

PSD3 Group Exercise 1: A Branch Library Management System

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Course Link : <http://fims.moodle.gla.ac.uk/course/view.php?id=128>

1 Background

- the PSD3 Group Exercise 1 (the one you're doing right now)
- the follow-up PSD3 Group Exercise 2 in term 2
- the Level 3 team project

The aim of the PSD3 group exercise in the first semester is to gather and validate requirements to make sure that we design and build a system that meets the needs of clients and other stakeholders.

The topic of the exercise has been chosen so that the context of use of the system will be reasonably familiar to both students and staff and so that realistic stakeholders will be easy to find and involve in the requirements gathering process.

This project will be the first piece of work you have done in the Computing Science Department that requires serious coordination of your efforts with those of other students. Successful project management, therefore, will be an important aspect of the exercise.

This exercise is also intended to provide you with the chance to practice techniques that will be useful on your Level 3 Team Project.

2 The Group Exercise Brief

The university is considering the introduction of a departmental branch library system to support staff and students in their work. For example, the Computing Science library will be a branch of the main library, from where it will receive its collection of books. These will then be available to loan out to members of staff and students. The clients wish to develop a computer based system for managing the process of obtaining books from the main library and lending out of books to staff and students in each departmental branch. Computing Science has been selected as a test bed for the development of the system. No solution has yet been decided upon, so the clients have decided to work with a number of separate teams to develop several trial solutions.

The key features envisaged for the system will be as follows:

- Record requests for books to be loaned to the branch library from the central library. This would normally be done on request from a member of staff or student. A member of staff, for example, might request that all the copies of 'Sommerville, I. Software Engineering' held by the central library be transferred to the department.
- Record books as having been received into the branch collection from the central library. This will require that the book is loaned to the branch as a customer, before the book can be loaned to staff and students in the department.
- Record the lending of books to staff and students in accordance with policies stipulated by the central library.
- Record books as having been returned to the central library

The system will need to be able to interact with the central library's existing book database. Information on interacting with the database will be provided at a later date. For now, you should design your system so that changes to this interaction require minimal re-engineering on your part.

2.1 Constraints

The clients believe that other useful system features could be identified after a more extensive and careful analysis of the problem domain. However, the clients are also aware that there are serious constraints on resources for analysis, design and, especially, implementation, so that the level of sophistication of the system developed may have to be limited to stay within available resources. Therefore, the clients have agreed on the following constraints:

Constraint 1

Assume that the maximum effort available for the design and implementation of this system is the capacity of a Level 3 Project Team. That is, consider this system as one that could be developed via a Level 3 Team Project. Constraints 2 & 3 are added in order to help maintain this first constraint.

Constraint 2

Book transactions will only take place between the central library and a branch. Books cannot be transferred between branches.

Constraint 3

The system need only handle textual data (no graphics or multimedia elements) or graphics- and media-free HTML (e.g., this exercise sheet is an example of an acceptable format). *This is not an HCI design exercise and additional credit will not be given for sophisticated user interfaces. You should concentrate on the functional requirements and on non-functional requirements other than those related to usability.*

2.2 Resources

You should plan on investing about 30 hours per team member in this group exercise (i.e., 3 hours per week). All of the work will be done in the first semester.

2.3 Prototype System

To enhance your training in Level 3, any prototyping work for this exercise must be carried out within the Linux environment. The prototype must be implemented using shell scripting only. Implementations written in a general purpose language such as Java or Python will not be accepted. In particular, the user interface should not involve graphical elements (e.g., Java widgets). Further details about the purpose and requirements of the prototype will be presented during the PSD3 course.

2.4 The Clients

Your clients are the PSD3 lecturers:

Phil Gray : <http://www.dcs.gla.ac.uk/~pdg>

Tim Storer : <http://www.dcs.gla.ac.uk/~tws>

Ray Welland : <http://www.dcs.gla.ac.uk/~rcw>

You will have regular opportunities to meet with and interview the clients about the scope and nature of the group exercise. As you will discover, the clients will initially have poorly defined and sometimes contradictory notions about the requirements. This is intentional. One of your tasks will be to impose some clarity upon the problem and the system requirements.

You will have limited opportunities to speak with other staff and students, but these opportunities will have to be kept under careful control to ensure that this exercise doesn't make undue demands on those not directly involved with PSD3.

