P2: Database Design, Initial ERD TEAM-03

Business Problems and Objectives:

In the database design we are highlighting the need for efficient environmental data management and conservation efforts.The objectives include enhancing conservation impact, efficient resource management, fostering collaboration, and empowering outreach and education.

Goals:

The core objectives are to:

1. **Streamline Supply Chain Management:** To ensure the efficient flow of resources, the system needs to manage the intricate relationships between Suppliers and Food Supplies. Suppliers can provide multiple food supplies, and conversely, food supplies may come from various Suppliers. The challenge is to manage these dynamic, many-to-many relationships effectively.

2. **Optimize Wildlife and Food Supply Dynamics:** The system must address the dynamic nature of wildlife and their food supply. Wildlife may or may not have food supply connections, and food supplies may or may not be linked to wildlife. Managing these optional relationships is essential for balanced ecological support.

3. **Enhance Habitat and Flora Management:** The relationship between Wildlife and Habitat is mandatory for wildlife's well-being, but not all habitats are equally essential for wildlife. The challenge is to efficiently manage the often-optional connections between Habitat and Flora, where multiple types of flora are crucial for habitat preservation.

4. **Enable Effective Wildlife Tracking:** The mandatory one-to-one relationship between Wildlife and Wildlife Tracking ensures that each wildlife entity is tracked effectively.

5. **Efficient Employee and Tourist Management:** To facilitate conservation efforts, Employee-to-Tourist relationships must be managed. Each Employee may guide multiple Tourists, necessitating effective management of one-to-many relationships.

6. **Facilitate Sanctuary and Tourist Relations:** Each Sanctuary can host multiple Tourists, but not all sanctuaries may have visitors. Managing these mandatory-to-optional relations is crucial for providing opportunities for tourists to explore conservation areas.

7. **Empower Employee-Volunteer Collaboration:** Employees can manage multiple Volunteers, and each Volunteer may contribute to various projects. Effectively handling these one-to-many relationships is essential for collaborative conservation efforts.

8. **Promote Outreach Program Participation:** Outreach Programs involve multiple Volunteers, and each Volunteer may participate in various programs. Managing these

mandatory-many-to-mandatory-one relationships is crucial for organizing and executing effective conservation awareness campaigns.

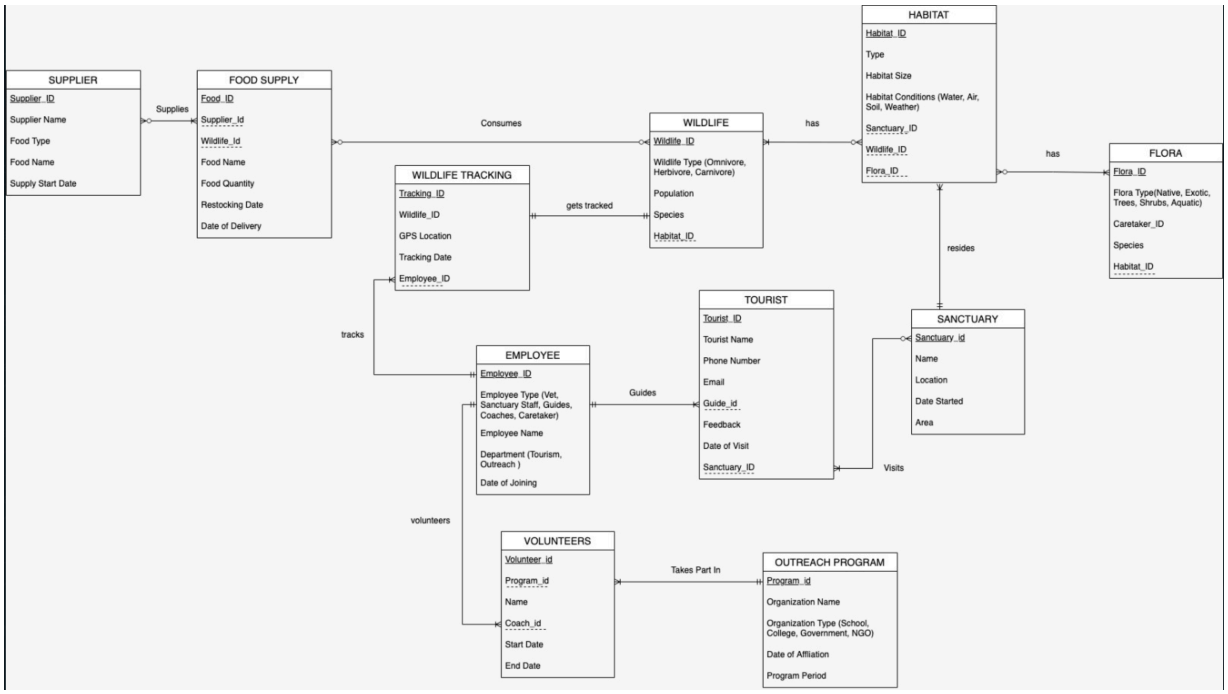
Key Design Decisions:

