

Teaching Case

Directors Guild of America Health Plan Eligibility: An IS Analysis and Design Case

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ABSTRACT

The value of case studies and other active learning methodologies for teaching systems analysis, database design and program design have been acknowledged and empirically demonstrated. Appropriate case studies challenge students to think analytically and apply information systems concepts and tools to real-world situations. This paper presents a case study that facilitates students to hone their skills in developing data flow diagrams, data modeling, normalized data design, user interface design and modular program design. The case is well suited for a course in Systems Analysis and Design, Database or a course dealing with information systems Applications Development. Students are required to utilize their data flow, modeling and design skills to develop an appropriate data and program structure for the Directors Guild of America Health Plan. While the case realistically details the requirements for health coverage eligibility at DGA Health Plan, other system requirements have been simplified so that the case is not overwhelming. Student feedback indicates that the case is realistic, engaging and challenging without being excessively complex. The case has been used successfully as both group and individual projects. Suggested student deliverables include data flow and normalized entity-relationship diagrams, screen and report layouts, program structure chart and sample pseudo code.

Keywords: Case study, Entity-relationship modeling/diagram, Normalization, Program assessment/design, Structured Query Language, Systems analysis and design, User requirements.

1. BACKGROUND

The Directors Guild of America Health Plan was founded in 1969 to provide health insurance coverage for eligible Directors Guild of America (DGA or Guild) union members and their beneficiaries. It was a natural extension of the original DGA Pension Plan that had been instituted in 1960 to provide retirement and disability benefits for the DGA members as part of the effort to provide additional services to workers in the growing media industry. Although the DGA Health and Pension Plans (DGA Plans) are two are different legal entities, they occupy the same facility with common management and shared information systems.

Today, the DGA union represents more than 14,000 members throughout the U.S. and abroad. The Guild is headquartered in Los Angeles with satellite offices in Chicago and New York. The union itself was first established in 1936 with the charter of protecting the creative and economic rights of members working in feature film, television, documentary, and other media. DGA members include Directors, Assistant Directors, Unit Production Managers, Associate Directors, Stage Managers and Production Associates. The DGA negotiates collective bargaining agreements with entertainment production companies. These agreements make various

stipulations covering pay and working conditions for DGA members, and require that all those employed in the relevant fields on a film/show/project made by that company are Guild members. DGA members are generally prevented from working for companies that have not signed an agreement. Stipulations in current agreements include requiring signatory companies to make monthly contributions toward the health and pension benefits for any DGA member they employ. The DGA union office is located about five miles from the DGA Plans office. The DGA Plans are totally separate from DGA union although some information is exchanged.

This case focuses on the core IS applications development concepts of i) data flow diagramming, ii) database design, iii) user interface design, and iii) program design. It provides a test bed to turn what students had learned of these concepts in class into practice through analysis and design of a system that will support the DGA Plans in its efforts to collect funds from production companies earmarked for providing health insurance coverage and pension benefits of DGA members. The system will also determine which DGA members are eligible for health benefits. DGA Plans purchases health insurance policies from Anthem Blue Cross for eligible members and their spouses, domestic partners and any dependents who are under 26 years of age.

2. CASE DESCRIPTION

2.1 DGA to DGA Plans Electronic Data Interface

The DGA manages the union's membership activities and provides services that facilitate employment opportunities for directors. It also enters into agreements with production companies covering rules of employment. DGA Plans, on the other hand, focuses on managing pension and insurance coverage for union members. In its operations, DGA Plans depends on DGA for up to date information on both production companies and membership rosters. This information is currently provided through Electronic Data Interchange (EDI). The process is described in more detail in the following Sections 2.1.1 and 2.1.2.

2.1.1 Production Companies: There are approximately 2,000 film, television and other media companies, both large and small, that have signed agreements at some time during the history of the DGA. Any production company wishing to employ DGA members must first sign such an agreement with the DGA. The company/employer is required to provide information regarding company name, signatory officer, address, contact information, phone number, email and federal tax identification. There are several different types of agreements depending upon the media and type of project. These agreements include Basic, Commercial, Documentary, Freelance Live and Tape, Network, etc. They specify the salary, wage increases, working hours, overtime rules, holidays and vacation, layoff, and seniority rules.

