Database for a World Management Support System for a Minecraft Server Running the Cobblemon Mod

1. Cobblemon – Introduction

- **Minecraft** – a sandbox-type video game (open-world game) that allows players to explore, build, craft, fight monsters, and interact with a dynamic environment.
  https://www.minecraft.net/pl-pl/article/what-minecraft

- Pokemon (universe) – originally a role-playing game franchise published by Nintendo; later expanded into multiple game versions, manga, and anime adaptations. Over time, it evolved into a complete fictional universe in which humans coexist with creatures known as Pokémon — entities with diverse abilities, appearances, and elemental types (e.g., fire, water, electric).

    - Pokémon trainers capture these creatures using Poké Balls and train them to participate in battles.
    - The goal of many trainers is to become a Pokémon Champion by winning battles and earning badges from various Gyms.
    - The world also features criminal organizations (e.g., Team Rocket) that exploit Pokémon for malicious purposes.
    - Pokémon can evolve, meaning they transform into stronger forms.
    - The universe emphasizes themes of friendship, cooperation, and respect for nature.

- **Cobblemon Mod** – a modification for Minecraft (Fabric version) that introduces Pokémon-universe mechanics into the Minecraft environment. Players can capture, train, evolve, and battle Pokémon within a survival-mode world.

Key features include:

- the ability to capture over 700 different Pokémon species within Minecraft, integrating classic Pokémon mechanics (capturing, evolution, leveling) with Minecraft's exploration, building, and survival gameplay;
- a type and battle system closely aligned with traditional Pokémon games, enabling team planning, type effectiveness analysis, and strategic gameplay;
- environmental spawn conditions for Pokémon, including biomes, weather, strictly defined time-of-day windows, and additional factors affecting spawn probability;
- integration with multiplayer mode and Minecraft servers — therefore, the database supports both single-player gameplay aspects and administrative server management tasks;
- the modification is available to players in English.

In this project, we assume that the database will serve as a tool supporting both players and administrators on a Minecraft server running Cobblemon. It will facilitate information retrieval (e.g., "which Pokémon can be caught in a given biome") as well as management operations (e.g., "modify a Pokémon's spawn rate in this biome", "add a new generation", "analyze team type balance").

2. System Users and Their Roles (Example Use Cases)

- **Server Administrators (Server Admin)**

  - Full access to all tables and data.
  - Complete privileges: creating, modifying, and deleting all database records (Pokémon, types, biomes, spawn information, loot tables, moves).
  - Management of generations and regions (e.g., adding a new Pokémon generation or introducing a new region within the game world).
  - Making strategic decisions, such as adjusting spawn rates, introducing special event loot tables, or balancing type effectiveness after mod updates.

- **Moderators (Content Moderators)**

  - Permissions to edit informational data (e.g., Pokémon descriptions, attributes, spawn parameters) without access to critical system-level modifications (e.g., database structure or generation management).
  - Ability to create reports and analytical insights (e.g., spawn statistics, type distributions, team compositions) and propose adjustments.

- **Players (Players)**

  - Read-only access: can search for Pokémon, review types, spawn conditions, moves, and evolution details.
  - No permission to modify the database — it serves as an informational interface supporting gameplay decisions (e.g., “which Pokémon to catch,” “which move to use,” “how to build a team composition”).

3. Planned Information to Be Included in the Database:

- General Section (Pokédex):
  A comprehensive profile repository for all Pokémon species introduced by the modification. For each species, the system will store core attributes such as name, Pokédex number (an in-game index of Pokémon available to trainers), average height and weight, available genders, region of origin, generation, and a category describing its characteristics. The database will also maintain relationships with the loot table module, defining items that a Pokémon may drop after battles. These data structures will enable efficient querying based on various criteria (e.g., region, type, rarity) and will serve as a foundation for other gameplay systems such as evolution mechanics, spawning logic, and combat abilities.

- Type Classification and Combat Interaction Section:
  A subsystem describing relationships between Pokémon types and their impact on combat mechanics. Each type will define strengths, weaknesses, and effectiveness against other types. This structure allows evaluation of both offensive and defensive potential, particularly for dual-type Pokémon. The type effectiveness model forms the backbone of the battle system, influencing team strategies and combat outcomes. Types will also include environmental interactions — for example, Fire-type Pokémon may resist lava, while Water-type Pokémon perform more effectively in aquatic environments.

- Environmental Conditions and Spawn Mechanics Section:
  A module responsible for modelling all environmental factors affecting Pokémon appearance within the Minecraft world, including biomes and their climate, weather conditions, and time-of-day cycles, forming a cohesive in-game ecosystem. Each species will have detailed spawn parameters recorded, such as valid biomes, weather states, time windows, level ranges, rarity, and additional constraints like terrain height or sky visibility. The system will reflect natural behavioural patterns — some species appear only at night, others during storms or within specific regions.

- Growth and Evolution Section:
  A structured representation of all evolution forms and methods. This includes both simple level-based evolutions and complex transformations dependent on environmental conditions, held items, or trainer relationships. The database will support evolution rules tied to time of day, location, items, friendship mechanics, regional forms, and branching evolution paths. Each evolution entry will be precisely defined along with its requirements, enabling players to plan team progression and prepare strategic development paths.

- Mod-Introduced Items Section:
  A complete catalogue of items introduced by the modification, categorised by functionality: evolution stones, medical items, berries, battle equipment, crafting materials, technical machines (TM), and various types of Poké Balls. Each item will include functional descriptions, rarity levels, maximum stack size, and relationships to other mechanics such as evolution, move learning, or healing.
  An integrated loot module will define item acquisition sources and mechanics. Each Pokémon will be linked to reward tables containing items, quantities, and drop probabilities. A weighted system will ensure variability and randomness, while a hierarchical rarity structure (e.g., Common, Rare, Legendary) will enable flexible drop balancing across entire Pokémon groups.

- Abilities and Combat Skills Section:
  A combat skill framework covering detailed definitions of all available moves and their associations with specific Pokémon species. Each move will include attributes such as name, type, power, accuracy, PP (Power Points), and classification (physical, special, or status). Additional effects will also be modelled, including area-of-effect damage, healing, stat modifications, status inflictions, and weather alterations.
  The system will define multiple learning methods: natural level-based progression, technical machines (TM), breeding inheritance, and specialised trainers.
  The database will support planning of optimal move sets, control of move availability, and overall gameplay balance management.

4. Example SQL Queries

- A list of Pokémon spawn occurrences within a specific biome and under a specific weather condition
- A list of attack types that are super-effective against the Pokémon “Charizard”
- The complete evolutionary line for a given species
- Pokémon that require a specific item to evolve
- Possible loot drops from a selected species, including drop rates and quantities