Object Oriented Program Design 110

Assignment Specification

Final Assignment Submission: 5.00 pm, 21/5/2012

This assignment contains six sections:

1. The assignment specification.
2. Appendix A: The assignment cover page template.
3. Appendix B: The reading log template.
4. Appendix C: The worksheet log template.
5. Appendix D: The Worksheet Reflection Form.
6. Appendix E: The Reading Reflection Form.

Scenario

In order to prepare you for your future career as a successful software developer, this assignment will involve role playing as a member of a software development team. You will answer to the Software Development Manager (SDM), Dr Mike Robey and his assistant, Mr Rohan Wegman.

Logistics

This is not an assignment which can be put aside until a few days before it is due. You are required to perform assignment based tasks on a weekly basis. Part of your assignment involves group work and part requires individual work. Your final mark will be directly coupled to:

- Your ability to work as a team and ensure that progress on the assignment is made every week and that the weekly tasks are successfully completed.
- Your ability to communicate and to read and comprehend text based material.
- Your ability to demonstrate an understanding of how to design, implement and test and object oriented software application.
- Your ability to pro-actively seek assistance when required.

Marking Strategy.

The Pseudo code algorithm and Java implementation will be marked and the same initial mark assigned to each member of the group. Then the reading and worksheet completion sheets will be considered and a weighting between 0.0 and 1.0 will be applied to each group member. Students with all their reading and worksheet tasks signed off and completed will have a weighting of 1.0 applied to their mark. Students who have not completed any reading or worksheets will have a weighting of 0.0 applied to their mark. Anyone in between those two extremes will have a weighting calculated based upon how much reading and how many worksheets they have had signed off (e.g. half the reading and half the worksheets means a weighting of 0.5). Please consider that both the reading and the successful completion of the worksheets will make the application design and implementation task MUCH easier so their is incentive to complete these tasks anyway.

The Weekly Tasks

- Individual:
    - You will be required to maintain two logs:
        - A reading log book. Each week you need to read one chapter of the text book Up to and including chapter 8). This will be achieved by an interview process each week. Sign off will be based upon an interview where you must demonstrate an understanding of the chapter in

question. Evidence of sign off will be kept in a spreadsheet by the SDM and students will keep a reading log (as specified by the template in appendix B). Prior to requesting an interview students should complete the Reading Reflection Form (available on Blackboard and also an appendix to this assignment). If you cannot complete the reflection form it probably means you are not ready for your interview. If you feel you need assistance with reading issues then see the SDM for assistance.

    - A worksheet log book. In a similar manner to the reading log, you are required to have the SDM sign off on each of your worksheet exercises. This will be achieved by an interview process each week. Evidence of the sign off will be kept in a spreadsheet by the SDM and each student will keep a worksheet log (as specified by the template in appendix C). Prior to requesting an interview students should complete the Worksheet Reflection Form (available on Blackboard and also an appendix to this assignment). If you cannot complete the reflection form it probably means you are not ready for your interview. If you feel you need assistance with worksheet issues then see the SDM, your tutor or the senior tutor for assistance.
- Group Based:
    - Your team needs to understand this assignment specification, read and understand the function of each method in TextFile.java (see later), design a pseudo code solution and implement it in Java. You should NOT wait until we have covered every topic required for the assignment problem before commencing this task. Each week the group should meet and determine which parts of the problem can be attempted and then attempt that part of the solution.

Meetings with the SDM and his assistant will be conducted for one hour of each three hour practical session, starting in week 3 of semester. Students must be prepared and organised and must bring any required documents or logs to each practical sessions. As in a commercial environment, tardiness is not acceptable so students MUST ensure they arrive on time.

Submission Requirements

The assignment must be handed in in printed form. Electronic copies of all assignment documents must be kept by all group members in their Curtin user accounts. The assignment cover sheet should follow the template provided in appendix A and all the information specified must be supplied and be correct.

Each assignment submission should be made in hard copy form and should contain:

- A completed cover page (as specified in appendix A).
- A set of reading logs and worksheet logs for each group member (with appropriate signatures by the SDM or his assistant).
- A complete set of pseudo code and Java for the algorithms and code implementation for the software. Note the Java code must be compliant with the dept of Computing Java coding standard (available from Blackboard) and must be fully documented.
- A printout of the csv file created by the group to test their assignment with.

Software Description.
Mobile Phone Applications are transforming they way many business get things done. The Safe as Houses Security Company have contracted with your employer to develop a mobile phone application that their security guards can use. Because it is a prototype there is no need to worry about graphical user interfaces and some functionality will be simulated with output messages. The application is ultimately intended to run on Android mobile phones so it must be implemented in Java. As your team is developing a proof of concept application there is no need to actually consider a graphical user interface or actually running it on a phone. Your application is required to compile and execute successfully of the Dept. of Computing lab computers. If the client is impressed and wishes to go further it will be converted into a proper mobile phone application but that is beyond the scope of your assignment.