After the DGA union office receives the signed agreements from the production company, if approved, the agreement is cosigned and executed. The company is, thereafter, referred to as a Signatory Company. Data on all Signatory Companies is automatically downloaded from the DGA to the DGA Plans on a daily basis through electronic data exchange. The downloaded information includes the company ID number (assigned by DGA), company name, address, contact name, contact phone number, etc.. Also included is an entry for every agreement the company has ever signed that includes the agreement ID, agreement type, sign date, effective from date, and effective through date, and required pension and health contribution percentages. A company may have multiple agreements in effect at the same time covering different media.

2.1.2 DGA Membership: Individuals planning to work for Signatory Companies as directors or other DGA covered positions must join the DGA by submitting a completed application. Upon validation of the information provided by the applicant, the individual is approved to join the DGA union. A six-digit membership number is automatically assigned to each director. Other information captured by DGA and transmitted to DGA Plans on a daily basis includes name, social security number, employment category (director, associate director, stage manager or program production assistant), status (active, withdrawn, deceased, suspended, etc.), date of birth, and date joined. Member address information is not shared between the DGA and the DGA Plans.

2.2 Report of Contributions

Upon completion of the process discussed in Section 2.1.1, the

signatory company can employ the individuals who have joined the DGA as described in Section 2.1.2 and produce films, television series or movies, commercials and other media projects. All companies must send a Report of Contributions each month to the DGA Plans showing all compensation paid to individuals working in DGA covered jobs along with a check payment for the withholdings and contributions due to the DGA Plans. A copy of the report format is shown in Figure 1.

DGA members are paid directly by the companies who withhold employee pension deductions that are sent to the DGA Plans office. Employers are also required to make contributions to each DGA member's health and pension benefits. The Report of Contribution forms are available at www.DGAPLans.org under the Producers tab. There is one form for each type of agreement but the required data fields are essentially the same. The requirements for the Network Agreement – Non-Entertainment (Figure 1) will be used for this case. The top of this form has basic information on the company filing the statement. The report also includes specific data on each DGA union employee receiving compensation that month. This information includes employee last name, first name, middle initial, social security number, type of work (Director, Stage Manager, etc.), project or episode title, period worked (from - through date), total days worked, gross compensation, employee pension contribution, employer pension contribution and employer health contribution. The current contribution rates are 2.5%, 5.5% and 8.5% of gross compensation for employee pension, employer pension, and employer health contribution respectively. These rates change periodically based upon union/production company negotiations typically every 3-4 years. The report may contain contributions for a member's work that was completed during a prior period if such work was overlooked during the preparation of the original report or if an audit by the DGA Plans discovered a compensation error.

Each Report of Contribution is reviewed for accuracy and completeness by the DGA Plan employees. A report that does not meet these requirements is returned to the company as report exception. The contribution's distribution to each individual member listed on the report is then recorded in the data base. The compensation paid to members will determine if they will receive health insurance coverage as described later in Section 2.4. DGA Plans is responsible for making sure that companies contribute the appropriate amounts for each member's health and pension benefits. The check number, check date, check amount, processor, etc. of each valid contribution receipt is captured by the information system. The deposit date and deposit reference number are also added later when the check is taken to the bank.

Any funds received from a non-signatory employer as well as out-of-balance reports and checks are returned to the paying company as report exceptions. The daily electronic data interchange updates received from the DGA which maintains the status of all current signatory companies helps to identify such rogue employers.

