

Teaching Case

A Data Modeling Case: Writers Guild of America, East

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ABSTRACT

This article presents a case study that was developed as an instructional case for teaching systems analysis and database design. Students are required to utilize their data modeling skills to design an appropriate data structure for the Writers Guild of America, East (WGAE). The core application in the case is an accounts receivable system, but with several unique features that necessitate creative thought by the student analysts. The case has been used successfully as both group and individual projects. Student feedback indicates that the WGAE Case is realistic, engaging and challenging without being excessively complex. Teaching notes and a suggested solution consisting of an entity-relationship diagram (ERD) and the associated list of entities and attributes are available through the JISE web site.

Keywords: Systems analysis and design, database design, case study, entity-relationship diagram

1. INTRODUCTION

An efficient teaching tool in systems analysis and design courses is the use of case studies based on real-world applications. Case studies provide students with valuable learning experiences in a classroom setting. In selecting case studies, the major challenge is finding those real world situations that invoke critical thinking while addressing the issues in the case. The ultimate goal is to link theory to practice and to demonstrate to students how they can take a systematic approach in finding appropriate solutions to issues and problems encountered in systems analysis and design.

The following case study can be incorporated in both undergraduate and graduate systems analysis and design and database courses in the information systems (IS) and the accounting information systems (AIS) disciplines. It involves designing a data structure for the Writers Guild of America, East (WGAE) to support its membership services and billing operations. This real-world example has some unique requirements (e.g., members can have multiple names or aliases as well as multiple mailing addresses) to challenge the students. The information provided in the

case is authentic and in the public domain. The design of the data structure for WGAE was initially undertaken as a consulting project that was completed and successfully implemented. Subsequently, the authors organized the data into a case study for use in the classroom. It has been utilized for several semesters in systems analysis classes with outstanding results.

The organization and format of presentation used in this case study paper follows the recommendations of Cappel and Schwager (2002) and the illustrations in Cappel (2002). Membership statistics presented in this case were obtained from the *Writers Guild of America, East Inc. Annual Statement* (2001-2002). Data concerning specific Guild members were obtained from *Writers Guild of America, East Inc. Writers Guild of America Directory of Members* (1999).

2. BACKGROUND

The case presented here can be assigned after the theory and practice of data modeling has been covered in lecture. It is usually assigned as a two-week project wherein students are asked to read the case and to perform some

preliminary analysis. Any questions, ambiguities, or clarifications concerning the case are then addressed as part of a subsequent lecture. The students are then asked to develop an entity-relationship diagram (ERD) and a list of entities and attributes that is turned in the following week. The case is usually assigned as a group project to reflect the team environment that often characterizes systems development in the real world. However, in small classroom settings, the case has been used successfully as an individual assignment. The case's narrative is typical of the kind of information that a systems analyst might collect through user interviews.

3. DATA MODELING CASE: WRITERS GUILD OF AMERICA, EAST

Congratulations! You have been hired as a systems analyst to design an integrated information system to meet the requirements of the Writers Guild of America, East (WGAE), one of the major entertainment guilds in the United States. You are responsible for developing an efficient data structure to support current and future membership services and billing operations of WGAE. Your design should accommodate the requirements as indicated below.

The WGAE is a labor union established in 1954 to represent writers in motion pictures, television and radio. The WGAE maintains jurisdiction over writers living east of the Mississippi River and the Writers Guild of America, west (WGAw) represents those to the west. Together, these two organizations coordinate efforts to protect the rights of their members and to work for their betterment. Members of both guilds enjoy the benefits, privileges and protections under various national collective bargaining agreements that detail wages and working conditions for writers in radio, television and film.

The WGAE, headquartered in New York, has approximately 4,000 active union members while the WGAw, headquartered in Los Angeles, has about 8,000. Twice a year, a National Council of representatives of WGAE and WGAw meet to coordinate policy and strategy towards their common purpose of protecting and promoting the interests of their members. Although these two unions negotiate nationwide contracts together, they are separate and distinct organizations with separate offices, staff and information systems. They, however, do share information concerning membership, signatory companies, agents, etc. through an EDI link between the two systems.

3.1 Overview

Film, television, and radio production companies that have signed a collective bargaining agreement (known in the industry as a Minimum Basic Agreement) are referred to as signatory companies. When an eastern writer sells a script to a signatory company, that writer must join the WGAE as a freelance member. Woody Allen, for example, is a prominent freelance member of WGAE. If a signatory

company hires an eastern writer as an employee to work as a news writer, graphic artist, researcher, or serve in other staff positions, then that writer must join the WGAE as a staff writer. Al Franken began working on "Saturday Night Live" in 1975 as a staff writer. Approximately two-thirds of the WGAE members are freelance writers and one-third are staff writers. Writers must pay an initiation fee that varies by employment category to join the WGAE. To remain a member in good standing, writers must pay union dues to WGAE amounting to a fixed fee of \$25 per quarter plus 1.5% of their gross compensation received for writing services.