2.5 Context

The potential users of your system are the staff and students of the Computing Science Department, visitors and, potentially, members of staff at the central library. Clearly defining and understanding the user population, their needs, expectations and capabilities, will be one of the project tasks.

3 Aims of Group Exercise 1

The main aim of this group exercise is to provide group members with a reasonably realistic setting in which to practice techniques of requirements capture, specification and evaluation, plus project management. Note: although you will design a prototype, you will not be expected to produce a formal specification of your design. Design specification techniques will be assessed during semester 2 of PSD3.

4 Objectives of Group Exercise 1

At the end of this group exercise, you will be able to:

- organise a project group;
- schedule and plan resources;
- carry out requirements capture and specification;

- produce a simple UNIX-based prototype to evaluate the requirements;
- evaluate the requirements via the prototype;
- carry out quality assurance reviews on some of the group exercise activities and deliverables; and
- produce documentation of project organisation, requirements, prototype and evaluation.

5 Prerequisites

There are no explicit prerequisites.

6 Full Description of Activities

6.1 *Activities (what you must do)*

Each group must identify, specify and evaluate the requirements for the system described in Section 2.

There are several distinct parts to this, including:

- organising your team
- producing and following an overall project plan
- planning and carrying out requirements capture specifying the requirements
- building and evaluating a prototype of the system.

6.2 *Deliverables (what you must turn in)*

6.2.1 *Group Submission*

Each group must turn in a report including:

- *description of group organisation*
- *project plan (including the marked up draft handed in on 22nd October)*
- requirements specification (including the marked up draft handed in on 12th November)
- report on the prototype, including:
 - informal description of prototype design
 - rationale for main features of the prototype
 - report on the prototype evaluation
 - log of major changes (include any substantial changes made to the deliverables, e.g. as a result of feedback).

Further details of each of the deliverables will be given during the semester.

Items in italics will be worked on in workshops and turned in during the term. You will receive feedback on these items at this stage, but no grade will be assigned. Therefore, you can make amendments to these items before handing in the revised version as part of the final Group Exercise 1 hand-in.

The Group Exercise 1 Report must be produced using LaTeX. You may find it useful to maintain your report in the subversion repository provided to you to support change management.

6.2.2 Individual Report

In addition to the work students do as part of their teams, each student will be required to maintain an individual journal of their experiences on the PSD3 Group Exercise and the Level 3 Team Project. The journal will be used:

- to record:
 - activities undertaken on the PSD3 group exercise and the Level 3 Team Project,
 - personal achievements in the exercise or team project,
 - problems encountered and how they were handled, and
- to reflect on what you learned about project management, requirements capture, the prototype development and evaluation process and working in a group.

You should make at least one entry per week.

This journal will be maintained via a Moodle-accessible blog and must be visible at least to the two PSD3 lecturers. You may choose to make your journal readable by other students, too, if you wish.

During the first PSD3 workshop, you will receive details of how to create your journal.

At the end of the semester, each student will also be required to hand in an individual report of 4-5 pages that discusses the following issues:

- the main individual achievements on Group Exercise 1
- the main individual problems encountered on Group Exercise 1 and how they were dealt with
- what was learned about:
 - project management
 - requirements capture
 - the prototype development & evaluation process
 - working in a group.

You may use the journal to help you prepare your individual report.

The journal and the report will be assessed together and will contribute 12.5% of your overall course assessment. Further details of these deliverables and their assessment will be given later in the semester.

7 Timetable and Deadlines

The group exercise timetable, in the form of workshops and deadlines for items to be turned in during the course, is given in the PSD3 semester 1 timetable.

The complete Group Exercise Report must be turned in by 2pm, Friday 11th December.

Individual reports must be turned in by 2pm, Monday 18th January (i.e., at the beginning of the PSD3 workshop on that day)

8 How You Should Submit Your Work

Unless advised otherwise, your submission must be submitted in printed form in the course submission box in Lilybank Gardens. Contact a staff member if you're not sure where to find the box.

9 Feedback

There will be feedback on Group Exercise 1 deliverables during the course of the semester. In addition, each individual's group exercise submission will be assessed. Basic information about assessment is given in the course description. Further details will be supplied later in semester 1.