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Fall 2003

### [Database Driven Possibilities: LACASIS Workshop](#)

*By Dudee Chiang*

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### [Databases 101 – Technical Overview: LACASIS Workshop](#)

*By Louisa Verma*

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### [Database-driven Websites Panel: LACASIS Workshop](#)

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### [Unique Applications Of Databases: LACASIS Workshop](#)

*By Marcia Henry*

Panel presenters, David Yamamoto, from UCLA, David Walker, from California State University, San Marcos, and Tracy Mayfield, from California State University, Long Beach, described unique applications of databases. [ [more](#) ]

### [News From Our Members](#)

**The UCLA Department of Information Studies**, UCLA Grunwald Center for the Graphic Arts, the California Digital Library and partners from California cultural institutions received \$337,542 from the Institute of Museum and Library Services to support evaluation of digitized museum collections in education and research. The project, titled Museums and the Online Archive of California User Evaluation, will examine the usefulness of digital resources for K-12 teachers, university students, academics in the humanities and social sciences and museum professionals, librarians and archivists. Anne Gilliland-Swetland, UCLA Department of Information Studies, will lead the evaluation team in this ambitious two-year research project. LACASIS member Layna White, of the Grunwald Center, is project manager.

**Karen Howell** was accepted to the Frye Leadership Institute, a selective two-week program jointly sponsored by CLIR, EDUCAUSE, and Emory University. The Frye Institute brings together individuals from libraries, information technology divisions, and faculty departments in all types of academic institutions—from

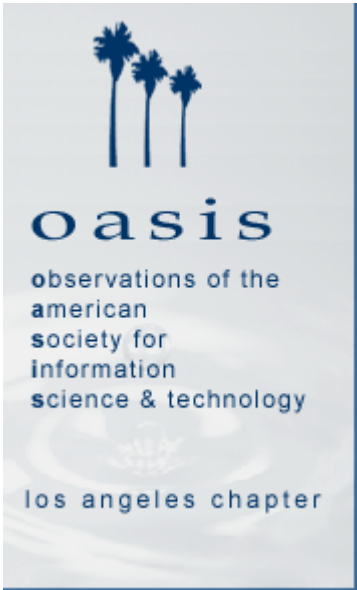
[Lessons Learned; Hit and Hurdles: LACASIS Workshop](#)

*By Judy King*

Following the afternoon break, the panel discussion topic was "Lessons Learned; Hit and Hurdles." In the first presentation Theresa Liedtka, from California State University, Fullerton's Pollak Library, spoke of a few hurdles that their library had with their website. [ [more](#) ]

community colleges to large research universities. Identified as prospective information-management leaders by higher-education institutions large and small across the country, the attendees will spend two weeks considering changes that colleges and universities are undergoing and requirements for their leadership.

**Ray Larson** was promoted to full professor at UC Berkeley. He was also elected a fellow of the American Association for Advancement of Science.



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Dr. Samantha Hastings, from University of North Texas and ASIS&T Incoming President, set an energizing tone for the daylong workshop. She began her talk by discussing "why bother with a database?" then gave some technical insights, and closed with a couple examples. Throughout the presentation, she also advocated the use of open source codes, and every speaker afterwards all discussed their perspectives regarding open source.

### Why bother with a database?

Four reasons were given in response to the question, "why bother with a database?" First and foremost, users expect smart interactivities. The best examples of interactivities are game websites which all have databases at the backend. Second, having a database makes routine maintenance and updating much easier; and, better preservation and migration is the third reason for using databases. Hardware and software will change, and data need to be preserved and migrated. Finally, metadata loves databases!

Three commonly seen suffixes were shown and their origins, strengths and weaknesses were explained:

1. .asp Microsoft Active Server Pages
2. .cfm Macromedia Cold Fusion Markup
3. .php open source, Hyper text Preprocessor

Dr. Hastings demonstrated two projects. Each web site is database driven and has an interesting collection and story behind it.

### Texas Fashion Collection

<http://www.art.unt.edu/tfc/tfconline.htm>

To all the fashion aficionados this is a collection of more than 4900 records of fashion items from Mrs. Nieman Marcus. The database was created with ColdFusion, and is searchable by item type, designer, keywords, etc. Images were linked to the record whenever they were available. A future for this database is to enable the user to rotate the images in order to see each article of clothing from all perspectives.

### Sepia Photo Archive

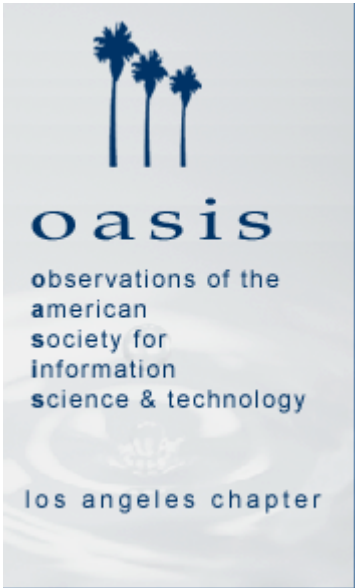
<http://digitallab.lis.unt.edu/research/sepia/>

This archive has more than 50,000 images of people from the South,

before and around the time of Civil Rights movement. More than 10,000 of the images have been scanned and put on the Web so far, but the indexing has yet to be accomplished. Library school students at the University of North Texas are working with local high school students in show the photos to seniors in the community to see if they can identify any of the people, objects, or locations associated with the images. The data is then entered into a database created with open source codes.

