

For the scenario below identify the entities, their attributes and appropriate keys

### **Finsbury Happy Zoo**

Finsbury Happy Zoo's concept is to show animals together in their habitats. They have a number of enclosures of different habitat types (such as forest or tundra), different sizes (square metres), each having a main feature (such as a stream or a cave). Animals of different species share the same enclosure. Each enclosure has a unique number and there can be several enclosures with the same habitat but with a different main feature or of a different size. Each animal has a unique ID, and their name, date\_of\_birth, diet and description are stored. When an animal is put in an enclosure, the start date is recorded, and if they are transferred to another enclosure the end date is recorded. Zookeepers may need to make a note about a particular animal, for example "not eating well today" and this is recorded along with the date. To make sure the animals don't eat each other a species compatibility table is maintained which has the following information; speciesA, speciesB, compatibility\_rating (5 for happy neighbours to 1 for bitter enemies). Species are identified by their name, and a description of the species and their habitat type are recorded. Species are matched against enclosures by Zoo staff, and if suitable the maximum number of animals of a particular species for a particular enclosure is recorded to prevent overcrowding.

#### **ANSWER:**

1. Entity: Enclosure

Attributes:

- Habitat Type (e.g., forest, tundra)
- Size (in square metres)
- Main Feature (e.g., stream, cave)

Primary Key: Enclosure Number

2. Entity: Animal

Attributes:

- Name
- Date of Birth
- Diet
- Description

Primary Key: Animal ID

3. Entity: Species

Attributes:

- Description
- Habitat Type (preferred habitat for the species)

Primary Key: Species Name

#### 4. Entity: Animal Placement

##### Attributes:

- Start Date (when an animal is placed in an enclosure)
- End Date (if the animal is moved to another enclosure)
- Tracks which animals are placed in which enclosures, and the dates of their placement.

##### Composite Primary Key: Animal ID, Enclosure Number, Start Date

- Animal ID is a Foreign Key referencing the Animal entity.
- Enclosure Number is a Foreign Key referencing the Enclosure entity.

#### 5. Entity: Animal Notes

##### Attributes:

- Note Date (when the note is made)
- Note Description (e.g., "not eating well today")

##### Composite Primary Key: (Animal ID, Note Date)

- Animal ID is a Foreign Key referencing the Animal entity.

#### 6. Entity: Species Compatibility

##### Attributes:

- speciesA (First species in the compatibility pairing)
- speciesB (Second species in the compatibility pairing)
- Compatibility Rating (1 to 5, where 5 is highly compatible and 1 is highly incompatible)

##### Composite Primary Key: (speciesA, speciesB)

- speciesA and speciesB are both Foreign Keys referencing the Species entity.

#### 7. Entity: Species Enclosure Match

##### Attributes:

- Maximum Number (maximum number of animals of this species that can be housed in the enclosure)

##### Composite Primary Key: (Species Name, Enclosure Number)

- Species Name is a Foreign Key referencing the Species entity.
- Enclosure Number is a Foreign Key referencing the Enclosure entity.