

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

The Angel Warehouse

The Angel Warehouse stores items for its parent company. The warehouse is organised into bays, which are storage areas, but the items themselves are stored in bins. Each bay contains a number of bins. Each bay is identified by a unique bay number and the bay location and the height of the bay are recorded. Each bin has a different number within the bay, always starting with bin no. 1, and while some bays have only 5 bins some have over 50. The size of each bin is recorded.

Some bays have a parking spot for one fork lift to help move items round the warehouse and lift items into bins. Each fork lift is allocated to a bay. Each fork lift has a unique equipment number and the maximum carrying weight of the fork lift needs to be known. Some fork lifts are petrol driven while some are electric.

For all bins the maximum loaded weight must be known.

When an item is taken into the warehouse it is assigned a unique number and the date is recorded as well as the item weight. Bins can store a number of items and when an item is put in a particular bin this date is also recorded. Items can be moved back and forth between bays and bins to optimise the warehouse storage.

ANSWER:

1. Entity: Bay

Attributes:

- Bay Location
- Bay Height

Primary Key: Bay Number

2. Entity: Bin

Attributes:

- Size
- Maximum Loaded Weight

Composite Primary Key: (Bay Number, Bin Number) (because a bin is unique within a bay)

- Bay Number is a Foreign Key referencing the Bay entity.

3. Entity: Forklift

Attributes:

- Maximum Carrying Weight
- Power Type (Petrol or Electric)

Primary Key: Equipment Number

- Bay Number is a Foreign Key referencing the Bay entity.

4. Entity: Item

Attributes:

- Item Weight
- Date Received

Primary Key: Item Number

5. Entity: Item Placement

Attributes:

- Date Placed (Date when the item is placed in the bin)

Composite Primary Key: (Item Number, Bay Number, Bin Number)

- Item Number is a Foreign Key referencing the Item entity.
- (Bay Number, Bin Number) is a Foreign Key referencing the Bin entity.