**USER MANUAL**

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PRECAUTIONS-----

Read this section carefully before you use this product, and be sure to comply following safety precautions.

Roles of User:

1. Scout Members and Scouters

A scout group has multiple sections but the loan system is only for the three sections: Scout (partially), Venture Scout, and Rover Scout. Each section has number of scout members. Each member has the attributes 1) ID, 2) Name, 3) Section, 4) Date of Birth, and 5) Address. For members of Scout, they have an additional attributes Rank (Member, Patrol Leader, Assistant Patrol Leader). Beside scout members, a scout group is run by a group of volunteers, Scouters. Scouters have an additional attribute Rank.

Both scout members and scouters could do the following tasks:

1. Borrow camp equipment\*
2. Retrieve loan record with loan date, camp equipment item id(s), item name, date of return.
3. View of available camp equipment for loans

\* Different types of scout members have various levels of rights when borrowing equipment. For member in Scout session, members could only borrow 1 item and both Patrol Leader and Assistant Patrol Leader are permitted to borrow 3 items. Each venture scout could borrow up to 3 items. Rover scout and scouters could borrow up to 5 items.

1. Administrator
2. Inserting tabulated files containing batches of users and batches of camp

equipment. These two files have their own fixed format which will be discussed later.

1. Display loan records containing loan date, camp equipment item id(s), item name, name of borrower, return date, status (out for loan, returned if equipment is back).
2. Display list of camp equipment (by categories: tent, lantern, and stoves).
3. Update condition of equipment.
4. Produce a .txt file that contains all updated data such as loan records and equipment lists.

Camp Equipment:

1. Tent:

Tent belongs to camp equipment and can be further detailed with these attributes: tentSize (2, 4, 6, 8, 10, and 16), tentType (lightweight, family, wall, tunnel, or dome), numberOfDoors (1, 2, and 4), doubleLayer (true / false) and colour.

1. Lantern:

Lantern has the following specific attributes: lanternSize (hiking or camping), lanternType (head lamp, table lamp, led lamp, and beam lamp), and fuelType (AA batteries, AAA batteries, C batteries, D batteries, stove gas and screw headed gas).

1. Stove:

Stove has the following specific attributes: stoveType (ultralight, lightweight, and table), and fuelType (stove gas, screw headed gas, and wax).

1. System
2. The system should provide a menu for users to login.
3. If users fail to authenticate themselves, the system will display error message and re-prompt users to attempt again.
4. Once users have logged into the system, the system will provide a menu with the following options:

a. Displaying a list of available camp equipment item by category

1. If users pick this option, the system displays list of available equipment

by category.

1. Only “good” conditions and unborrowed items are displayed on list.

b. Displaying user’s loan record  
i. If users have borrowed equipment, a list of loaned equipment by the

user will be displayed.

c. Providing a sub-menu for equipment loan (only for users who have not borrowed any items)

1. If users have any unreturned item, this option should not be available to them.
2. If users have not borrowed any item, the system will provide a menu for users to borrow items from the scout group. Number of items allowed for loan depends on users’ rank.
3. For any loan of equipment, by default, the returning date will be 14 days after the loan date.

Returning camp equipment  
i. Users key in item id(s) of item(s) to return the item. The system keeps

prompting users to key in item ids until user has inputted -1.

Exit  
i. Display thank you message and exit the system.

FEATURES AND FUNCTIONS-------

**Core Part:**

1. **Class User and its derived classes**

There are multiple types of users and they may have different level of rights and attribute sets. Define User as a superclass and furnish the class by various sub-classes. Also want to implement the User class as an abstract class with pure virtual functions for different sub-classes’ further implementation.

1. **Class Admin**

There is only ONE admin and the administrator could do multiple tasks mentioned above. Hardcode the user id and password, both as “admin”.

1. **Class Equipment and its derived classes**

Equipment class has a set of common attributes for 3 different types of equipment which could be further detailed with sub-classes. Also want to implement the Equipment class as an abstract class with pure virtual functions for different sub- classes’ further implementation.

1. **Class FileHandler**

The FileHandler class is used to read and write plain text files. The class has two major methods fileRead(...) and fileWrite(...). All text files are in fixed format. See appendices for details.

1. **Class LoanControl**

The LoanControl class is actually the class that works between UI (the Menu class) and other entity classes like User, Equipment, and even the FileHandler class. This class serves as a manager that manages all activities of the system and passing data/messages between classes and menu. The LoanControl class will make decisions whether such loan of equipment is permitted.

1. **Class Menu**

The Menu class serves as a command line user-interface with menu and sub-menu. You should try your best to properly respond to user’s input errors. The Menu class does not weigh any mark but marks will be deducted if you fail to produce a user- friendly UI.

**Out of Core Part:**

1. **Graphical User Interface(GUI)**

By completing a user-friendly GUI will let you get the rest 20% of the project mark. Clues on working C++ with GUI are little and will not be discussed in lectures and labs. Make sure you have included all necessary libraries and files when submitting your project to Canvas.

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**APPENDICES:**

**Appendix I:**

Users are put in a file. Both venture and rover scouts has the same data format and scout has an additional attribute. Scouter has its own set of format. The first three letters of user id indicates the section that a user belongs to (VEN for venture scout, ROV for rover scout, SCT for scout, and SCM for scouter).

For the UID and PWD of a user, you may use one’s UserID as the login id and one’s date of birth as password.

Rover scouts and venture scouts:

Rover scouts and venture scouts:

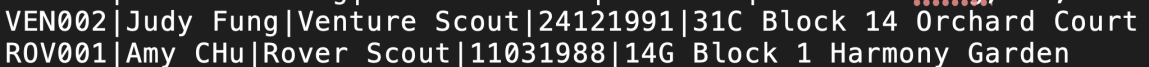
page7image33952912page7image33962880page7image33952576

Date of Birth / Password User ID / Login id

Name

Section

Address

page7image65258048page7image65257856page7image65260736page7image65259200page7image65258816page7image33961760page7image33961872