

Teaching Case

Teaching Case TheatreWorks of Southern Indiana: A Database Design Case

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Abstract

Case studies allow for in-depth exploration of multi-faceted issues found in real world information system development projects. The TheatreWorks of Southern Indiana case examines the requirements of a local community theatre group as it strives to incorporate and leverage database technology in a unique non-profit performing arts setting.

Keywords: teaching case, systems analysis and design, data flow diagram, data dictionary, relational data model.

1. CASE INTRODUCTION

Thespian aficionados in and around New Albany, Indiana are anxiously awaiting the return of live community theatre with the inaugural season of TheatreWorks of Southern Indiana (TOSI) slated for this fall. TOSI is a non-profit theatre company committed to creating a performance space for local artists, providing performance opportunities for actors and technicians, offering quality entertainment to the community, and promoting the education of the cultural arts in the region for both youth and adults. TOSI has procured a multiyear lease for the 7,500 square foot Historic Indiana Bank Building located in New Albany, Indiana. The building was originally constructed in 1837 and has recently been renovated to accommodate the theatre performance requirements of TOSI. The

facility now has a thrust stage (also known as a platform stage or open stage) that extends into the audience on three sides and is connected to a backstage area on its upstage end. Instead of fixed seating for the audience, the facility can accommodate up to 400 regular chairs that are typically arranged in 20 rows in front of the stage. This layout provides for an intimate theatre experience and there really is not a bad seat in the house. The acoustics are excellent for a structure not originally designed as a theatre.

2. CASE REQUIREMENTS

Currently, TOSI manages its data using an outdated computerized database system and spreadsheets. TOSI executives and management realized the need to update the system, expanding the basic database operations to

support analytics and facilitate email communication with related parties. TOSI approached Tech Work Solutions (TWS), a local Information Technology (IT) consulting firm that specializes in guidance for non-profit and small business operations. TWS employs many college students through its extensive internship program which has proven to benefit all parties involved including client organizations, student interns, sponsoring universities, and TWS.

After several meetings, TOSI decided to hire TWS to assist with the information system redesign. TWS consultants have begun gathering information about TOSI operations and data requirements. A group of student interns is to serve as system analysts responsible for designing an integrated data structure that meets the operating requirements of TOSI.

3. OPERATIONS AND DATA REQUIREMENTS

Each year, TOSI's Production Planning Committee creates a production agenda, outlining the schedule of performances, workshops, and special events. The operations and data requirements are summarized in this section.

3.1 Productions

Each season, TOSI will present several productions using artistic talent from the local community. A season will run from the fall of one year through the summer the next year. Productions are plays (musicals, comedies, dramas), workshops and special events that are held at the TOSI facility. The anticipated agenda **for TOSI's season this year include six plays**, four workshops and two fund raising events (a silent auction and a concert). Moving forward, TOSI is also considering the possibility of renting its facility to other organizations for meetings/parties on dates that the building is idle and the new system should be able to incorporate this new source of revenue

The information system needs to retain the name of each production, its seating capacity and its ticket prices. Performing a copyrighted work usually requires the payment of a variable licensing fee to a representation agency. Some productions require the rental of special sets, props and costuming that are too difficult or impossible for local individuals/volunteers to procure or manufacture. Thus, the costs associated with the production vary and are the reason for the variation in ticket prices.

Each production will have a set of announcements associated with it that are posted on the TOSI web page. These announcements include the date and time of casting calls, rehearsals, and other pre- and post-production meetings. A description of the activity is also included in the announcement.

3.2 Performances

Each production will have one or more performances. Plays usually have 15 performances spread over a six-week period, whereas workshops usually have one or two occurrences. Special events are usually one-time affairs, but this can vary. The system will maintain the dates and times of the performances.

There is no assigned seating for the performances so the system needs to keep track of the total tickets sold for each performance to assure that ticket sales do not exceed the seating capacity for each performance.

