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Chapter 12: Warehouse System

12.1 Warehouse System Informal Description

Our company has several warehouses, each warehouse is designated by a unique 4-letter symbol (by a letter we mean a..z and A..Z). Each warehouse has several bins that are identified uniquely by numbers (unsigned integers), i.e. each warehouse has bins 0, 1, 2, 3, ... Each bin has a particular capacity. In our warehouses (more precisely in the bins in our warehouses) we store parts. Each part is designated by a unique part number (a 5 symbol sequence of digits and letters). Several parts together can form another part. We call such a part “assembly”. In the warehouses we store only the constituent parts, but we record the assemblies in our database as it were a part. Assemblies cannot be parts of other assemblies. A part can be a constituent part in at most in one assembly parts arrive in batches. Each batch for a particular part has a unique batch number (unsigned integer) and arrives on a particular date. Each batch has a size, i.e. the number of items in the batch. All items from the same batch are stored together in the same bin (no batch is stored in more than 1 bin). Each item in a batch has a unique item number (unsigned integer). For example: part A1, batch 27, item 1 or part A1, batch 23, item 1 etc. When a batch arrives, its date-in is recorded. A particular manager checks its arrival, and this fact must be recorded in the database. Some parts may be backordered. A part can be backordered only by a manager. The manager, the date of the backorder are recorded, and also the quantity backordered. When a backorder shipment arrives, the backorder’s remaining quantity is updated

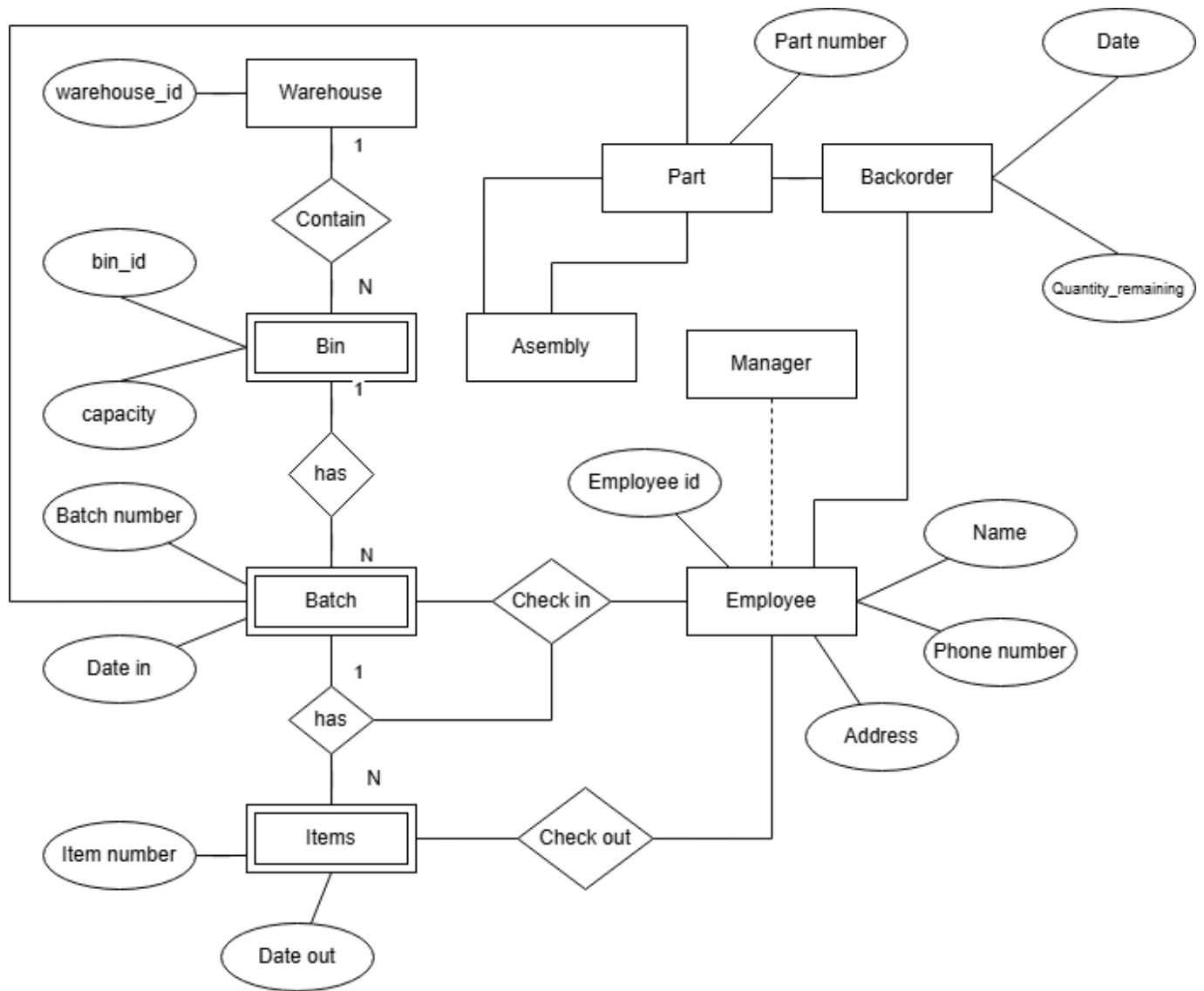
(the number of items arrived is subtracted from the remaining quantity), and if it is less or equal to 0, the backorder is deleted, but must be kept for record. There may be only a single current (active) backorder for any parts. Assemblies cannot be backordered, only their constituent parts.

When an item is shipped out of the warehouse, its date-out is recorded together with the employee who checked its shipping.

Employee has a unique employee number (a 6-digit number), phone number(s) (it consists of a 3-digit area code and a 6-digit number an employee can have 0 to many phone numbers), name(s) (it consists of an up-to-10-characters first name, an up-to-10 characters middle name, and an up-to-20-characters last name, an employee can have 1 to many names), address(s) (it consists of an up-to-6-characters street number, an up-to-20-characters street name, an up-to-20-characters city name, and a 2-character abbreviation of the province, an employee can have 1 to many address). Some of the employees are managers. Every employee who is not a manager works under supervision of a single manager. Managers do not work under other managers.

Warehouse System UML

Below is the UML class diagram showing the entity and its attribute.



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Note: Viewing in VsCode IDE for better formatting!!!