The application allows a security guard to log responses. A response occurs when either the guard themselves or the Police visit the premises of one of the security firm's clients after an alarm has been triggered. In either case the following information must be recorded in a log entry:

- An identity number for the entry. This must be an integer in the range 1000 to 9999 and must be different to all the log entry id's currently recorded. The application needs to scan the log file and generate an id that is different to all the id's in the file. This sounds difficult but if you are thoughtful about the progression of id's you generate its actually pretty straight forward.
- The street name, street address and post code for the premises concerned (post codes must be between 0 and 7999, street names and numbers are character based and cannot be validated).
- The date (day, month and year) and time (hours in 24 hour clock and minutes) that either the police or the security guard visited the premises.
- If the security guard is responding then a character string describing what they found is stored (e.g. "No signs of entry").
- If the police respond then the police report number (a positive integer) is recorded.

For your prototype, these details are kept in a text file in comma delimited format where:

- Each line of the file represents one log entry.
- The first character is either a 'S' for security or a 'P' for police. This character is followed by a comma.
- Each following component of a log entry is followed by a comma and may contain any printable characters other than a comma. Note the last entry still has a comma on the end.

Your application should prompt for the name of the csv file to be used. It should then display a text based menu to allow the user to add a log entry, view all the current log entries or quit the application. Your team needs to come up with its own csv file containing the data that you have made up to test your application with.

OOPD-110 does not teach file access in Java so a small Java library has been provided for your use (TextFile.java which can be downloaded from Blackboard). All file access MUST be done via the Java code in this file. Your group is not permitted to make use of any of the standard Java library for file access.

The TextFile.java file has been documented and all students should print out the file and go through and understand the function of each method in the file BEFORE they attempt to make use of it in their assignment.

Object Orientation Issues

Students should give careful thought to the best arrangement of classes for the application. There is an ideal use for both aggregation and inheritance in this assignment. Students who do not take this into consideration will score poorly in the assignment. Students will be happy to know that abstract methods are beyond the scope of this assignment.

Appendix A

Object Orientated Program Design 110
Assignment Cover Sheet

Semester One
2012

Group Member 1:

Student Number: _____

Family Name: _____

Other Names: _____

Group Member 2:

Student Number: _____

Family Name: _____

Other Names: _____

Group Member 3:

Student Number: _____

Family Name: _____

Other Names: _____

Group Member 4:

Student Number: _____

Family Name: _____

Other Names: _____

Appendix B

Reading Log

Group Member 4:

Student Number: _____

Family Name: _____

Other Names: _____

Date	Chapter	Signature
	Chapter One	
	Chapter Two	
	Chapter Three	
	Chapter Four	
	Chapter Five	
	Chapter Six	
	Chapter Seven	
	Chapter Eight	

Appendix C

Worksheet Log

Group Member 4:

Student Number: _____

Family Name: _____

Other Names: _____

Date	Chapter	Signature
	Worksheet One	
	Worksheet Two	
	Worksheet Three	
	Worksheet Four	
	Worksheet Five	
	Worksheet Six	
	Worksheet Seven	
	Worksheet Eight	

Appendix D

Object Oriented Program Design 110

Worksheet Reflection Form

Student Number: _____

Family Name: _____

Other Names: _____

Date: _____/_____/_____

Circle Worksheet Number: 1 2 3 4 5 6 7 8

Answer the following BEFORE seeking a worksheet sign off:

What was the most difficult part of the worksheet?

_____

_____

_____

_____

_____

_____

_____

_____

What was the most important concept that the worksheet is addressing?

_____

_____

_____

_____

_____

_____

_____

_____

On a scale of 1 to 5 (1 meaning not at all and 5 being well and truly), how well do you think you understand the concept that you described above:

1 2 3 4 5

Appendix E

Object Oriented Program Design 110

Chapter Reading Reflection Form

Student Number: _____

Family Name: _____

Other Names: _____

Date: _____/_____/_____

Circle Chapter Number: 1 2 3 4 5 6 7 8

Answer the following BEFORE seeking a worksheet sign off:

What was the most important concept that the chapter is addressing?

_____

_____

_____

_____

_____

_____

_____

_____

Why do you feel this concept is important?

_____

_____

_____

_____

_____

_____

_____

_____

On a scale of 1 to 5 (1 meaning not at all and 5 being well and truly), how well do you think you understand the concept that you described above:

1 2 3 4 5