

Course ISE 323: Information Systems Engineering 1

Recitation 6 Exercise

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The purpose of this recitation is familiarize you with the process of extracting and analyzing business processes. Business processes are any action which an organization performs as part of its normal behavior. Such processes can include common events such as ordering, purchasing, or selling items or rarer events such as the hiring or firing of a Chief Executive Officer.

Your task today is to choose from the scenarios below (you are not required to start from the first one) and perform the following actions:

1. Identify all of the people or roles who are part of the process
2. Identify the important documents or files which are input, output, or used by the process
3. Identify the data bases, data sources, or other collections of information which are read from or written to in the process
4. Identify the logic steps performed in the process (ordering, loops, if/then/else).

When you have completed the analysis, your job is to create two charts or graphs of the process using the techniques discussed in class. First, start with a flow chart, process chart, or structured language description of the process . Then, identify the major functions in the process and create a Data Flow Diagram (DFD) of the process as we have done together in class.

You may work on this task **alone or groups of two**. I will be in the class to help and give guidance. As with all recitations, this work will not be graded.

1 Library Acquisition

The college library has the following (business) process for the acquisition of new books for courses;

After an instructor prepares the syllabus for a course, the syllabus must include information about the books which the course will use. The instructor must send a copy of the syllabus to the library to inform them of the course's needs. The librarian or his assistants inspect the book list and compare it against the expected student registration for the course. If there are already enough copies of the book in the library for the course's books, no action needs to be taken.

If there is an insufficient number of copies of the books for the course, the library must place an order. To save time and shipping costs, the library will only place orders once every two months for books or when there are a large number already waiting to be ordered (say 20).

There is a single book vendor service which the library contracts with. There are two choices for ordering books - used and new. If the vendor has access to used copies of a book, they are ordered. Otherwise, new ones are ordered. The librarian is in charge of approving and making orders with the vendor.

When an order arrives at the library, the box is opened and the books are examined by a library assistant. Each (correctly shipped) book is immediately assigned a bar code and entered into the database as soon as it leaves the box. The books are then placed aside for rebinding if necessary, labeling, and sorting. The librarian may send an email to the appropriate lecturer informing him that books for his class have arrived.

Each book is cataloged and assigned a shelf number based on the library's ordering system by a library assistant. Each book is also given a magnetic tag and label on the inside with bar coded information about the book, its author, and category. When the books are ready, they are distributed to the shelves by a library assistant.

The above, rather long quote is a fairly full description of the business processes involved in ordering books for the college library. We can identify several stages in the ordering process:

1. Receipt of the syllabus and examination of existing books versus student count
2. Collection of books to be ordered
3. Communication with the book vendor to order the books
4. Unpacking of orders and initial entry of books into the database
5. Categorization, labeling, and shelving of books

Use the various charting and graphing techniques discussed in class to depict all of the processes above. Consider how you can use structured language, process charts, flow charts, system flow charts, and DFDs to depict the various actors, processes, and data stores needed to support the above processes.

2 Software Development House

Another example of a business process is the actions a software development house takes in negotiating contracts for development. The process is as follows:

A potential (or existing) customer contact sends an email to a manager in the development house asking about their willingness to take on a new contract for a software program/system. If the manager agrees, the customer and manager set a date for a meeting to discuss the potential deal. The meeting may take place at the customer's site, the development house, or at a third party location (it doesn't matter for us now).

At the meeting, the customer contact brings three or four stakeholders in the new system. The development manager also brings two or three developers and analysts to listen to the customer's needs and make judgements about what is to be done and how. At the meeting, the customer presents a big picture of his organization's needs and the two sides discuss. The customer may give a more detailed design document to the development manager (if such a document exists).

After the meeting, the development manager produces an offer based on the requirements (or initial design) as provided by the customer. The development manager requests a offer serial number from the secretary of the development house to ensure that the offer can later be uniquely identified. The manager then sends the offer to the customer contact.

The customer may accept the offer as is or (more likely) contact the development manager with requests for changes or updates. The customer may send back a marked up version of the offer indicating changes that he wants. The development manager negotiates with the customer (on phone or in person) based on the changes to the offer that he receives. The development manager may produce another offer (again with a new unique serial number) and send it back to the customer. The negotiation process may continue through several rounds.

When both sides have agreed on a final version of the offer, the development manager signs on the offer to finalize it. The customer also signs on it. The offer is now a contract which may be enforced.

Again, consider the above business process and how it could be formatted using the techniques described in class. Some parts of the process can not be easily described. Break the process down into its constituent parts and describe them using the structured techniques we have studied.

3 Opening a Bank Account

Consider another business process, one involved in the opening of a bank account at commercial bank:

A customer enters the bank and to open an account. She sits down with a banker to help. The customer offers some identification and fills out forms relating to the conditions of the account, its owners, and other properties. The customer provides some amount of cash or checks to deposit (the account can't be opened with a zero balance). The customer provides signature samples for the bank to enter digitally and use for check verification.

The banker enters the customer data into the computer system and receives a new account number. The banker provides the customer with the new account number, a receipt for the deposit, and copies of the documents signed.

After the customer has left, the banker closes the transaction, entering the customer details and new account information into the system. A notice is put on the new account to make sure an auditor reviews it.

Within three days, the a bank auditor must review the new account. The customer identity is verified against the national government databases. In case of a foreigner opening an account, this step is skipped. If the customer identification fails (invalid information or suspicious information), the banker is notified and told to contact the customer again by phone to clarify details.

The bank auditor then checks against national and international criminal databases for potential threats or blocks on the owner of the new account (money laundering, criminal activity, drug smuggling, terrorism, garnished accounts). If there is a match between the identity of the new owner and one of the databases, the bank manager is informed. The bank manager may decide to contact the police, courts, or intelligence agencies as appropriate. If the manager thinks it is simply an error, the original banker is asked to contact the owner again to clarify or fix details.

If all of the checks are finished cleanly, the new account is approved and the notice is removed from the account. The customer will be sent a "welcome" packet in the mail and his ATM or credit cards will be printed.

Again, consider the above business process and how it could be formatted using the techniques described in class. Some parts of the process can not be easily described. Break the process down into its constituent parts and describe them using the structured techniques we have studied.