

FIT9131 Programming Foundations

Week 10 Exercises

A. Homework checklist

To be up to date you should have completed the following:

- Lab exercises from weeks 1– 9.
- Read these sections from the text book, *Objects First with Java*, Barnes & Kölling.
 - Chapters 1–4;
 - Chapter 6, sections 6.3-6.5, 6.12-6.15;
 - Chapter 7, sections 7.1-7.4;
 - Chapter 9; sections 9.1-9.2, 9.3.2, 9.4.1, 9.6, 9.8, 9.9;
 - Chapter 14, sections 14.1-14.5, 14.8-14.9;
 - Chapter 15, sections 15.1-15.3.

Important: You should have completed a significant part of your Assignment 2 by now, and have shown your design/code to your tutor for comments/feedback. Each week, your tutor will check assignment progress randomly in the lab session.

Note that there are some minor changes to the assignment specification (and the sample data files for the assignment on Moodle).

In the lab this week you will practice writing code to read/write data from/to text files. You will need to do this in your assignment.

B. Exercises for Week 10

1. Using a text editor (e.g. *Windows Notepad*), create a text file called “**employees.txt**”, as shown below. This file contains details of employees. Each record on the file contains details of one single employee.
2. An employee has the following fields: **employee type**, **employee number**, **name**. *These fields are separated by commas.*

Staff,998,Geoff
Staff,888,Mary
Honorary,777,James
Staff,800,Gordon
Honorary,498,Roger

3. Write a class called **Employee**, to represent the *employee record* above. Make sure you implement the appropriate constructors and methods. **There is no need to perform validations in your code for now** – concentrate your effort on the **EmployeeList** class and **File I/O** below.
4. Write a class called **EmployeeList**, with an **ArrayList** of **Employee** objects as its main attribute. Then write a method, named **readFile()**, to read the employee details from the file “**employees.txt**” created in Q.1 above, and store them in the **ArrayList** attribute - in other words, fill up the **ArrayList** of **Employee** with data read from the file. Note that you should use a loop for the reading from the file.

Hint: you will probably need to use the **split()** method from the **String** class in your code to extract the 3 parts on each input line to create the **Employee** objects.
5. Write a method (in the **EmployeeList** class again) to display on the screen, the contents of the **ArrayList** of **Employee** attribute in Q.4 above. Use this to test if your **readFile()** method works as specified.
6. Write a method (in the **EmployeeList** class again), named **writeFile()**, to write all the employee details stored in the **ArrayList** attribute to a text file named “**output.txt**”. The format of the file should be the same as “**employees.txt**”. Note that you should use a loop for this process.
7. Use a text editor (e.g. the *Windows Notepad* application) to examine the contents of “**output.txt**”, to check if your **writeFile()** method works as specified.

C. Homework

1. Finish any exercises not completed in the lab.
2. Read sections 8.1 – 8.11 from chapter 8 of the textbook, *Objects First with Java*, Barnes & Kölling.
3. Work on Assignment 2.

D. Pre-lab task to be assessed in Week 11

Write a **Test Plan** to thoroughly test the **Subject** class in Assignment 2. Note that a **Test Plan** is just a list/summary of the tests and **not** the full details for each test.