2.3 DGA Plans Enrollment

When a member appears for the first time on a Report of Contributions, he or she is sent a DGA Plans Enrollment Questionnaire, as well as informative materials including Health Plan and Pension Plan booklets. The questionnaire requests the

Directors Guild of America—Producer Pension and Health Plans Contributions Report Form
 For projects produced on or after July 1, 2011 under the Network Agreement (do not use for commercials or projects produced under other agreements)

DGA-PRODUCER PENSION & HEALTH

Employer Information				Report Information			
Employer Name		Contact Person		Total Contributions Reported <small>(Note 1)</small>		Liquidated Damages/Interest <small>(Note 2)</small>	
Address		Phone Number		Check Number		Date Report Prepared	

Employee Information				Project Information				Salary		Contributions to be Sent by Employer		
Last Name	First Name	Cat Code	Social Security Number <small>(Note 3)</small>	Project and/or Episode Title, Residual Run #, Clip Title	Res Flag <small>(Note 4)</small>	Work Period Begin Date	Work Period End Date	# of Work Days	Paid or Accrued	Employee Pension 2.5%	Employer Pension 5.5%	Employer Health 9.5%
TOTALS									\$	\$	\$	\$

Please make checks payable to DGA—PRODUCER PENSION & HEALTH PLANS, INC. and mail to:
 DGA—Producer Pension and Health Plans
 8436 W 3rd St Ste 900
 Los Angeles CA 90048-4189
 Attn: Contributions Department
 If you have any questions regarding this form you can contact us at (323) 866-2200, ext. 567 or toll-free at (877) 866-2200, ext. 567. Our fax number is (323) 653-2375.
 Additional copies of this form are available online at www.dgaplans.org/producers.

For Administrative Use

Producer Number

Reference Number

Entry Date

Prepared By

List of Valid Category Codes

Associate Director: AD
 Associate DR/Stage Manager: AM
 Network Freelance Director: ND
 Network Local Director: NL
 Network National Director: NN
 Network Staff Director: NS
 Production Associate: PA
 Program Production Assistant: PP
 Stage Manager: SM

Notes

1) Contributions are due by the last day of the month following the month that compensation is earned or accrued.
 2) The greater of liquidated damages or interest will be charged for late contributions.
 3) A Social Security Number is required. Federal ID numbers are not acceptable.
 4) For residuals, clips or excerpts, mark "Y" in the Res Flag column. Fill in the date of the residual check in the Work Period Begin/End Date fields. Contributions should be calculated at the rates/cellings in effect when principal photography commenced.

Figure 1 Report of Contributions
 (www.DGAPlans.org/Producers)

full legal name, SSN and all pertinent addresses for the director. For each address, the system records the address type (e.g. home, business, business manager, accountant and attorney), address1, address2, address3, city, state, zip code, country, phone, and email address, as well as the date range during which this address is in effect. Many successful directors have personal business managers and so the system has to support addresses such as: Al Hitchcock, c/o Tom Manager, ABC Business Management, 123 Avenue of the Stars, Century City, CA 90210.

The questionnaire also requests the first, middle and last name of all dependents, their gender, date of birth, deceased date (if any) and relationship to the member (spouse, domestic partner, son, daughter, etc.).

Three categories of mailings are sent to members: i) health plan eligibility and coverage cards, ii) explanation of benefits for adjudicated health claims and iii) newsletter/informational. The purpose of these categories is to allow different types of mail to go to different addresses as specified by the director. For example, a director may specify that explanation of benefits should be sent to a business manager while health coverage cards and newsletters should be sent to a residence. Periodically, members inform the DGA Plans of dependent and address changes which are recorded in the database.

2.4 Health Plan Eligibility

The DGA Plans provide two levels of health insurance: the DGA Choice Plan (Plan A) and the DGA Premier Choice Plan (Plan B). The services covered under each of these plans are the same with the only difference being the applicable non-network

out-of-pocket limit and co-insurance for each plan. The DGA Plans determine health plan eligibility on a quarterly basis (January 1, April 1, July 1 and October 1). When an individual becomes eligible, one year of free health coverage is awarded in the plan for which they qualified.

