# 1 Specification of the Library System

The library system tracks the items checked out by borrowers. The system contains a catalog of the items owned by the library. There are two kinds of catalog items: books and recordings. All catalog items are identified by a unique code. (If the library owns several copies of the same book or recording, each copy has a unique code.) The information for each item includes title, year, and availability. An item is available if it is not checked out.
In addition:

- The information for a book includes the author and number of pages.
- The information for a recording includes the performer and format (*CD* or *tape*).

The system contains a database of the borrowers. Each borrower has a unique identification code in addition to a name. The system maintains a list, for each borrower, of the catalog items checked out.
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In the library system, the user should be able to:

- Display the catalog by listing the code, title, and availability of each item.
- Display a catalog item.
- Display the borrowers by listing the identification code and name of each borrower.
- Display the catalog items checked out by a borrower.
- Check out a catalog item by adding the item to borrower's list of borrowed items.
- Check in a catalog item by removing the item from borrower's list of borrowed items.

# 2 Tourist client Information System

The tourist information system maintains information about two different kinds of tourists:

- Individual tourists(散客): For these tourists, the system stores an ID and the information about a person (name, telephone number, and email).
- Tourist groups(旅游团): For these tourists, the system stores an ID and provides the capability of defining one or more contact people for the tourist group. The system stores the following information for each contact person: name, telephone number, email, and the job position(团长或导游或其他职务) of the contact in the tourist group.

Assume that each tourist has a unique ID and that IDs cannot be modified. Assume each contact for an institution has a unique name.
The system provides the following functions:

- Add a tourist into the system
- Look up a tourist given an ID
- Remove a tourist from the system given an ID

- Add a new contact for a tourist groups
- Look up a contact given the ID of the group and the name of the contact
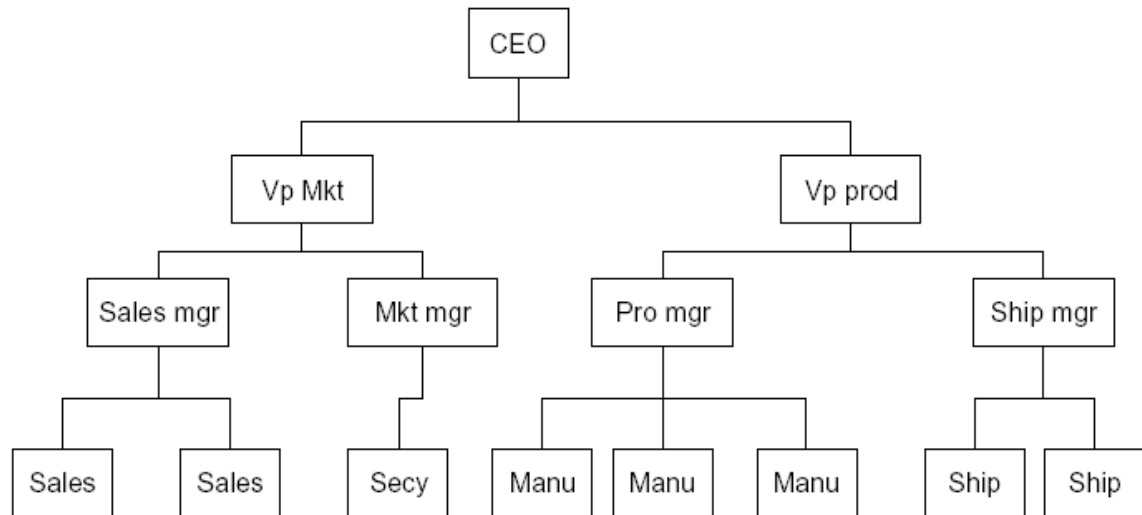- Remove a contact given the ID of the group and the name of the contact

# 3 构件系统

A component system has composite components, and composite components contain atomic components or more composite components, or both. Each atomic component or composite component has name, type and creation date. In addition, each atomic component has functional description.

功能要求：

1.可以打印指定原子构件的名字，类型，创建日期及功能描述

2.可以打印指定复合构件内各原子构件或复合构件的相关信息

## 4 Cost access system

A company has the organizational chart we see below:

Each of these company members may receive a salary, and we could at any time ask for the cost of any employee to the company. We define the cost as the salary of that employee and those of all his subordinates.

- The cost of an individual employee is simply his salary (and benefits).
- The cost of an employee who heads a department is his salary plus those of all his subordinates.

可以完成的功能要求：可以实现访问公司每个雇员的薪水(salary)及对公司的贡献价值(cost)。