3.2 Signatory (Production Company) Requirements

There are approximately 2,000 companies, both large and small, that have signed Minimum Basic Agreements. Any production company wishing to sign such an agreement with the WGAE must complete an application form from the WGAE Signatory Department. The company is required to provide information regarding officers and stockholders, current projects, and financial information. There are several different versions of the agreements including Motion Picture Screenwriters, Television Dramatic Writers, Television Episodic Writers, Television Serial Writers, Children's Television Writers, and many more. The agreements specify the salary, wage increases, working hours, overtime rules, holidays and vacation, layoff, and seniority rules.

The Signatory Department processes the application and sends a copy of the requested agreement(s) to the company for appropriate signatures. Once the executed agreements are received, the information from the application is entered in the system along with a six-digit company number assigned by WGAE. The following information is entered into the system: company's legal name, address, phone, fax, email address, a primary contact person and his/her phone number, and the officers of the company and the positions they hold. In addition, an agreement code indicating the specific agreement signed plus the sign date and the agreement effective date range (agreement start and termination dates) are recorded in the system. Agreement effective dates typically range between two and four years in duration. A company may be signatory to any number of agreements. For example, the National Broadcasting Company (NBC) is signatory to several television agreements covering writers involved with episodic, serial, dramatic shows, etc. The terms and conditions of the contracts are too extensive to be housed in the database and are published in book form.

3.3 Agency Requirements

Approximately 1,100 of the 4,000 WGAE member writers are represented by agencies that seek writing projects on their behalf. There are approximately 400 signatory agencies nationwide. For example, the William Morris Agency, Inc. represents more than 170 WGA writers. The WGAE Agency Department maintains a list of all agencies that have signed the Agency Agreement covering the fees charged to writers and services provided by the agency. A

unique four-digit agency number assigned by WGAE, as well as the agency name, address, phone, fax, and e-mail address are entered into the system. The contract status, the sign date and the contract start and termination dates are also recorded. When an agency signs the Agency Agreement with the WGAE, it is an on-going contract with no expiration date. If the agency goes out of business or violates the agreement, then the Agency Department will input the date of that event as the contract termination date.

3.4. Membership Requirements

Any eastern writer who has sold a script to a signatory production company or who has taken employment as a staff writer at a signatory company must join the WGAE. After the Membership Department receives the completed application form from the writer and validates the information supplied, the writer is eligible to join the WGAE upon payment of an initiation fee. The fee ranges from \$100 for entry-level staff positions to \$1,500 for freelance writers.

When the initiation fee is received, the membership information is entered into the system. A six-digit sequential membership number is automatically assigned to each writer by the system. Other information includes legal name and any number of aliases or also-known-as (AKA) names. Writers sometimes write different forms of material under different names. For example, Eddie Murphy utilizes the pseudonym of Fred Braughton. Historically, pseudonyms served as protection for writers such as during the "Red Scare" of the 1950's. More recently, pseudonyms provide writers with the opportunity to experiment in different or unusual writing formats for new markets without putting their reputations at risk. The social security number, employment category (freelance or staff), status (active, withdrawn, deceased, suspended, etc.) and status date, date of birth, and date joined are entered into the system. The agency that represents the writer is recorded in the system along with the name of the writer's agent at that agency.

The system must also maintain multiple addresses for writers. For each address, the system records the address type (e.g. home, business, business manager, accountant and attorney), the address, phone, fax and email address, as well as the date range during which this address is in effect. Writers sometimes go on location for months during film production or reside in different regions at various times of the year. Four categories of mailings are sent to members: informational materials, residual payments, billing invoices and newsletters. The purpose of these categories is to allow different types of mail to go to different addresses as specified by the writer. For example, a writer may specify that invoices be sent to a business manager, residual payments to an accountant and informational mail and newsletters to a residence. The Membership Department indicates the categories of mail to be sent to each address when entering the address data into the system.

3.5. Initiation Fee Processing

When the Membership Department has entered a new member's information into the system, the member number is noted on the initiation fee payment and the check or credit card receipt is forwarded to the Dues Department for processing. The Dues Department enters the initiation fee amount due as an accounts receivable item. The receivable entries are assigned unique eight-digit numbers by the system. The accounts receivable data captured by the system include the receivable type (initiation fee in this case), date, amount owed and member number. The paid-to-date amount on each receivable is automatically maintained by the system and is set to zero when the receivable is entered.

Initiation fee payments are recorded in the system as paid receipts. Each receipt is also assigned a unique eight-digit number by the system. The member number, receipt date, payment type (check, money order, credit card, etc.), payment amount and reference number (check number, money order number, or credit card confirmation number) are entered by the user. The Dues Department then applies (distributes) the initiation fee payment against the open initiation fee receivable thus paying off the receivable.