2.4.1 Initial Eligibility: Initial eligibility for a member will begin one quarter after he or she earned the minimum threshold compensation, currently \$33,400 – \$103,999 for Plan A and \$104,000 or more for Plan B, in a 12 month period. For example, if a director’s first job paid \$60,000 in December of Year 1, then that person would receive Plan A health coverage from April 1 of Year 2 through March 31 of Year 3. Alternately, if a director earned \$30,000 in January of Year 1 and \$30,000 in December of Year 1, then the same one year Plan A coverage would be provided beginning in April 1 of Year 2. An eligibility notification is then sent to the member. Subsequently, the coverage cards are also processed and sent.

2.4.2 Subsequent Eligibility: The system will select directors whose coverage year ends at the end of the current quarter to determine if enough compensation has been earned to continue coverage. For example, if a director’s current coverage expires in September 30 of Year 4, the earnings between July 1 of Year 3 and June 30 of Year 4 sum to \$104,000 or more, an additional year of coverage would be provided in Plan B. If the sum is between \$33,400 and \$103,999, an additional year of coverage would be awarded in Plan A. If the sum is below \$33,400, no free further coverage would be provided. Changes in plan eligibility and updated coverage cards are sent to members as

needed.

2.4.3 Certified Retirees: Directors who are at least 60 years old who have 20 or more quarters of earned coverage and who have retired and taken a pension retirement from the DGA Plans receive free Plan A coverage for as long as they live. The spouse, domestic partner and qualified dependents of deceased certified retirees also receive free Plan A coverage.

The DGA Plans electronically transmits a list of all covered directors, their dependents, their coverage (Plan A or B) and the address indicated for adjudicated claims to Anthem Blue Cross. Doctors, hospitals and others who provide health services for DGA covered patients send their invoices directly to Anthem Blue Cross who adjudicates and pays the claim and sends a copy of the explanation of benefits to the address specified by the director.

3. ASSIGNMENT

Based on the information provided in Sections 1 and 2, students are required to submit a report that should cover the following outputs:

- i. A set of Data Flow Diagrams (DFD) at Context and Level 0. In addition, two Level 1 diagrams showing decomposition of the Level 0 processes, (a) Contribution & Distribution, and (b) Dependent updates.
- ii. A 3NF Entity-Relationship Diagram (ERD) with Data Dictionary.
- iii. A screen design displaying relevant data fields that will help a DGA Plans employee verify if a certain dependent of a director or dependent is eligible for coverage (typically, while responding to an inquiry from a health provider).
- iv. A report design showing list of production companies whose agreements are about to expire in the next 30 days grouped by company. The report should contain the relevant company, agreement, expiration date fields sorted by date.
- v. The SQL query that will extract the required data for the report in (iv).
- vi. A Program Structure Chart showing hierarchical relationships showing the functional modular architecture with input, control and output data being exchanged.
- vii. Pseudo code for determining initial insurance coverage eligibility of a new member. This code will be used inside the Process Questionnaire module.
- viii. A decision table that is equivalent to (vii) above.

The DFDs submitted by students should demonstrate their ability to extract relevant data from the descriptions provided in the case. The diagramming conventions followed must be consistent with information systems development standards covered in standard textbooks. Examples of such textbooks are, Kendall and Kendall (2011) and Hoffer, George and Valacich (2011). Finally, student must show they can piece together the processes in Level 1 of the DFD into a modular program structure for the entire application that will efficiently meet all user information requirements.

4. CONCLUSIONS AND FINAL REMARKS

The DGA Plans Case has proved to be an effective instrument for teaching data flow diagramming, data modeling, user interface design, and top-down program structure design in a systems analysis and design class. The requirements articulated in the case are accurate depictions of the real requirements included in the DGA Plans actual information system. To keep the case tractable, not all of the actual requirements were included. Omitted major modules that are in the actual system include: COBRA insurance premium self-payments by directors who have lost earned coverage, carry-over eligibility for high earners, health claim adjudication (the DGA Health Plan is self-administered and actually adjudicates and pays health claims for its members and reports the results to Anthem Blue Cross), pension vesting, pension benefit calculation, and pension payroll. The case is challenging and requires creative thought by students and is interesting to the students since it deals with the entertainment industry.

5. REFERENCES

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ISSN 1055-3096