

MACIASZEK, L.A. (2005):
Requirements Analysis and System Design, 2nd ed.
 Addison Wesley, Harlow England, 504p.
 ISBN 0 321 20464 6

Chapter 1
Problem Statements for Case Studies

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Case studies

- University Enrolment (UE)
- Video Store (VS)
- Contact Management (CM)
- Telemarketing (TM)
- Advertising Expenditure (AE)
- Time Logging (TL)

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University Enrolment (UE)

- A medium-size university offers a number of undergraduate and postgraduate degrees to full-time and part-time students.
- The educational structure of the university consists of divisions and departments.
- Each degree is administered by one division, but it can include courses from other divisions.
- Individual programs of study must conform to the structure of prerequisite courses for the degree's compulsory courses.
- A student's choice of courses may be restricted by timetable clashes, maximum class sizes, etc.
- The university enrolment system is sufficiently unique to warrant the in-house development.
- The system is required to assist in pre-enrolment activities and to handle the enrolment procedures.
- The system must
 - include mail-outs of last semester's examination grades to students together with any enrolment instructions
 - accept the students' proposed programs of study and validate them for prerequisites, timetable clashes, class sizes, special approvals, etc.

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Video Store (VS)

- A new video store intends to offer rentals (and sales) of entertainment material to the wider public.
- The video store will keep a stock of video tapes, CDs (games and music) and DVDs.
- The inventory has been ordered from suppliers.
- All entertainment media will be bar coded so that a scanning machine integrated with the system can support the rentals, returns, and sales.
- Existing customers will be able to place reservations on entertainment material to be collected at a specific date.
- The system must have a flexible search engine to answer customer enquiries, including enquiries about the material that the video store does not stock (but may order it on request).

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Contact Management (CM)

- A market research company has an established customer base of organizations that buy market analysis reports.
- Some larger customers have also purchased specialized reporting software from the company. These customers are then provided with raw and pre-aggregated information for their own report generation.
- The company is constantly on the search for new customers. Since the prospective customers are not quite customers yet, the company prefers to call them contacts – hence, contact management system (contacts are prospective, actual and past customers).
- A new contact management system is to be developed internally and be available to all employees in the company, but with varying levels of access.
- The system will permit flexible scheduling and re-scheduling of contact-related activities so that the employees can successfully collaborate to win new customers and foster existing relationships.

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Telemarketing (TM)

- A charitable society sells lottery tickets to raise funds.
- The fundraising is done in campaigns to support currently important charitable causes.
- The society keeps a list of past contributors (supporters).
- For each new campaign, a subset of these supporters is pre-selected for telemarketing and/or direct mail contact.
- The society uses some innovative schemes to gain new supporters. The schemes include special bonus campaigns to reward supporters for bulk buying, for attracting new contributors, etc.
- The new system is required to support telemarketers and be able to schedule the phone calls according to pre-specified priorities and other known constraints.
- The system is required to dial up the scheduled phone calls.
- Unsuccessful connections must be re-scheduled and tried again later.
- Telephone callbacks to supporters must also be arranged.
- The conversation outcomes, including ticket orders and any changes to supporter records, ought to be maintained.

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Advertising Expenditure (AE)

- A market research organization collects data on advertising from various media outlets: television and radio stations, newspapers, magazines, as well as cinema, outdoor and Internet advertisers.
- The collected data can be analyzed in various ways to measure advertising expenditures of companies advertising their products.
- The AE system will provide two areas of reporting to the clients:
 - A client may request a report that the advertisements they paid for appeared as they were supposed to (this is called campaign monitoring).
 - A client can also request a report outlining their competitive advertising position in their specific industry (this is called expenditure reporting).
- The AE's customer base comprises individual advertisers, advertising agencies, media companies, media buying consultancies, as well as sales and marketing executives, media planners, buyers, etc.
- The AE has contractual arrangements with many media outlets to regularly receive from them electronic log files with advertising content.
- The log information is subjected to verification – partly automatic and partly manual.
- The manual entry (monitoring) of advertisements for which there are no electronic logs remains a major part of the AE operation.
- Once entered and verified, the advertisements undergo valorization – the process of assigning an expenditure estimate to an advertisement.

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Time Logging (TL)

- A software production company is given a task to develop a Time Logging tool for public sale to organizations in need of a time control software for their employees.
- The TL tool will allow employees to enter time records, i.e. time spent working on various projects and tasks and time without any work done (pauses, lunches, holidays, etc.).
- The time can be entered
 - by directly (manually) recording the start and end times or
 - by using the stopwatch facility, which links to the computer clock and allows the employee to use start/stop command buttons to say when an activity started and ended.
- The TL tool will allow to identify clients for whom the work is performed. Related functions are to bill the clients, produce invoices, and keep track of payments.
- The TL tool will allow production of customized time reports with various reporting details suppressed or added, as required by the employee.
- The TL tool will allow easy changes to time records already entered. It will also provide various sorting, searching and filtering capabilities.

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