3.3 Key Stakeholders

Patrons, production staff, and theatre staff are examples of key stakeholders who interact with TOSI and they need to be tracked by the system.

Patrons are the buyers and potential buyers of tickets for performances of productions.

Production staff are those individuals who work directly on a production itself and are responsible for the artistic success of the show. Production staff job titles where most of the work effort is done pre-performance include producer, director, lighting designer, costume designer, sound engineer, music director, and choreographer. Production staff job titles where most of the work is done at the time of the performance include actor, audio technician, dancer, lighting technician, musician, stagehand, stage manager, and wardrobe supervisor.

Theatre staff are individuals not directly associated with the production itself but must be present at each performance for it to be a financial and an operational success. These jobs include ticket agents (also called box office staff), ushers, snack bar workers and janitorial help.

These job classifications are not mutually exclusive. It is likely that a play director (production staff) of one play will also be a season ticket holder (patron) and could be an usher (theatre staff) on occasion. In community theatre, everyone contributes whatever is

necessary to get the job done. The database must contain the name and address of each person with the capability of multiple phone numbers and email addresses.

3.4 Announcements and Notifications

The community members are excited about the opening of TOSI and want to receive news about upcoming productions. Most prefer email notification but there are some individuals (mostly elderly) who request mail notification only.

Upon hearing the announcement of TOSI's season, actors, dancers, musicians, and other artists immediately contacted TOSI requesting that they be notified about any upcoming opportunities to perform and assist. There are usually separate casting calls for actors, dancers, and musicians.

There are also the equivalent of casting calls for other skills such as set designer, lighting technician, etc. The system should be able to capture the interest area of any artist/technician. Individuals can be on as many notification lists as they wish. The database structure must maintain a file of those people who want notifications and their interest areas.

3.5 Ticket Sales

Because there is no assigned seating for the performances, the system needs to keep track of the total tickets sold for each play, workshop, and special event to avoid overbooking.

Tickets have three levels of pricing: adults, seniors (60 + years of age), and students, and the ticket typically cost \$20, \$17 and \$15 respectively.

The first priority for ticket purchases goes to season ticket holders. Season tickets go on sale from March 1 through July 31 annually. Season ticket purchasers receive tickets for all of the plays for that season and the season ticket price is the total of the regular price of the tickets – less a 10% discount. The season ticket holder specifies the number of each category of ticket being purchased (adult, senior, or student) and selects the date and time for each performance for the season at the time of purchase. TOSI then delivers the tickets for all of the performances to the season ticket holder.

Individual performance tickets are available for sale at the regular price starting August 1. Patrons wishing to purchase tickets may do so through the web site or by contacting the box

office by phone or in person. Internet or phone sales can be paid by credit card, PayPal, or by direct funds transfer.

The box office opens 2 hours before each performance where cash and check payments are also permitted. All ticket sales are final, no refunds or exchanges are permitted once the tickets are issued to the customer. Tickets for workshops and special events are sold like individual performance tickets for plays. A copy of ticket sales receipts is kept at the Accounting Department for financial reporting purposes.

3.6 Sponsors

TOSI is fortunate that the local community has financially supported it from its conception. Individuals and companies have contributed to **TOSI's current sound financial footing. Sponsors** are patrons who have made a donation of \$1,000 or more to TOSI. At the present time, the sponsorship designations are for only one season. There are three levels of support: Platinum, Gold, and Silver. Currently, donors who make a gift of \$5,000 or more are classified as Platinum sponsors and receive 8 season **tickets to the current season's productions** as well as other perks. Donations of \$2,000 - \$4,999 classify the patrons as Gold sponsors and includes 4 season tickets. Donors providing \$1,000-\$1,999 are categorized as Silver sponsors and receive 2 season tickets. If the sponsor wishes, their name could be printed in all the programs that are distributed to the audience at show time. Table 1 summarizes the sponsorship levels and pertinent information.

