The Angel Warehouse

Scenario

The warehouse uses bays – recording their unique number, height and location – to store items. Bays contain bins that have a different number within the bay, starting with bin number 1. Each bay's capacity ranges from 5 to 50+ bins. The size and maximum loaded weight of each bin are recorded. Forklifts, running on petrol or electricity, have unique equipment and different maximum carrying weights that are recorded. When taken into the warehouse, items are assigned a unique number; their weight and date of storage are recorded. The date an item is put in a particular bin is also recorded.

Example entities and attributes

Bay (Entity)
- Bay_number – 005 (primary key)
- Bay_location – Aisle 5
- Bay_height – 3.5 metres
- Number_of_bins – 40
- Forklift_availability – Yes

Bin (Entity)
- Bay_allocation – 005 (foreign key)
- Bin_number_within_the_bay – 2 (primary key)
- Bin_size – 80x80x120cm
- Maximum_loaded_weight – 70kg

Forklift (Entity)
- Equipment_number – F820 (primary key)
- Bay_allocation – 005 (foreign key)
- Maximum_carrying_weight – 120kg
- Power_type – Electric

Item (Entity)
- Item_number – 352 (primary key)
- Item_weight – 3kg
- Date_of_storage – 01/10/2024
- Storage_location – Bin 2, Bay 005
- Date_of_storage_in_particular_bin – 02/10/2024

Movement of Items (event entity, candidate key not determined)
- Item_number – 352 (foreign key)
- Bin_number – 2 (foreign key)
- Bay_number – 005 (foreign key)
- Date_of_movement – 02/10/2024
- Action – Item stored

Example queries

1. What are all the item numbers and their bin locations within bay 005?
2. What are the details of the forklift allocated to bay 005?
3. How many items are stored in bin 2 of bay 005?
4. How many items weigh greater than 10kg in bin 2 of bay 005?
5. What is the maximum capacity weight of bin 2 in bay 005?