

# CSIT121 Lab Exercises

## Lab 2

### Objectives

- Get familiar with OOD and UML.
- Get familiar with the test-drive software development mode.

### Exercise 1

Build a simple command-line notebook application. The application will display a menu, and users can select menu items to create, search, modify notes, or quit the application. Each note contains a unique ID, a tag, and a short memo. Besides these essential functions, you may also consider some extra functions for your notebook, such as sorting the notes based on ID or date.

Step 1: analyse the above requirement and consider possible class and class members.

Step 2: represent your class design with a UML class diagram.

Step 3: implement your notebook application with Python and test your application.

Step 5: use Python code coverage (i.e., 'coverage run -m unittest -v') to analyse your application and create an analysis report (i.e. 'coverage report' and 'coverage html'). You may repeat steps 1~5 to refine your design, tests and implementation. Please ensure your notebook application can pass all tests specified in the proposed unittest subclass, and the minimal code coverage rate of tests is 70%.

An example of the application execution results is given below. Your application may look different from the example.

```
Notebook Menu

1. Show all Notes
2. Search Notes
3. Add Note
4. Modify Note
5. Quit

Enter an option: 3
Enter a memo: Hello World
Enter tages: tag1
Your note has been added.

Notebook Menu

1. Show all Notes
2. Search Notes
3. Add Note
4. Modify Note
5. Quit

Enter an option: 1
1: tag1
Hello World

Notebook Menu

1. Show all Notes
2. Search Notes
3. Add Note
4. Modify Note
5. Quit
```

```
Enter an option: 2
Search for: tag1
tag1
1: tag1
Hello World
```

```
Notebook Menu
```

1. Show all Notes
2. Search Notes
3. Add Note
4. Modify Note
5. Quit

```
Enter an option: 4
Enter a note id: 1
Enter a memo: Hello Objects World
Enter tags: tag2
```

```
Notebook Menu
```

1. Show all Notes
2. Search Notes
3. Add Note
4. Modify Note
5. Quit

```
Enter an option: 1
1: tag2
Hello Objects World
```

```
Notebook Menu
```

1. Show all Notes
2. Search Notes
3. Add Note
4. Modify Note
5. Quit

```
Enter an option: 5
Thank you for using your notebook today.
```