Inclusion of Entities: We included these entities because they are essential for achieving the database's objectives of digitizing and centralizing conservation data.
Relationships: We defined relationships to capture how these entities interact in the context of environmental conservation efforts.

Relationships:

1.FOOD SUPPLY to WILDLIFE: Optional many to Optional Many
2.SUPPLIER to FOOD SUPPLY: Mandatory many to Mandatory many
3.VOLUNTEERS to OUTREACH PROGRAM: Mandatory many to Mandatory one
4.EMPLOYEE to VOLUNTEERS: Mandatory one to Mandatory many
5.SANCTUARY to HABITAT: Mandatory one to Mandatory many
6.TOURIST to SANCTUARY: Mandatory many to Optional
7.EMPLOYEE to TOURIST: Mandatory one to Mandatory many
8.WILDLIFE TRACKING to EMPLOYEE: Mandatory many to Mandatory one
9.WILDLIFE to WILDLIFE TRACKING: Mandatory one to Mandatory one
10.HABITAT to FLORA: Optional many to Mandatory many
11.WILDLIFE to HABITAT: Mandatory many to Optional many

ERD:


SUPPLIER
Supplier_ID
Supplier Name
Food Type
Food Name
Supply Start Date
Supplies
FOOD SUPPLY
Food_ID
Supplier_Id
Wildlife_Id
Food Name
Food Quantity
Restocking Date
Date of Delivery
Consumes
WILDLIFE
Wildlife_ID
Wildlife Type (Omnivore, Herbivore, Carnivore)
Population
Species
Habitat_ID
has
HABITAT
Habitat_ID
Type
Habitat Size
Habitat Conditions (Water, Air, Soil, Weather)
Sanctuary_ID
Wildlife_ID
Flora_ID
has
FLORA
Flora_ID
Flora Type(Native, Exotic, Trees, Shrubs, Aquatic)
Caretaker_ID
Species
Habitat_ID
WILDLIFE TRACKING
Tracking_ID
Wildlife_ID
GPS Location
Tracking Date
Employee_ID
gets tracked
resides
tracks
TOURIST
Tourist_ID
Tourist Name
Phone Number
Email
Guide_id
Feedback
Date of Visit
Sanctuary_ID
SANCTUARY
Sanctuary_id
Name
Location
Date Started
Area
Visits
EMPLOYEE
Employee_ID
Employee Type (Vet, Sanctuary Staff, Guides, Coaches, Caretaker)
Employee Name
Department (Tourism, Outreach)
Date of Joining
Guides
volunteers
VOLUNTEERS
Volunteer_id
Program_id
Name
Coach_id
Start Date
End Date
Takes Part In
OUTREACH PROGRAM
Program_id
Organization Name
Organization Type (School, College, Government, NGO)
Date of Affliation
Program Period