

End of Chapter Solutions

Chapter 2 - Transaction Processing in the AIS

1. Reading review questions

- a. ***In your own words, explain the similarities and differences between accounting and bookkeeping.*** Bookkeeping refers to the “mechanical” part of accounting—making journal entries, posting them to the ledger and the like. Accounting is much broader and more interesting; it involves exercising judgment and making meaningful decisions regarding organizational strategy and operations.
- b. ***What systems do accountants use to create and modify a chart of accounts?*** Sequential codes assign numbers consecutively, while block codes assign meaning to groups of digits. Hierarchical codes are even more specific than block codes; in a hierarchical code, each group of digits has a specific function within the code. And, mnemonic codes are designed to be easy to remember.
- c. ***What internal controls are common in the accounting cycle?*** Internal controls in the accounting cycle include sequentially numbered documents, transaction limits, physical security, equality of debits and credits, trial balances and audits.
- d. ***How is human judgment involved in the accounting cycle?*** Human judgment is involved in the accounting cycle when accountants decide which transactions are recordable in the AIS. Judgment also comes into play in making the estimates involved in adjusting entries.
- e. ***How has information technology been employed in the accounting cycle?*** Information technology has been used to simplify and expedite some of the more rudimentary steps in the accounting cycle, such as making journal entries and posting them to the ledger.
- f. ***List and discuss the six common types of adjusting entries found in most accounting information systems.*** Accrued revenues involve providing service before cash flows, such as with unbilled fees for a consulting assignment. Accrued expenses are associated with receiving service before cash flows, as when employee salaries must be accrued because a fiscal year ends on a day other than the end of a pay period. Deferred revenues are the opposite of accrued revenues; as when an insurance company receives cash before providing service to its customers. Prepaid expenses, such as supplies, involve paying for an asset and then using it up over a fiscal year.

Depreciation is akin to a prepaid expense, but involves plant assets. Finally, bad debts are estimates of uncollectible accounts receivable.

- g. ***Explain the purpose and structure of each general purpose financial statement.*** A balance sheet contains assets, liabilities and equity; it shows the financial position of an entity at a point in time. An income statement includes revenues and expenses, showing the results of operations on the accrual basis for a period of time. The statement of changes in equity links the balance sheet and the income statement. The statement of cash flows, divided into operating, investing and financing activities, explains the change in cash for a period of time.
- h. ***Respond to the questions for the chapter's opening vignette.***
 - i. ***What does it mean to say that a chart of accounts is "block coded?"***
In a block coding system, items are grouped and then numbered according to those groupings. For example, assets start with "1."
 - ii. ***What other coding systems can organizations use for their chart of accounts?*** Organizations can also use sequential, mnemonic or hierarchical coding. Each system has its own advantages and disadvantages; the main point is using a system that is easily understood.
 - iii. ***What are the advantages and disadvantages of using an Excel add-on for transaction processing?*** Advantages include: familiarity with Excel, potentially lower cost, and ease of use. Disadvantages include: having to create formulas and reports from scratch, lack of double-entry accounting.

2. Reading review problem

In discussing transaction processing at VISA, Marlin ("VISA Tests Transaction Processing System," Information Week, no. 999 (July 26, 2004), p. 34) wrote:

In today's information-based, on-demand economy, credit card companies are being called upon to handle ever greater transaction volumes. In July 2004, VISA USA conducted a system stress test as part of its capacity planning process. The company's transaction processing system managed 6,200 transaction messages per second, representing about 3,100 card purchases. Debit card transactions used more processing capacity than credit card transactions; debit transactions require tracking the movement of funds in real time, whereas credit transactions require a simple yes-or-no decision.

A "debit card transaction" refers to purchasing goods or services with an ATM card. Many such cards can also be used for "credit card" transactions.

- a. ***Does the activity described above more closely resemble accounting or bookkeeping? Explain your answer.*** The activity described in Marlin's article more

closely resembles bookkeeping than accounting. It is focused on the mechanics of transaction processing, rather than on using the information for decisions.

b. Use EDGAR to find the Form 10-K that VISA Inc. filed with the SEC on 21 November 2008. What AIS outputs are included in that filing? The 10-K itself could be considered an output of the AIS. It includes the following items in the section titled “Consolidated Financial Statements:” Report of Independent Registered Public Accounting Firm, Consolidated Balance Sheets, Consolidated Statements of Operations, Consolidated Statements of Changes in Shareholders’ Equity, Consolidated Statements of Comprehensive Income, Consolidated Statements of Cash Flows and Notes to the Consolidated Financial Statements.

