added when incident entry gets added, to indicate prisoner involvement, or when there was more than one prisoner involved – to already existing incident	
Deletion criteria	Deleted: - when the incident connected to it gets deleted, - when prisoner stay connected to it gets deleted	
List of attributes	**Definition**	**Data type/Domain**
Stay ID (primary key)	- (foreign key from "Prisoner Stay" entity)	-
Incident ID (primary key)	- (foreign key from "Incident" entity)	-
Role	role played by the prisoner in the incident	String – possibly: "victim", "perpetrator", "observer", "other", maximum: 50 characters
Additional Information	any additional information related to the involvement	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

9. Security Measures		
Definition	set of security measures implemented in facilities	
Size estimation	approximately 1,500 entries	
Adding criteria	entry gets added when security measure gets implemented at facility	
Deletion criteria	Deleted: - when the facility entry gets deleted, Deleted if the security measure is no longer implemented in the facility.	
List of attributes	**Definition**	**Data type/Domain**
Facility ID (primary key)	- (foreign key from "Facility" entity)	-
Name (primary key)	name/title of the security measure	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Type	type/category of the security measure	String – possibly: "Surveillance Systems", "Perimeter Security", "Access Control", "Correctional Officer Presence", "Specialized Equipment", "Security Checkpoints", "Search and Seizure Protocols", "Emergency Response Plans", "Connected to Inmate Programs and Rehabilitation", "Other", maximum: 50 characters
Date-implemented	date when the security measure was implemented	Date
Description	additional description of the security measure	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

10. Facility		
Definition	set of facilities within the prison system (polish)	
Size estimation	approximately 150 entries	
Adding criteria	entry gets added when facility starts existing in the prison system	
Deletion criteria	Deleted: - when facility no longer exists for longer than 15 years	
List of attributes	**Definition**	**Data type/Domain**
Facility ID (primary key)	unique identifier for each facility	String consisting of 3 digits (Integers: 0-9)
Facility Name	name or title of the facility	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Address	physical address of the facility	String, alphanumeric characters, special characters are allowed, maximum: 100

		characters
City	city where the facility is located	String, only letters (and spaces), maximum: 100 characters
Security level	security level assigned to the facility	String – possibly: "High Maximum", "Maximum", "Medium", "Minimum", "Transitional", "Correctional", "Other", maximum: 50 characters
Start-date	the date when the facility gets added to the prison system	Date
End-date	the date when the facility stops existing/closes	Date

11. Rehabilitation Programs		
Definition	set of rehabilitation programs offered to prisoners	
Size estimation	approximately 800 entries	
Adding criteria	entry gets added when rehabilitation program gets made	
Deletion criteria	Deleted if it has the end-date and there are no attendances connected to it anymore.	
List of attributes	**Definition**	**Data type/Domain**
Program ID (primary key)	unique identifier for each rehabilitation program	String consisting of 5 digits (Integers: 0-9)
Name	name/title of the rehabilitation program	String, alphanumeric characters, special characters are allowed, maximum: 100 characters
Category	category/type of the rehabilitation program	String – possibly: "Educational Programs", "Counselling and Therapy", "Employment Readiness Programs", "Life Skills Training", "Substance Abuse Treatment Programs", "Anger Management Programs", "Parenting Classes", "Restorative Justice Programs", "Re-entry Planning and Support", "Community Service Programs", "Other", maximum: 50 characters
Start-date	date when the rehabilitation program begins	Date
End-date	date when the rehabilitation program concludes	Date
Description	detailed description of the rehabilitation program	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

