Chapter 1
Problem Statements for Case Studies

Case studies

- University Enrolment (UE)

- Video Store (VS)

- Contact Management (CM)

- Telemarketing (TM)

- Advertising Expenditure (AE)

- Time Logging (TL)

- Currency Converter (CC)

University Enrolment (UE)

- A medium-size university offers a number of undergraduate and postgraduate <u>degrees</u> to full-time and part-time <u>students</u>.

- The educational structure of the university consists of <u>divisions</u> and <u>departments</u>.

- Each <u>degree</u> is administered by one division, but it can include <u>courses</u> from other divisions.

- Individual <u>programs of study</u> must conform to the structure of <u>prerequisite courses</u> 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 <u>in-house development</u>.

- The system is required to assist in <u>pre-enrolment</u> activities and to handle the <u>enrolment</u> 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 <u>rentals</u> (and sales) of entertainment material to the wider public.

- The video store will keep a stock of <u>video tapes</u>, <u>CDs</u> (games and music) and <u>DVDs</u>.

- The inventory has been ordered from <u>suppliers</u>.

- All entertainment media will be bar coded so that a scanning machine integrated with the system can support the <u>rentals</u>, <u>returns</u>, and <u>sales</u>.

- Existing customers will be able to place <u>reservations</u> on entertainment material to be collected at a specific date.

- The system must have a flexible search engine to answer <u>customer enquiries</u>, including enquiries about the material that the video store does not stock (but may order it on request).

Contact Management (CM)

- A market research company has an established customer base of organizations that buy <u>market analysis reports</u>.

- Some larger customers have also purchased specialized <u>reporting software</u> 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 <u>customers</u>. Since the prospective customers are not quite customers yet, the company prefers to call them <u>contacts</u> – 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 <u>employees</u> in the company, but with varying levels of access.

- The system will permit flexible <u>scheduling</u> and re-scheduling of contact-related <u>activities</u> so that the employees can successfully collaborate to win new customers and foster existing relationships.

Telemarketing (TM)

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

Advertising Expenditure (AE)

- A market research organization collects <u>data on advertising</u> 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 <u>advertising expenditures</u> of companies advertising their products.
- The AE system will provide <u>two areas of reporting</u> to the clients:
  - A client may request a report that the advertisements they paid for appeared as they were supposed to (this is called <u>campaign monitoring</u>).
  - A client can also request a report outlining their competitive advertising position in their specific industry (this is called <u>expenditure reporting</u>).
- The AE's <u>customer base</u> 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 <u>log files</u> with advertising content.
- The log information is subjected to <u>verification</u> – partly automatic and partly manual.
- The manual entry (<u>monitoring</u>) of advertisements for which there are no electronic logs remains a major part of the AE operation.
- Once entered and verified, the advertisements undergo <u>valorization</u> – the process of assigning an expenditure estimate to an advertisement.

Time Logging (TL)

- A software production company is given a task to develop a <u>Time Logging tool</u> for public sale to organizations in need of a time control software for their employees.
- The TL tool will allow employees to enter <u>time records</u>, 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 (<u>manually</u>) recording the start and end times or
  - by using the <u>stopwatch</u> 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 <u>clients</u> 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 <u>time reports</u> with various reporting details suppressed or added, as required by the employee.
- The TL tool will allow easy <u>changes to time records</u> already entered. It will also provide various <u>sorting</u>, <u>searching</u> and <u>filtering</u> capabilities.

Currency Converter (CC)

- A bank needs to offer in its Web portal a <u>special-purpose calculator</u> for converting an entered amount in one foreign currency into another currency.

- The application may be implemented by means of one or two web pages.

  - In the case of <u>two web pages</u>, the first page would enable the user to enter the amount of money to be converted, select from combo boxes the "from" and "to" currencies, and then to press Calculate or similar button. The second page would then show the results of the calculation and would provide an option (e.g. the Start Over button) to return to the first page and to do another calculation, if desired.

  - In the case of a <u>one page</u> solution, the form would contain a calculation result field, not editable by the user or perhaps not even visible at first. This result field would display the conversion outcome value upon the user's action of pressing the Calculate button.