**11.24** (Term Project) Perform the requirements workflow for the Chocoholics Anonymous project in Appendix A.

**12.20** (Term Project) Using the technique specified by your instructor, draw up a specification document for the Chocoholics Anonymous product described in Appendix A.

**12.21** (Term Project) Draw up a software project management plan for the Chocoholics Anonymous product described in Appendix A.

**13.22** (Term Project) Perform the analysis workflow of the Chocoholics Anonymous product

described in Appendix A.

**14.16** (Term Project) Starting with your specifications of Problem 12.20 or 13.22, design the

Chocoholics Anonymous product (Appendix A). Use the design technique specified by your

instructor.

**15.33** (Term Project) Draw up black-box test cases for the product you specified in Problem 12.20 or 13.22. For each test case, state what is being tested and the expected outcome of that test case.

**15.34** (Term Project) Implement and integrate the Chocoholics Anonymous product (Appendix

A). Use the programming language specified by your instructor. Your instructor will tell you

whether to build a Web-based user interface, a graphical user interface, or a text-based user

interface. Remember to utilize the black-box test cases you developed in Problem 15.33 for

testing your code.

A

Term Project:

Chocoholics

Anonymous

Chocoholics Anonymous (ChocAn) is an organization dedicated to helping people addicted

to chocolate in all its glorious forms. Members pay a monthly fee to ChocAn. For this fee

they are entitled to unlimited consultations and treatments with health care professionals,

namely, dietitians, internists, and exercise experts. Every member is given a plastic card

embossed with the member’s name and a nine-digit member number and incorporating

a magnetic strip on which that information is encoded. Each health care professional

(provider) who provides services to ChocAn members has a specially designed ChocAn

computer terminal, similar to a credit card device in a shop. When a provider’s terminal is

switched on, the provider is asked to enter his or her provider number.

To receive health care services from ChocAn, the member hands his or her card to the

provider, who slides the card through the card reader on the terminal. The terminal then

dials the ChocAn Data Center, and the ChocAn Data Center computer verifies the member

number. If the number is valid, the word Validated appears on the one-line display. If the

number is not valid, the reason is displayed, such as Invalid number or Member suspended;

the latter message indicates that fees are owed (that is, the member has not paid

membership fees for at least a month) and member status has been set to suspended.

To bill ChocAn after a health care service has been provided to the member, the provider

again passes the card through the card reader or keys in the member number. When the word

Validated appears, the provider keys in the date the service was provided in the format

MM–DD–YYYY. The date of service is needed because hardware or other difficulties may

have prevented the provider from billing ChocAn immediately after providing the service.

Next, the provider uses the Provider Directory to look up the appropriate six-digit service

code corresponding to the service provided. For example, 598470 is the code for a session

with a dietitian, whereas 883948 is the code for an aerobics exercise session. The provider

Appendix

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then keys in the service code. To check that the service code has been correctly looked up

and keyed in, the software product then displays the name of the service corresponding to

the code (up to 20 characters) and asks the provider to verify that this is indeed the service

that was provided. If the provider has entered a nonexistent code, an error message is

printed. The provider also can enter comments about the service provided.

The software product now writes a record to disk that includes the following fields:

Current date and time (MM–DD–YYYY HH:MM:SS).

Date service was provided (MM–DD–YYYY).

Provider number (9 digits).

Member number (9 digits).

Service code (6 digits).

Comments (100 characters) (optional).

The software product next looks up the fee to be paid for that service and displays it on

the provider’s terminal. For verification purposes, the provider has a form on which to enter

the current date and time, the date the service was provided, member name and number,

service code, and fee to be paid. At the end of the week, the provider totals the fees to verify

the amount to be paid to that provider by ChocAn for that week.

At any time, a provider can request the software product for a Provider Directory, an

alphabetically ordered list of service names and corresponding service codes and fees. The

Provider Directory is sent to the provider as an e-mail attachment.

At midnight on Friday, the main accounting procedure is run at the ChocAn Data Center.

It reads the week’s fi le of services provided and prints a number of reports. Each report also

can be run individually at the request of a ChocAn manager at any time during the week.

Each member who has consulted a ChocAn provider during that week receives a list of

services provided to that member, sorted in order of service date. The report, which is also

sent as an e-mail attachment, includes:

Member name (25 characters).

Member number (9 digits).

Member street address (25 characters).

Member city (14 characters).

Member state (2 letters).

Member ZIP code (5 digits).

For each service provided, the following details are required:

Date of service (MM–DD–YYYY).

Provider name (25 characters).

Service name (20 characters).

Each provider who has billed ChocAn during that week receives a report, sent as an

e-mail attachment, containing the list of services he or she provided to ChocAn members.

To simplify the task of verification, the report contains the same information as that entered

on the provider’s form, in the order that the data were received by the computer. At the end

of the report is a summary including the number of consultations with members and the

total fee for that week. That is, the fields of the report include:

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Provider name (25 characters).

Provider number (9 digits).

Provider street address (25 characters).

Provider city (14 characters).

Provider state (2 letters).

Provider ZIP code (5 digits).

For each service provided, the following details are required:

Date of service (MM–DD–YYYY).

Date and time data were received by the computer (MM–DD–YYYY HH:MM:SS).

Member name (25 characters).

Member number (9 digits).

Service code (6 digits).

Fee to be paid (up to $999.99).

Total number of consultations with members (3 digits).

Total fee for week (up to $99,999.99).

A record consisting of electronic funds transfer (EFT) data is then written to a disk;

banking computers will later ensure that each provider’s bank account is credited with the

appropriate amount.

A summary report is given to the manager for accounts payable. The report lists every

provider to be paid that week, the number of consultations each had, and his or her total

fee for that week. Finally, the total number of providers who provided services, the total

number of consultations, and the overall fee total are printed.

During the day, the software at the ChocAn Data Center is run in interactive mode to

allow operators to add new members to ChocAn, to delete members who have resigned, and

to update member records. Similarly, provider records are added, deleted, and updated.

The processing of payments of ChocAn membership fees has been contracted out to

Acme Accounting Services, a third-party organization. Acme is responsible for financial

procedures such as recording payments of membership fees, suspending members whose

fees are overdue, and reinstating suspended members who have now paid what is owing.

The Acme computer updates the relevant ChocAn Data Center computer membership

records each evening at 9 P.M.

Your organization has been awarded the contract to write only the ChocAn data processing

software; another organization will be responsible for the communications software,

for designing the ChocAn provider’s terminal, for the software needed by Acme Accounting

Services, and for implementing the EFT component. The contract states that, at the

acceptance test, the data from a provider’s terminal must be simulated by keyboard input

and data to be transmitted to a provider’s terminal display must appear on the screen. A

manager’s terminal must be simulated by the same keyboard and screen. Each member

report must be written to its own fi le; the name of the fi le should begin with the member

name, followed by the date of the report. The provider reports should be handled the same

way. The Provider Directory must also be created as a fi le. None of the fi les should actually

be sent as e-mail attachments. As for the EFT data, all that is required is that a fi le be set up

containing the provider name, provider number, and the amount to be transferred.