Sponsorship Levels	Donation Amount	Tickets
Platinum	More than \$5,000	8
Gold	\$2,000 - \$4,999	4
Silver	\$1,000 - \$1,999	2

Table 1 Sponsorship Levels

Donations to TOSI are tax deductible, excluding the fair market value of items received by patron, e.g., tickets, other perks (Tax Code 501 (c)(3)). The system will provide tax receipt documentation to donors who provide their tax IDs and a copy of the donation receipt is kept at the Accounting Department.

3.7 Production Staffing

Every year, TOSI's Production Planning Committee determines what productions and events will be held in that season and an individual is assigned as the event leader (in the case of plays, it is the director) for each activity. The event leader will then determine which job

positions are required to successfully complete the production. The notification functionality of the system will be utilized to publish these job openings. Hopefully, there is sufficient voluntary response to fill all job positions, but sometime direct recruitment is required. The event leaders hope to utilize the system to review the interest areas and contact individuals to fill these jobs.

Alternately, casting calls can be utilized. The announcement capabilities of the system may be employed to announce casting calls on the TOSI website. Also, all individuals interested in a specific notification interest area can be emailed concerning the dates, times, and specifics of the casting calls. Casting calls with formal auditions are usually used to select the principle actors in a play.

Once the event leader assigns a person a job, this fact is recorded in the database. The data structure needs to provide visibility as to which individuals are working or have worked on which productions and in what job position. The number of production staff working on a production may vary greatly depending on the size and nature of the play.

3.8 Theatre Staffing

The show cannot go on without the assistance of many volunteers. Volunteers make up almost all of the ushers, snack bar workers, and other theatre staff. Play performances are usually held in the evenings with some matinees in the afternoon. Workshops are often in the morning but sometimes go all day. The system needs to maintain a file of all people that are willing to volunteer for theatre staff tasks. Further, the system must record the type of job they are willing to do, as well as the days of the week and time that they are available. For example, a person may state that they can volunteer as an usher on Tuesday, Thursday, and Friday nights from September to October of the current season.

TOSI management is responsible for making sure that there is sufficient theatre staff for a given performance. They also contact the volunteers and schedule them for the required jobs at a specific performance. The system needs to be able to quickly display the theatre staffing for each performance for management review.

3.9 Miscellaneous Requirements

In addition to the basic operations describe in the previous sections, the new information

system should be able to produce the following documents:

Funds Receipt Report

This report should include all funds receipts by date and by type of payment, i.e., cash, checks, credit cards and bank transfers.

Production Receipts Report

This report should show all funds receipts by performance for each production.

Email Blasts

This feature will be used to promote TOSI communication with the community as well as targeted individuals. TOSI hopes to be able deliver email based on interest area to the appropriate person, e.g. season ticket holder, platinum sponsor, individuals who have had the job of stagehand, etc.

Mailing Labels

This feature serves similar purpose to the Email blast but will be used for people who have opted for mail notifications.

Donor Acknowledgement Letters

As required by the IRS, TOSI must document donations over \$250 in a letter to the donor.

4. DELIVERABLES

System analysts from TWS should develop initial data flow diagram and relational data model. The primary deliverable of this assignment would be an efficient relational data model for a database that may be used to support current and future theatre operations.

TOSI is also interested in using information from the database along with analytics to help with decision making. Although not the highest priority, TOSI would like the new system to be **'analytics ready.'** Examples of analytical capabilities include the ticket sales and seats prediction, staffing availability, and donor engagement. When designing the system, TWS consultants should take into account the analytical potential and how the information system should be designed to help TOSI make the most out of its data.

5. CONCLUSION

TOSI's mission is to provide residents in its local area with the ability to experience quality theater at affordable prices. TOSI will create opportunities for individuals to explore their creative side regardless of age, experience, and background. The design of an efficient data

structure to support TOSI operations will be immensely helpful in fulfilling these goals.

6. REFERENCES

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