c. Develop a coding system for the operating revenue and operating expense accounts listed in VISA Inc.’s income statement (Consolidated Statements of Operations). Many answers are possible and acceptable here. I’m going to use a hierarchical coding system in which the first field denotes that the account is “operating” (as opposed to non-operating), the second field denotes whether the account is a revenue or an expense item, the third field denotes whether the item is domestic or international and the fourth field denotes the specific account. Using that system, here are the account numbers:

Line item	First field	Second field	Third field	Fourth field	Account number
Service fees	O	6	1	21	O6121
Data processing fees	O	6	1	23	O6123
International transaction fees	O	6	2	25	O6225
Other revenues	O	6	1	27	O6127
Volume and support incentives	O	6	1	29	O6129
Personnel	O	7	1	31	O7131
Network, EDP and communications	O	7	1	33	O7133
Advertising, marketing and promotion	O	7	1	35	O7135
VISA International fees	O	7	2	37	O7237
Professional and consulting fees	O	7	1	39	O7139
Depreciation and amortization	O	7	1	41	O7141
Administrative and other	O	7	1	43	O7143
Litigation provision	O	7	1	45	O7145

d. Explain why the line items in VISA’s Statement of Cash Flows (such as Net Income and Cash Acquired through Reorganization) would not require account numbers. The line items in the Statement of Cash Flows do not represent accounts in the AIS; therefore, they do not need numbers. The amounts on the Statement of Cash Flows are derived from the other general purpose financial statements. For example, “net income” would come from the Consolidated Statement of Operations; “change in accounts receivable” would come from comparing the last two years’ Consolidated Statement of Financial Position.

3. Making choices and exercising judgment

a. Which of the following would be recordable transactions in an accounting information system? For each item that would not be a recordable transaction, explain why not.

- i. *Purchasing land with a down payment and a note payable.* Recordable.
- ii. *Verifying an increase in the market value of land.* Not recordable—the market value of land is not objective.
- iii. *Establishing an exclusive relationship with a raw material supplier.* Not recordable—nothing of value has exchanged hands.
- iv. *Estimating the amount of warranty expense for the next accounting period.* Recordable.
- v. *Negotiating with an employees union for wage increases.* Not recordable—the outcome of the negotiation is not certain, nor have the employees provided any service.

b. *How will principles-based accounting influence the design of accounting information systems? The steps in the accounting cycle?* Principles-based accounting may not influence the fundamental design of the AIS—it will likely still have the same five basic parts. As for the accounting cycle, PBA may influence the ways transactions are recorded, since PBA focuses more on the substance of transactions than their form.

c. *Use EDGAR to obtain the 2008 financial statements for Home Depot Inc. and Lowes Companies Inc., two large firms in the home improvement industry. Compare their financial statements and comment on which company is stronger.* Selected data from the companies' financial reports is shown in the table below.

	Home Depot	Lowe's
Net income	\$4,395	\$2,809
Earnings per share	\$2.38	\$1.90
Total assets	\$44,324	\$30,869
Total equity	\$17,714	\$16,098
Operating cash flow	\$5,727	\$4,347

And, here are some interpretive ratios based on that data:

	Home Depot	Lowe's
Net income / assets	0.0992	0.0910
Net income / equity	0.2481	0.1745
Equity / assets	0.3996	0.5215
Operating cash flow / net income	1.3031	1.5475

The results are truly mixed. While Home Depot's return on assets and equity are higher than Lowe's, Home Depot is significantly more leveraged (and therefore more risky to an investor). That leverage may help explain, in part, the relationship between operating cash flow and net income for the two competitors. Being fairly risk-averse myself, I'd say Lowe's is probably the stronger company—although that is a matter of judgment.

4. Field exercises

Because the field exercises involve original research and will vary significantly from student to student, I'm not including any suggested solutions to them. If your students produce particularly outstanding responses and you'd like to send them to me, I'll post them on the book's web site. Let me know if this lack of suggested responses to field exercises is a major inconvenience for you.

5. Journal entries

Record each of the following transactions in general journal format.

- a. Issued 50,000 shares of \$1 par capital stock for \$35 each.
- b. Billed customers for services provided, \$10,000.
- c. Purchased supplies on account, \$3,000.
- d. Paid monthly utility bill, \$1,500.
- e. Verified 20% increase in market price of stock.
- f. Paid wages for the current month, \$6,000.
- g. Purchased equipment with a list price of \$50,000 by making a 20% down payment and financing the remainder with a 6-month, 12% note payable.
- h. Collected cash from customers, \$5,000.
- i. Paid vendors, \$1,400.
- j. Recorded one month's accrued interest on note payable.