12. Attendance		
Definition	set recording the attendance of prisoners in rehabilitation programs	
Size estimation	approximately 700,000 entries	
Adding criteria	entry gets added when prisoner starts taking part in rehabilitation program	
Deletion criteria	Deleted: - when all the prisoner stays connected to it get deleted - when rehabilitation program connected to it get deleted	
List of attributes	**Definition**	**Data type/Domain**
Attendance ID (primary key)	unique identifier for each attendance record	String consisting of 7 digits (Integers: 0-9)
Start-date	date when the attendance in the rehabilitation program starts	Date
End-date	date when the attendance in the rehabilitation program ends	Date
Result	result/outcome of the attendance	String, alphanumeric characters, special characters are allowed, maximum: 500 characters
Additional information	any additional information related to the attendance	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

13. Release Information		
Definition	set recording information about prisoners' release	
Size estimation	approximately 280,000 entries	
Adding criteria	entry gets added when the prisoner gets released from prison	
Deletion criteria	Deleted: - when the prisoner stay connected to it gets deleted, Deleted when the prisoner goes back to system.	
List of attributes	**Definition**	**Data type/Domain**
Release ID (primary key)	unique identifier for each release record	String consisting of 7 digits (Integers: 0-9)
Release Reason	reason for the prisoner's release	String, alphanumeric characters, special characters are allowed, maximum: 500 characters
Release Date	date when the prisoner was released	Date
Description	additional information or details about the release	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

14. Prisoner Contacts

Definition	set of individuals in contact with prisoners
Size estimation	approximately 1,050,000 entries
Adding criteria	entry gets added when a person visits the prisoner or when the prisoner requests to include a new contact in their approved visitor list
Deletion criteria	Deleted: - when it has no longer prisoners connected to it gets deleted

List of attributes	Definition	Data type/Domain
Contact ID (primary key)	unique identifier for each contact	String consisting of 7 digits (Integers: 0-9)
Name	first name of the contact	String, only letters, maximum: 100 characters
Surname	last name of the contact	String, only letters, maximum: 100 characters
Tel. number	telephone number of the contact	Strings of digits (could be a different number depending on country code), maximum: 20 characters
Email	email address of the contact	String, alphanumeric characters, special characters are allowed, maximum: 250 characters
Additional information	any important information related to the contact	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters
Description	additional description of the contact	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

15. Visits	
Definition	set of visits to prisoners
Size estimation	approximately 1,000,000 entries
Adding criteria	entry gets added when prisoner gets a visitation
Deletion criteria	Deleted: - when the prisoner stay connected to it gets deleted, Deleted after a year has passed since the visitation.

List of attributes	Definition	Data type/Domain
Visit ID (primary key)	unique identifier for each visit	String consisting of 7 digits (Integers: 0-9)
Date	date when the visit occurred	Date
Time	time when the visit occurred	Time
Duration	duration of the visit	Time
Reason	reason for the visit	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters
Description	additional information related	String, alphanumeric

	to the visit	characters, special characters are allowed, maximum: 1000 characters

16. Prisoner Stay		
Definition	set of prisoners' stays in facilities	
Size estimation	approximately 700,000 entries	
Adding criteria	entry gets added when prisoner gets assigned to the facility	
Deletion criteria	Deleted: - when the facility connected to it gets deleted, - when all sentences connected to it get deleted, - when 15 years have passed after prisoner release (current data retention)	
List of attributes	**Definition**	**Data type/Domain**
Stay ID (primary key)	unique identifier for each stay	String consisting of 7 digits (Integers: 0-9)
Entry-date	date when the prisoner entered the facility	Date
Exit-date	date when the prisoner exited the facility	Date
Additional information	any additional information related to the stay	String, alphanumeric characters, special characters are allowed, maximum: 1000 characters

2. Definitions of the relationships.

1. Given during		
Definition	represents when the medication was administered/during which prisoner stay it was administered	
	Entity 1	**Entity 2**
Relationship between	Medication	Prisoner Stay
Type of relation	1	0 .. n
Explanation	each medication might be administered during only one prisoner stay, as it has specific frequency, dosage, and reason for taking, and will be added during current prisoner stay	each prisoner stay can have zero, one or more medications administered, as a prisoner might not need the medication at all and might need multiple kinds during their stay

