8. This chapter has shown how to model, or structure, just one aspect, or view, of an information system; namely the process view. Why do you think another, basic difference of views of diagrams and other documentation to depict different views (for example, process, logic, and data) of an information system?

X Consider the DFD in Figure 8.27. List three errors (rule violations) on this DFD.

X Consider the three DFDs in Figure 8.28. List three errors (rule violations) on these DFDs.

Starting with a context diagram, draw as many nested DFDs as you consider necessary to represent all the details of the system as specified in the statement of requirements. Identify the logical hierarchy. When you are finished, you should have at least a context diagram and a level-0 diagram. In drawing these diagrams, if you discover that the narrative is incomplete, make up reasonable explanations to complete the story. Supply these extra explanations along with the diagrams. Here is the narrative. Projects, Inc., an engineering firm with approximately 500 engineers of different types. The company keeps records on all employees, their skills, projects assigned, and departments worked in. New employees are hired by the personnel manager based on data in an application form and resume collected from other managers who interview the candidate. Perspective employees may apply at any time. Engineering managers notify the personnel manager when a job opens and list the characteristics necessary to be eligible for the job. The personnel manager compares the qualifications of the available pool of applicants with the requirements of the open job, then schedules interviews between the manager in charge of the open position and the three best candidates from the pool. After reviewing evaluations on each interviewee from the manager, the personnel manager makes the hiring decision based on the evaluations and qualifications of the candidates and the characteristics of the job, and then notifies the interviewees and the manager about the decision. Applications of rejected candidates are retained for one year, after which time the application is purged. When hired, a new employee completes a nondisclosure agreement, which is filed with other information about the employee.

Starting with a context diagram, draw as many nested DFDs as you consider necessary to represent all the details of the system described in the following narrative. As you draw these diagrams, if you discover that the narrative is incomplete, make up reasonable explanations to make the story complete. Supply these extra explanations along with the diagrams. Here is the narrative. Maximum Software is a developer and supplier of software products to individuals and businesses. As part of their operations, Maximum provides an 800 telephone number to help desk for clients who have questions about software purchased from Maximum. When a call comes in, an operator inquires about the nature of the call. For calls that are not truly help desk functions, the operator redirects the call to another unit of the company (such as Order Processing or Billing). Since many customer questions require in-depth knowledge of a product, help desk consultants are organized by product. The operator directs the call to a consultant skilled in the software that the caller needs help with. Since a consultant is not always immediately available, some calls must be put into a queue for the next available consultant. Once a consultant receives the call, he determines whether the call is the first call from this customer about this problem. If so, he compiles a new call report and keeps track of all information about the problem. If not, he asks the customer for a call unique number and retrieves the open call report to determine the status of the inquiry. If the caller does not know the call report number, the consultant consults other information such as the caller's name, the software involved, or the name of the consultant who handled the previous calls on the problem in order to conduct a search for the appropriate call report. If a resolution to the customer's problem has been found, the consultant informs the client of the resolution and then updates the report. If resolution has not been discovered, the consultant finds out if the consultant handling the problem has an idea or idea. If so, he transfers the call to the other consultant (if necessary) and updates the call to the queue of calls waiting to be handled by that consultant). Once the proper consultant receives the call, records are made to document the customer's information. For continuing problems and for new call reports, the consultant tries to discover an answer to the problem by using the relevant software and boot-up information in reference manuals. If he cannot resolve the problem, he tells the customer how to contact the support department, and closes the call report. Otherwise, the consultant files the report for continued research.
44. Develop a context diagram and a level-6 diagram for the contracting system described in the following narrative. If you discover that the narrative is incomplete, make up reasonable explanations to complete the story. Suppose these extra explanations along with the diagrams. Here is the narrative:

The pharmacy at Mercy Hospital fills medical prescriptions for all patients and distributes these medications to the patient’s home. Medical prescriptions are written by doctors and sent to the pharmacy. A pharmacy technician reviews the prescriptions and sends them to the appropriate pharmacy station. Prescriptions for drugs that may be formulated (made on-site) are sent to the lab station, prescriptions for off-site-refill drugs are sent to the distribution station, and prescriptions for narcotics are sent to the secure station. At each station, a pharmacist reviews the order, checks the patient’s file to determine the appropriateness of the prescription, fills the order if the dosage is at a safe level and will not interact negatively with any other medications or allergies indicated in the patient’s file. If the pharmacist does not fill the order, the prescribing doctor is contacted to discuss the situation. In this case, the order may ultimately be filled or the doctor may write another prescription depending on the outcome of the discussion. Once filled, a prescription label is generated listing the patient’s name, the drug name and dosage, an expiration date, and any special instructions. The label is placed on the drug container and the orders are sent to the appropriate nurses stations. The patient’s admission number, the drug name and amount dispensed, and the cost of the prescription are then sent to the billing department.

45. Develop a context diagram and a level-6 diagram for the contracting system described in the following narrative. If you discover that the narrative is incomplete, make up reasonable explanations to complete the story. Suppose these extra explanations along with the diagrams. Here is the narrative:

The logistics coordinator at XYZ Company is responsible for coordinating the transport of goods to and from various locations. The coordinator reviews the inventory levels and creates a schedule for the delivery teams. Each delivery team is responsible for picking up goods from the warehouse and delivering them to the customer. The coordinator communicates with the drivers and ensures that all necessary paperwork is completed before the delivery. If there are any issues with the delivery, the coordinator works with the customer to resolve the problem. The coordinator also keeps track of the delivery schedules and updates the system as needed.
meeting address listed on the request. Once the requested materials have been shipped, a notification is sent to the

Field Exercises

1. Talk to systems analysts who work at an organization. Ask the analyst to show you a complete set of DFDs from a current
   project. Discuss the analyst about his or her views about
   DFDs and data warehouses for analysis.

2. Interview several people in an organization about a particu-
   lar system. What is the system like now and what would they
   like to see changed? Create a complete set of DFDs for the
   current physical, current logical, and new logical system.
   Show some of the people you interviewed in your DFDs and
   ask for their reactions. What kinds of comments do they
   make? What kinds of suggestions?

3. Talk to systems analysts who use a CASE tool. Investigate
   what capabilities that CASE tool has for automatically check-
   ing for rule violations in DFDs. What reports can the CASE
   tool produce with error and warning messages to help stu-
   dents correct and improve DFDs?

4. Find out which, if any, drawing packages, word processors,
   forms design, and database management systems your uni-
   versity or company supports. Research these packages to
determine how they might be used in the production of a
project diagram. For example, do the drawing packages
include either set of standard DFD symbols in their graphic
symbol palettes?

5. At an organization with which you have contact, ask one or
   more employees to draw a "picture" of the business process
   they interact with at that organization. Ask them to show the
   process using whatever format suits them. Ask them to
   depict in their diagram each of the components of the
   process and the flow of information among these compo-
nents in the highest level of detail possible. What type of dia-
gram have they drawn? How do their views differ from
(1) an object-oriented (and not resemble) a data flow diagram? Who when they
have finished, help them to convert their diagram to a stan-
dard data flow diagram as described in this chapter. In what
ways is the data flow diagram stronger and/or weaker than
the original diagram?

References


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