

# LAB 211 Assignment

Type: Long Assignment  
Code: J1.L.P0014  
LOC: 500  
Slot(s): N/A

## Title

Asset Management

## Background

BMLT Company is a software company. HR in the company includes employees and a manager. In the company, there are shared assets such as projectors, laptops, .... The manager has functions such as adding, deleting, editing, finding assets. In addition, the manager also approves the requests to borrow assets of employees. As an employee, it has the following functions: search and send requests to borrow as well as return assets.

You are required to develop a program to manage the assets of the BMLT company.

Asset management will include 2 programs: one for employees and other one for manager.

**Asset information** is stored in the **asset.dat** file

assetID	name	color	price	weight	quantity
A001	Samsung projector	White	500	3.2	10
A002	Macbook pro 2016	Sliver	1000	2.2	5

The **employee.dat** file has stored **employee information** including the manager.

employID	name	birthdate	role	sex	password
E160001	Nguyen Hong Hiep	12/06/2000	EM	male	e10adc3949ba59abbe56e057f20f883e
E160240	Tran Dinh Khanh	15/07/2002	EM	male	e10adc3949ba59abbe56e057f20f883e
E140449	Le Buu Nhan	10/07/2002	EM	male	e10adc3949ba59abbe56e057f20f883e
E160798	Truong Le Minh	03/12/2002	EM	male	e10adc3949ba59abbe56e057f20f883e
E160052	Hoa Doan	05/06/1990	MA	male	e10adc3949ba59abbe56e057f20f883e

The **request.dat** file has stored the **borrow request information**

rID	assetID	employeeID	quantity	requestDateTime
R001	A001	E140449	1	23-12-2021 13:17:56
R002	A002	E160001	1	24-12-2021 12:18:56
R003	A001	E160798	1	23-12-2021 11:19:56
R007	A002	E160240	1	24-12-2021 10:10:56

The **borrow.dat** file has stored **borrow information**.

bID	assetID	employeeID	quantity	borrowDateTime
B001	A001	E160001	1	23-12-2021 15:13:46
B002	A001	E160001	2	25-12-2021 16:14:56
B003	A002	E160798	3	15-12-2021 17:15:52
B007	A001	E160240	2	26-12-2021 12:16:53

## A. Manager's program

### Program Specifications

Build a management program for manager. With the following basic functions

1. Login

2. Search asset by name
3. Create new asset
4. Updating asset's information
5. Approve the request of employee
6. Show list of borrow asset
7. Others- Quit

Each menu choice should invoke an appropriate function to perform the selected menu item. Your program must display the menu after each task and wait for the user to select another option until the user chooses to quit the program.

## Features:

*This system contains the following functions:*

Display a menu and ask users to select an option.

- **Function 0: Build the data structure - 50 LOC**
  - Classes, abstract classes, Interfaces.
  - **assetID, employeeID cannot change after created.**
  - Must implement the polymorphism properties of object-oriented programming.
- **Function 1: Login – 50 LOC**
  - Employee input the employeeID and password to login.
  - Program must show the result: "Successfully" or "Incorrect id or password"
- **Function 2: Search asset by name - 50 LOC**
  - User input the text want to search.
  - The system will search in the company, and return all asset that has name contain the search string.
  - Show result list: all information of asset(descending).
  - Go back to the main menu.
- **Function 3: Create new asset - 75 LOC**
  - Manager must login to use this function.
  - Create a submenu that allows the manager add new asset.
  - Remember that the constraints must be checked
  - **Add the new asset to collection and update into asset.dat file**
  - Ask to continuous create new asset or go back to the main menu.
- **Function 4: Update asset information - 75 LOC**
  - Manager must login to use this function.
  - Require enter the asset's id.
  - If asset does not exist, the notification "Asset does not exist". Otherwise, manager can start input new information of asset and update.
  - If new information is blank, then not change old information.
  - Remember that the constraints must be checked
  - Then system must print out the result of the updating.
  - After updating, the program returns to the main screen.
- **Function 5: Approve the request of employee – 150 LOC**

- Manager must login to use this function
- System will show list of borrow request from employee.
- The manager selects the request that he wants to approve through the request ID.
- The system will check: the borrowed quantity of this asset is still in stock (asset.dat)? If not enough, report an error. If the quantity is enough in stock then:
  - Insert data into the file borrow.dat
  - Remove the data line in the file request.dat
  - Update the quantity of asset in asset.dat file
- After approve, the program returns to the main screen

– **Function 6: Show list of borrow asset – 50 LOC**

- Manager must login to use this function
- The system shows a list of assets borrowed in the company (the borrow.dat file)
- After that the program returns to the main screen.



The above specifications are only basic information; you must perform a requirements analysis step and build the application according to real requirements.



The lecturer will explain the requirement only once on the first slot of the assignment.