2. Is prescribed in		
Definition	represents in which medical document was medication mentioned/prescribed in	
	Entity 1	**Entity 2**
Relationship between	Medication	Medical Documents
Type of relation	1	0 .. n
Explanation	each medication with its correct dosage might be prescribed in only one medical	each medical document might prescribe zero, one or many medications

document and needs to be prescribed to be administered	

3. Has		
Definition	represents that the prisoner has some medical documents, that are available to view and important for their stay in the facility	
	Entity 1	**Entity 2**
Relationship between	Medical Documents	Prisoner
Type of relation	1	0 .. n
Explanation	each medical document is connected to only one prisoner and to be in the system needs a prisoner to be connected to	each prisoner can have zero, one or many medical documents, as there might be no important medical documents to keep in mind or currently the prisoner might not have delivered any medical documents

4. Is described in		
Definition	represents in which medical document was medical condition mentioned/described in	
	Entity 1	**Entity 2**
Relationship between	Medical Documents	Medical Condition
Type of relation	0 .. n	1 .. n
Explanation	each medical document can describe none, one or many medical conditions	each medical condition can be described in multiple medical conditions, but needs to be described in at least one, to have proof of it existing and for it to be added to the system

5. Has		
Definition	represent that the prison has some medical condition	
	Entity 1	**Entity 2**
Relationship between	Medical Condition	Prisoner
Type of relation	1	0 .. n
Explanation	each medical condition is connected to only one prisoner, as it has its own individual description and to be added to the system must be connected to the prisoner	each prisoner can have none, one or many medical conditions

6. Is mentioned in		
Definition	represents that the prisoner has some legal documents connected to their name	
	Entity 1	**Entity 2**
Relationship between	Legal Documents	Prisoner

Type of relation	1	0 .. n
Explanation	each legal document must be connected to one prisoner, as the only one prisoner will be described in it, there is no reason to add legal documents not connected to the prisoner	each prisoner can have zero, one or many legal documents, as a document might still being processed as of time when the prisoner is added to the system

7. Is documented by		
Definition	represents that the sentence is being documented by some legal documents	
	Entity 1	**Entity 2**
Relationship between	Legal Documents	Sentence
Type of relation	1 .. n	0 .. n
Explanation	each legal document that is in the system must be connected to at least one sentence of the prisoner, but might be connected to many	each sentence can have currently zero, one or many legal documents connected to it, as the legal documents connected to it might not be available at the moment e.g. processes, or there might be more than one legal document connected to particular sentence

8. Is serving		
Definition	represent that the prisoner is/was serving a particular sentence	
	Entity 1	**Entity 2**
Relationship between	Sentence	Prisoner
Type of relation	1	1 .. n
Explanation	each sentence must be connected to only one prisoner, as there is no reason for having a sentence not connected to a prisoner that is in the system	each prisoner might have one or more sentence connected to themselves, as they will have a sentence if they are a prisoner, but might have more than one sentence to their name

9. Is served during		
Definition	represent that the sentence is being server by the prisoner stay in the facility	
	Entity 1	**Entity 2**
Relationship between	Sentence	Prisoner Stay,
Type of relation	0 .. n	1 .. n
Explanation	each sentence can have zero, one or many prisoners stays connected to it, as by the time when the prisoner and sentence gets added to the system, the prisoner might yet	each prisoner stay might be connected to one, or more of the sentences, as a few sentences might be served concurrently, there will be no prisoner stay, if there is no

to be assigned to the facility, so there will be no prisoner stay history currently, one sentence might be also served during different prisoner stay	sentence

1. Has		
Definition	represents that the prisoner has some contacts added to the database	
	Entity 1	**Entity 2**
Relationship between	Prisoner Contacts	Prisoner
Type of relation	1 .. n	0 .. n
Explanation	each prisoner contact needs to have at least one prisoner connected to it to be recorded in the database, as they are the prisoner contacts, one contact could be connected to more than one prisoner	each prisoner can have zero, one or more contacts connected to it, as prisoner can have no contacts, but could also have many

