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Course Project Proposal
Aquarium Management Database

Introduction

Aquariums are not only places of leisure and education but also complex ecosystems that require meticulous management to ensure the health and safety of their inhabitants. With the increasing number of species and the complexity of their habitats, managing an aquarium manually has become a daunting task. The Aquarium Management Database is a project designed to address these challenges by providing a comprehensive, digital solution for the efficient management of aquarium operations.

The Aquarium Management Database is a comprehensive system designed to efficiently manage and maintain the various operations within an aquarium. This database is crucial for handling the complexity of an aquarium's daily activities, which include managing aquatic species, monitoring tank conditions, scheduling feeding and cleaning routines.

One of the key features of the database is its ability to track and manage the health and well-being of the aquarium's inhabitants. The system will record detailed information on each species, including their dietary requirements, habitat conditions, and any health issues. This information will be accessible through a user-friendly interface, allowing staff to quickly update records and respond to any changes in an animal's condition. Automated alerts can be set up to notify staff of critical situations, such as water quality deterioration or a missed feeding schedule, ensuring timely intervention.

In addition to species management, the Aquarium Management Database will also handle other critical aspects of aquarium operations, such as tank maintenance, water quality monitoring, and visitor interaction management. Regular maintenance tasks, such as cleaning schedules and water testing, can be logged and tracked, ensuring that all tanks remain in optimal condition. The system can also manage the logistics of visitor interactions, such as scheduling guided tours, managing ticket sales, and collecting visitor feedback. By integrating these functions into a single system, the database not only improves operational efficiency but also enhances the overall visitor experience.

The Aquarium Management Database is built using advanced database management techniques to ensure data integrity, security, and accessibility. The system is designed to be scalable, allowing it to grow and adapt as the aquarium expands or changes. It also includes measures to protect sensitive data, ensuring that information about the species, staff, and visitors is kept secure.

In conclusion, the Aquarium Management Database is a crucial tool for modern aquariums, providing a comprehensive solution for managing the complex needs of aquatic life and the operations that support them. By automating and centralizing these processes, the database helps ensure the well-being of the aquarium's inhabitants, improves operational efficiency, and enhances the visitor experience, all of which are essential for the successful management of an aquarium.

Entities and Relationships

Entities:

Employees - The people who run the aquarium. Includes those who clean the tanks and rooms, feed the residents, security, and anyone handling the front counter.

Tanks - The areas that most, if not all, residents live in

Residents - Refers to anything that lives in the aquarium that isn't also a person. May include fish, crustaceans, mollusks, amphibians, and others.

Supplies - Cleaning supplies for the tanks and everywhere else in the aquarium, as well as food and enrichment items for the residents

Entry_Tickets - Tickets the public can purchase to view the aquarium.

Rooms - The rooms that can be found in the aquarium. May include areas like the entry, areas for particular tanks, supply closets, or the employee break room.

Relationships:

Tank_Maintenance - Which employees are assigned to clean and maintain which tanks

Resident_Care - Contains which employees are supposed to feeding and checking on various residents

Tank_Supplies - Contains what supplies are supposed to or have been be used for various tanks

Resident_Supplies - Contains what supplies are supposed to be for various residents

Resident_Tank - Contains which tanks that the residents live in

Tank_Room - Shows where all the tanks are suppose to be

Transactions

Entry tickets being purchased and generated

Residents arriving to and leaving the aquarium

Supplies that are bought or used

Employees may sometimes have a change in title, change their names, be hired and added to the database, or quit and be removed from the database.

Tanks may be added or removed

Residents may change what tank they're in

Rooms may be added, removed during renovations

Rooms may have their purpose changed if the aquarium is redecorated