A	Cash	\$1,750,000	
	Capital stock		\$50,000
	Additional paid-in capital		1,700,000
B	Accounts receivable	\$10,000	
	Sales		\$10,000
C	Supplies	\$3,000	
	Accounts payable		\$3,000
D	Utility expense	\$1,500	
	Cash		\$1,500
E	Not recordable		
F	Salary expense	\$6,000	

	Cash		\$6,000
G	Equipment	\$50,000	
	Cash		\$10,000
	Note payable		40,000
H	Cash	\$5,000	
	Accounts receivable		\$5,000
I	Accounts payable	\$1,400	
	Cash		\$1,400
J	Interest expense	\$400	
	Interest payable		\$400

6. Adjusting entries

The unadjusted trial balance for GLP Corporation appears below:

GLP Corporation Trial balance September 30, 20x4		
	Debit	Credit
Cash	\$ 6,000	
Accounts receivable	2,500	
Allowance for bad debts		\$ 200
Inventory	4,500	
Supplies	800	
Equipment	15,000	
Accumulated depreciation--equipment		10,000
Accounts payable		1,200
Notes payable		6,000
Deferred fees		900
Capital stock		7,000
Additional paid-in capital		8,000
Retained earnings		11,000
Sales		16,000
Cost of goods sold	13,500	
Advertising expense	5,000	
Wages expense	12,000	
Miscellaneous expense	1,000	
Totals	\$ 60,300	\$ 60,300

End-of-period analysis revealed the following:

- The market value of equipment had decreased by 30% of its original cost. Depreciation for the quarter totaled \$1,000.

Depreciation expense	\$1,000
Accumulated depreciation	\$1,000

- b. The note payable was signed on August 1, 20x4. Its interest rate was 10%, and no interest had been recorded since the signing.

Interest expense	\$100	
Interest payable		\$100

- c. Unpaid employee wages at September 30 totaled \$1,000.

Wages expense	\$1,000	
Wages payable		\$1,000

- d. Deferred fees represented a consulting contract signed at the beginning of September. The contract's duration is 3 months, and the work is spread evenly throughout the contract period.

Deferred fees	\$300	
Fees earned		\$300

- e. Supplies on hand totaled \$150.

Supplies expense	\$650	
Supplies		\$650

- f. The market value of capital stock had increased by 15%.

No entry required

- g. Actual bad debt write-offs during September were \$300; 1% of sales will likely become uncollectible in the coming period.

Bad debt expense	\$160	
Allowance for bad debts		\$160

Prepare the required adjusting entries based on the preceding information. Then, prepare an adjusted trial balance. The adjusted trial balance appears on the next page.

GLP Corporation			
Adjusted trial balance			
September 30, 20x4			
Cash	\$	6,000	
Accounts receivable		2,500	
Allowance for bad debts			\$ 360
Inventory		4,500	
Supplies		150	
Equipment		15,000	
Accumulated depreciation			11,000
Accounts payable			1,200
Notes payable			6,000
Deferred fees			600
Interest payable			100
Wages payable			1,000
Capital stock			7,000
Additional paid-in capital			8,000
Retained earnings			11,000
Sales			16,000
Fees earned			300
Cost of goods sold		13,500	
Advertising expense		5,000	
Wages expense		13,000	
Miscellaneous expense		1,000	
Depreciation expense		1,000	
Interest expense		100	
Supplies expense		650	
Bad debt expense		160	
	\$	62,560	\$ 62,560

7. Financial statements

Use the adjusted trial balance from Problem 5 to prepare an income statement for the quarter ended 9 / 30 / 20x4 and a balance sheet as of 9 / 30 / 20x4 for GLP Corporation.

GLP Corporation			
Income statement			
For the quarter ended 9 / 30 / 20x4			
Sales	\$	16,000	
Fees earned		<u>300</u>	\$ 16,300
Cost of goods sold			<u>(13,500)</u>
Gross profit			\$ 2,800
Operating expenses:			
Advertising expense	\$	5,000	
Wages expense		13,000	
Depreciation expense		1,000	
Supplies expense		650	
Bad debt expense		160	
Miscellaneous expense		<u>1,000</u>	(20,810)
Operating loss			\$ (18,010)
Interest expense			<u>100</u>
Net loss			<u><u>\$ (18,110)</u></u>