10. Is linked to		
Definition	represents that involvement in the incident happened during the certain prisoner stay	
	Entity 1	**Entity 2**
Relationship between	Involvement	Prisoner Stay
Type of relation	1	0 .. n
Explanation	each involvement must be connected to exactly one prisoner stay, as there is no reason to store involvements that happened outside the prisoner stay, and one involvement will not happen during multiple prisoners stays (because it will be a particular incident in the facility)	each prisoner stay can be connected to zero, one or many involvements, because during one prisoner stay, prisoner can be involved in no, one or many incident

11. Associated with		
Definition	represents that the incident is associated with a particular involvement of prisoners	
	Entity 1	**Entity 2**
Relationship between	Involvement	Incidents
Type of relation	1	1 .. n
Explanation	each involvement must be connected to exactly one incident, as it stores information about what the prisoner did in that incident, and the incidents stored must	each incident must be connected to one or many involvements, as there could be few prisoners involved

	involve involvement of the prisoners	

12. Takes place in		
Definition	represents that the certain incident took place in the facility	
	Entity 1	**Entity 2**
Relationship between	Incidents	Facility
Type of relation	1	0 .. n
Explanation	each incident might be connected to exactly one facility, as it stores information connected to incidents at facilities	each facility might be connected to zero, one or more incidents, as there could be no incident connected to facility stored currently (e.g. new facility), there could be currently also only one or there could be many more

13. Housed in		
Definition	represents that the prisoner stay is connected to the certain facility	
	Entity 1	**Entity 2**
Relationship between	Prisoner Stay	Facility
Type of relation	1	0 .. n
Explanation	each prisoner stay must be connected to exactly one facility, as if the prisoner stay would be in another facility it would count as another prisoner stay, and logically it makes no sense to have prisoner stay not connected to facility	each facility can be connected to zero, one or many prisoners stay, as the facility could be new and currently not housing any prisoners

14. Implements		
Definition	represents that facilities implement the security measures	
	Entity 1	**Entity 2**
Relationship between	Facility	Security Measures
Type of relation	0 .. n	1
Explanation	each facility has either zero, one or many security measures implemented currently	each security measure needs to be connected to one facility, as in context of this database there is no reason to have information about security measures not connected to facility

15. Implements	
Definition	represents that facilities implement the rehabilitation programs

	Entity 1	Entity 2
Relationship between	Facility	Rehabilitation Programs
Type of relation	0 .. n	0 .. n
Explanation	each facility has implemented either zero, one or many rehabilitation programs	each rehabilitation program might just have been formed and not be connected to any facility yet, it might also be implemented in more than one facility, there is also a possibility of rehabilitation program not being connected to any facility

16. During		
Definition	represents that during the whole existence of rehabilitation program there was recorded a certain attendance of the prisoner	
	Entity 1	**Entity 2**
Relationship between	Rehabilitation Programs	Attendance
Type of relation	0 .. n	1
Explanation	each rehabilitation program can have currently no attendances recorded, as it has just formed, it could also have one or more attendances	each attendance needs to be connected to exactly one rehabilitation program, as it is connected to only it

17. During		
Definition	represents that during the prisoner stay there were recorded some attendances connected to it	
	Entity 1	**Entity 2**
Relationship between	Attendance	Prisoner Stay
Type of relation	1 .. n	0 .. n
Explanation	each attendance can need to have at least one prisoner stay connected to it, as it directly relates to it, and one attendance could possibly span to different prisoner stays	each prisoner stay can have zero, one or more attendances connected to it, as during the prisoner stay there could be more than one attendance recorded and there could be none