3.6 Residual Payments

Under the Minimum Basic Agreements, companies must compensate writers for the reuse of their materials. This compensation is called residuals. When films and television programs are rerun after the release to their initial venue, the credited writers are due residual payments. Eastern signatory companies send their residual payments to WGAE for distribution to writers. The Residuals Department enters the company number, member number, amount, payment date, check number and film/episode title in the system. The system then produces a Residual Advise Mailer addressed to the writer's address specified for residual payments in the system. The check is then put into this mailer and sent to the writer.

3.7. Membership Dues Receivable

WGAE members are required to pay a fixed fee of \$25.00 each quarter. This fee is referred to as basic dues. In addition, there is a variable fee called percentage dues that amounts to 1.5% of Guild covered earnings (wages plus residuals). For the 2002 fiscal year, WGAE members paid dues on \$235 million dollars of total earnings. At the end of each quarter, members are mailed a Declaration of Earnings form. The system prints the total amount of residual payments already received by the writer in that quarter on the form. The writer then completes the form by listing all non-residual wages earned during the period, the paying production company, and the type of work. A writer may work for many companies in any quarter.

Declaration of Earnings forms are sent out to writers on the last day of each quarter. Writers who have not completed and returned their form within three weeks are sent a reminder letter and assessed a bookkeeping fee of \$10 that is recorded in the system as a receivable.

The completed Declaration of Earnings forms containing all writing activities for which the writer received compensation are returned to WGAE. The Dues Department enters the data including the member number, company number, type of work (motion picture, episodic sitcom, comedy variety, etc.), project title, year/quarter and wages received for each employment engagement.

When all the declared wages have been entered for a writer, the system totals the wages plus the residuals on file for the quarter and creates a receivable for the sum of \$25 plus 1.5% of the total compensation. For example, a writer who declared \$35,000 in wages and had \$5,000 in residuals would have a receivable entry for \$625 (\$25 + 1.5% of \$40,000). The system subsequently generates a Dues Invoice for the amount owed for the quarter and sends the invoice to the writer. The member number, year/quarter, receivable type (regular dues in this case), date and amount are posted into the database as a receivable.

3.8 Dues Receipts

A writer has four weeks from the date that the Dues Invoice is generated to remit payment by check, money order or credit card. The resulting payment receipt is entered into the system. The member number, receipt date, payment type (check, money order, credit card, etc.), payment amount and reference number (check number, money order number, or credit card confirmation number) are first captured. The amount paid is allocated against the open (unpaid) receivable items usually on a first-in, first-out (FIFO) oldest-first basis. One payment may payoff many open receivable items. If a writer overpays his/her balance due (the sum of all open receivable entries), the excess amount is held and is applied (credited) when the Dues Invoice is generated for the subsequent quarter.

If a writer has not submitted payment within the four-week period, the system will generate an additional receivable for .25% of the amount owed as a late fee penalty plus a \$10 bookkeeping fee.

3.9. Special Conditions

Members are not always forthcoming as to their wages for a quarter and sometimes understate their compensation to reduce their dues liability. The WGAE has several ways of policing the declared compensation of writers. When discrepancies are discovered, the incremental earnings are recorded in the system and an additional receivable record is created for the new moneys owed.

Company data in the system may be accessed by company number or by company name. Agency records can be accessed in the same manner, while member writer records can be accessed by member number, social security number, legal name, or an associated alias name. Company, agency and writer information may be accessed by complete or partial name searches.

4. ASSIGNMENT

Students are required to develop an appropriate data model for WGAE that will support the described operations. Specifically, they are assigned the tasks of identifying the entities in the data model and then linking them through an entity-relationship diagram (ERD). Students must then create the associated list of entities and attributes showing relevant field names and keys consistent with the data modeling concepts presented in Kendall and Kendall (2002) or Hoffer et al. (2002) or other introductory systems analysis textbook.

5. CONCLUSIONS AND FINAL REMARKS

The WGAE Case has proven to be an effective instrument for teaching data modeling in a systems analysis and design class. Because of its unique features, the case is challenging and requires creative thinking by students. Additionally, it is appealing to students since it deals with the entertainment industry. The case can easily be expanded to include screen and report designs where students would develop screen and report layouts for one or more of the functional departments at WGAE.

6. REFERENCES

- Cappel, James J. "Systems Analysis and Design Case: ABC Church," *Journal of Information Systems Education*, Volume 12, Number 4, 2002, pp. 233-243.
- Cappel, James J. and Paul H. Schwager. "Writing IS Teaching Cases: Guidelines for JISE Submission," *Journal of Information Systems Education*, Volume 13, Number 4, 2002, pp. 287-293.
- Hoffer, Jeffrey A., Joey F. George, and Joseph S. Valacich. *Modern Systems Analysis and Design*. 3rd ed. Upper Saddle River, NJ: Prentice Hall, 2002.
- Kendall, Kenneth E. and Julie E. Kendall. *Systems Analysis and Design*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 2002.
- Writers Guild of America, East Inc. Annual Statement 2001-2002.*
- Writers Guild of America, East Inc. Writers Guild of America Directory of Members*, 1999.

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