Entities and Attributes

1. **Bay**
    - **Attributes:**
        - Bay Number (Primary Key)
        - Location
        - Height
        - Parking Spot (Boolean: Yes/No)
2. **Bin**
    - **Attributes:**
        - Bin Number (Primary Key within a Bay)
        - Bay Number (Foreign Key referencing Bay)
        - Size
        - Maximum Loaded Weight
3. **Forklift**
    - **Attributes:**
        - Equipment Number (Primary Key)
        - Bay Number (Foreign Key referencing Bay)
        - Maximum Carrying Weight
        - Type (Petrol/Electric)
4. **Item**
    - **Attributes:**
        - Item Number (Primary Key)
        - Date Added
        - Weight
5. **Storage Record** (to track items in bins)
    - **Attributes:**
        - Storage Record ID (Primary Key)
        - Item Number (Foreign Key referencing Item)
        - Bin Number (Foreign Key referencing Bin)
        - Bay Number (Foreign Key referencing Bay)
        - Date Stored

Keys

- **Primary Keys:**
    - Bay: Bay Number
    - Bin: (Bay Number, Bin Number) — composite key (since Bin Number is unique within a Bay)
    - Forklift: Equipment Number
    - Item: Item Number
    - Storage Record: Storage Record ID
- **Foreign Keys:**
    - Bin: Bay Number (references Bay)
    - Forklift: Bay Number (references Bay)
    - Storage Record: Item Number (references Item)

- Storage Record: Bin Number (references Bin)
- Storage Record: Bay Number (references Bay)

Summary

This structure allows you to efficiently manage the relationships between bays, bins, forklifts, and items while maintaining data integrity through the use of unique keys and foreign key constraints. The **Storage Record** entity acts as a junction table to track which items are stored in which bins within bays, capturing the necessary details for warehouse optimization.