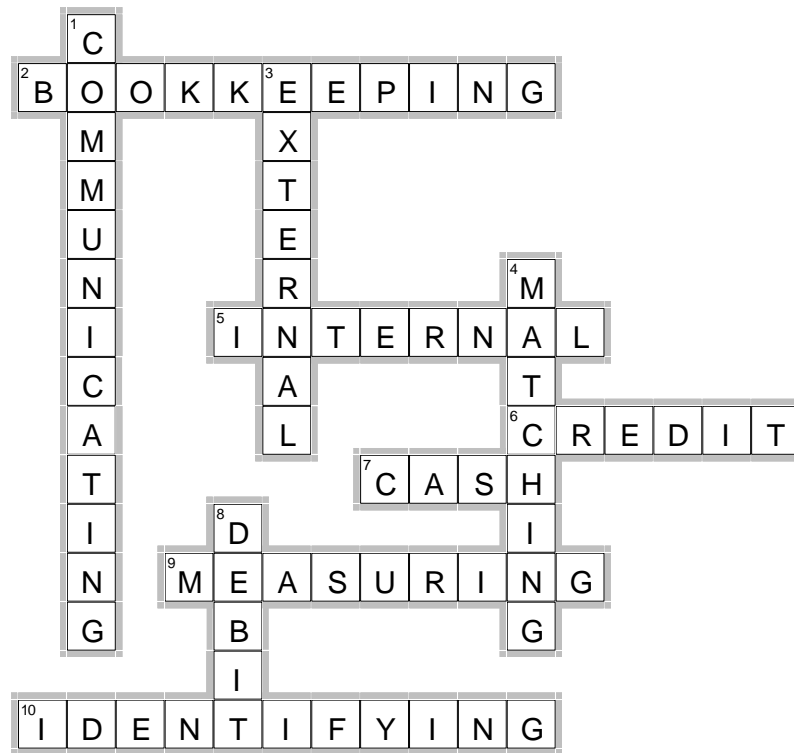
GLP Corporation			
Balance sheet			
As of 9 / 30 / 20x4			
Assets			
Current assets			
Cash	\$	6,000	
Accounts receivable (net)		2,140	
Inventory		4,500	
Supplies		<u>150</u>	\$ 12,790
Plant assets			
Equipment (net)			<u>4,000</u>
Total assets			<u><u>\$ 16,790</u></u>
Liabilities & Equity			
Current liabilities			
Accounts payable	\$	1,200	
Notes payable		6,000	
Deferred fees		600	
Interest payable		100	
Wages payable		<u>1,000</u>	\$ 8,900
Equity			
Capital stock	\$	7,000	
Additional paid-in capital		8,000	
Retained earnings		<u>(7,110)</u>	7,890
Total liabilities & equity			<u><u>\$ 16,790</u></u>

8. Coding systems

Which type of coding system is indicated in each of the following independent situations? Be prepared to explain your reasoning.

- a. *Airport codes (LAX, OGG) mnemonic*
- b. *Automatically assigned transaction numbers in a cash register sequential*
- c. *Consecutively numbered purchase orders (101, 102, 103 and so on) sequential*
- d. *Dewey Decimal System (used to classify library books) hierarchical*
- e. *Invoice numbers sequential*
- f. *National Association of Home Builders chart of accounts (look this one up on the Internet) block*
- g. *Standard chart of accounts included with Quickbooks block*
- h. *Telephone numbers block*
- i. *Universal Product Codes (UPCs) block*
- j. *ZIP codes (91768, 63135) hierarchical*

9. Crossword puzzle



10. Terminology

Please match each item on the right with the most appropriate item on the left.

- | | |
|------|-------|
| 1. F | 6. G |
| 2. D | 7. A |
| 3. C | 8. H |
| 4. B | 9. E |
| 5. I | 10. J |

11. Multiple choice questions

- | | |
|------|-------|
| 1. C | 6. A |
| 2. D | 7. C |
| 3. C | 8. C |
| 4. A | 9. B |
| 5. D | 10. A |

12. Statement evaluation

1. C
2. B If the transaction, for example, is an accrued expense adjustment, this statement will be true.
3. A
4. B Block coding is one option, but is not a requirement.
5. C
6. B The statement describes accrued revenue; accrued expenses are also an option.
7. C
8. A
9. A
10. A

13. International Financial Reporting Standards

Do an Internet search for information on IFRS. Visit at least two web sites, including the International Accounting Standards Board, and respond to the following questions about IFRS:

- a. *Compare and contrast the IFRS framework with the FASB Conceptual Framework discussed in Chapter 1. List three similarities and three differences between the two.* Similarities include (but are not limited to): Both frameworks were developed by a standards board (FASB and IASB). The structure of the two frameworks is similar. They both include some common elements, such as objectives of financial statements/financial reporting and elements of financial statements. On the other hand, the frameworks differ in the following ways: The qualitative characteristics are different between the two frameworks. The IFRS framework identifies five elements of financial statements; the FASB framework, eight. The IFRS framework includes a section titled “Concepts of Capital and Capital Maintenance,” but the FASB framework does not.
- b. *Choose two countries that have adopted IFRS. If an organization had operations in both countries, how would you communicate that fact in their chart of accounts?* A list of countries that have adopted IFRS is available at <http://www.iasplus.com/country/useias.htm>. To communicate multi-national operations via a chart of accounts, you could use a hierarchical code that includes a mnemonic abbreviation for the country. For example, if Cash is account #101, DEN101 could denote Cash in the Denmark branch and AUS101 could denote Cash in the Australian branch. Other systems are definitely possible as well.