18. Linked to		
Definition	represents that during/after the concrete prisoner stay a prisoner was released	
	Entity 1	**Entity 2**
Relationship between	Prisoner Stay	Release Information
Type of relation	0 .. 1	1
Explanation	each prisoner stay could be connected to zero or one release information, as during/after the prisoner stay a	Each release information needs to be connected to exactly one prisoner stay, as prisoner has been release only

	prisoner could have not been released	during/directly after one prisoner stay

19. Connected to		
Definition	represents that the visit recorded in the database is directly connected to some kind of prisoner contact	
	Entity 1	**Entity 2**
Relationship between	Visits	Prisoner Contacts
Type of relation	0 .. 1	0 .. n
Explanation	each visit can have connected zero or only one prisoner contact, as visits are individual, not all visits will result in prisoner contact being recorded or will have prisoner contact recorded	each prisoner contact can have zero, one or more visits recorded, as a prisoner could have requested a contact to be added and there to that contact could be no visits recorded, one prisoner contact could visit a few times

20. During		
Definition	represent that during the prisoner stay there were some visits recorded	
	Entity 1	**Entity 2**
Relationship between	Visits	Prisoner Stay
Type of relation	1	0 .. n
Explanation	each visit needs to be connected to exactly one prisoner stay, as it happened directly during one prisoner stay, logically there will be no visits not connected to prisoner stay	each prisoner stay can have zero, one or more visits connected, as there could have been no visits during prisoner stay

4. Relational database schema.

Medication (Medication ID, Name, Dosage, Frequency, Reason, Start-date, End-date, Document ID REF Medical Documents)

Medical Documents (Document ID, Date-and-time, Medical Professional, Prisoner ID REF Prisoner)

Medical Condition (ICD-10 code, Prisoner ID REF Prisoner, Name, Severity, Description)

Legal Documents (Document ID, Title, Type, Date-issued, Issuing authority, Description, Prisoner ID REF Prisoner)

Sentence (Sentence ID, Length, Date-of-verdict, Parole eligibility, Court name, Additional information, Prisoner ID REF Prisoner)

Prisoner (Prisoner ID, Name, Surname, Date-of-birth, Gender, Nationality, PESEL, Security Classification)

Incidents (Incident ID, Incident Type, Date, Time, Place, Description, Facility ID REF Facility)

Involvement (<u>Stay ID REF Prisoner Stay, Incident ID REF Incidents</u>, Role, Additional Information)

Security Measures (<u>Facility ID REF Facility, Name</u>, Type, Date-implemented, Description)

Facility (<u>Facility ID</u>, Facility Name, Address, City, Security level, Start-date, End-date)

Rehabilitation Programs (<u>Program ID</u>, Name, Category, Start-date, End-date, Description)

Attendance (<u>Attendance ID</u>, Start-date, End-date, Result, Additional information, Program ID REF Rehabilitation Programs)

Release Information (<u>Release ID</u>, Release Reason, Release Date, Description, Stay ID REF Prisoner Stay)

Prisoner Contacts (<u>Contact ID</u>, Name, Surname, Tel. number, Email, Additional information, Description)

Visits (<u>Visit ID</u>, Date, Time, Duration, Reason, Description, Stay ID Prisoner Stay)

Prisoner Stay (<u>Stay ID</u>, Entry-date, Exit-date, Additional information, Facility ID REF Facility)

Is_described_in ((<u>ICD-10 code, Prisoner ID</u>) REF Medical Condition, <u>Document ID</u> REF Medical Documents)

Is_documented_by (<u>Document ID</u> REF Legal Documents, <u>Sentence ID</u> REF Sentence)

Is_served_during (<u>Sentence</u> ID REF Sentence, <u>Stay ID</u> REF Prisoner Stay)

Implements (<u>Facility ID</u> REF Facility, <u>Program ID</u> REF Rehabilitation Programs)

During (<u>Attendance ID</u> REF Attendance, <u>Stay ID</u> REF Prisoner Stay)

Connected_to (<u>Visit ID</u> REF Visits, Contact ID REF Prisoner Contacts)

Has (<u>Prisoner ID</u> REF Prisoner, <u>Contact ID</u> REF Prisoner Contacts)