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## Databases 101 – Technical Overview: LACASIS Workshop

By Louisa Verma

Barry Mednick's quick overview of the technical aspects of database creation was very enlightening, not only for the "newbie" database builder but also as a back-to-the-basics look at database construction for those who have been building databases for a while. Mednick reminded us: "data is the most important." Although that seems obvious, sometimes the most obvious is the most overlooked. So repeat, "data is the most important" to yourself like a yoga mantra and all will be well with the database gods.

With good and useful data and a hearty database management system (the software that will store your data and all sorts of other good things) you will have "data independence." And you thought you controlled your data, didn't you? Actually, having independent data is a good thing. It means that you can change things to suit yourself, or your clients, without having to rip your hair out in the process. If you need to change a data definition, you can do so without having to change the code. If you feel like altering the code without changing your data, again, you can! Finally, if you need to move or split data without changing the code, guess what...you can. I guess you could say that, with data independence, you actually have more control over your data, who'da thunk it?!

### Database Relations

In relational databases, tables are all the rage. A table, sometimes referred to as an "entity" or "relation", is composed of rows, which represent a record, and columns that represent the data attributes (a.k.a., fields). In a perfect database world, each row is unique and each column has entries of the same type. Order, however important to you personally, is not important in database table rows and columns. However, as you might have guessed, relationships are important in a relational database. The three types of relationships are "one-to-one", "one-to-many" and "many-to-many". Examples might be student to social security number (1-to-1), speaker to audience (1-to-many), or students to books (many-to-many). Why should we care what relationships data has with other data? Because we want to minimize data redundancy and we can do this by creating separate tables that are connected through the use of unique identifiers that point to data in a different table (a.k.a. "primary keys" and "foreign keys") Say what?!

I think an example is in order. Take the likely scenario of many students having many classes. We want to be able to record the students' attributes (name, age, ssn, phone, address, etc.) and we want to also record class attributes (students taking, faculty teaching, classroom number, day, time, and so on) in our database. If the SSN is used as the

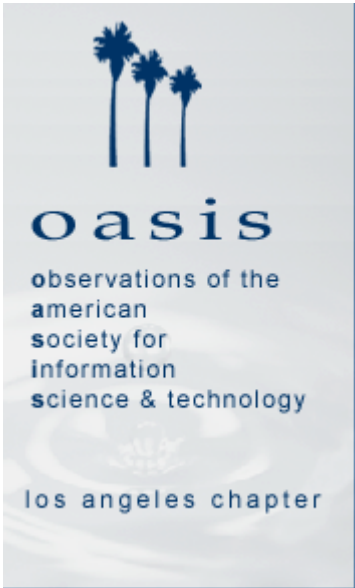
unique identifier (that is, primary key) in the student table then it can be used to point back to the student table in the class table. Therefore, we can store which students are in what classes without repeating data. When a primary key in one table is used to point back to the table from another table that is called a "foreign key." In short, by using primary and foreign keys, as such, the students' attributes do not need to be repeated in the class table, nor do we have to repeat the students' data in the student table just because each student is taking many classes.

### **Database Administrators**

Mednick went on to briefly discuss Object Oriented Databases, Normalization and SQL as well as issues such as Concurrency (keeping your data secure and clean when you have multiple users) and Deadlocks (when two users are both waiting to edit/update each others' records). These are all serious concerns for the DBA, or Database Administrator, a highly paid professional who must wear a beeper and have a willingness to work at all hours of the day or night. Alas, if you are interested in these aspects of databases, I recommend having a friendly chat with your local DBA. Perhaps you could pop in on her or him during a 4:00-6:00 a.m. system maintenance session, just be sure to go with hot coffee in hand.

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## Database-driven Websites Panel: LACASIS Workshop

By Margaret Hogarth

The first panelist to present was Erik Adams, currently the Electronic Services Librarian for Sheppard, Mullin, Richter & Hampton in Los Angeles. Formerly, he worked for PETSMART.com on the design, creation and maintenance of their initial web site. His experiences with the PETSMART website was the focus of his presentation.

### PETSMART

In July 1998, the PETSMART.com web site went live. Everything was served through a database. In a database-driven web site, the web server queries and posts data to and from the data server: the display of columns, sub zones, menus, ads, images and text content were all produced by the database. Consequently, the original PETSMART.com site was tremendously slow due to the fact that each web page took at least 12 database queries to render a page. Each transaction required the work of the data server. The result was really slow performance and slow performance does not endear one to one's web-savvy customers. If the database is slow, customers will go elsewhere. Even if the web site content is unique, if the site is slow, customers will be unhappy. Although a hardware investment can solve this problem, for a dot com without a lot of funding to throw around that was not feasible.

Due to his experience at PETSMART, Erik made the recommendation to not rely solely on the database in a database-driven web site. In order to fix this time-challenged site, they needed to reduce load on the data server. They innovated a work-around that would create a division of labor, dividing the content of the site into two kinds of pages: dynamic pages that were served through the database and static pages that were not. For static information, such as article pages and catalog content, as much content as possible was pre-rendered. The pre-rendered page process flows something like this: the text of non-changing articles is saved in a database, a Perl script queries the database, grabs articles, and copies the text out to the web server merging it together with the dynamic content of the database which is served up on the article page. The process is run 3 times a day (it takes 8 hours to run). Nothing is served directly from the database. This model worked because files can be delivered faster than query results. A product such as Vignette can do this for you.

Customer identification and profiling was also an objective of the initial version of the site and another use of the database. Profiling was done ahead of time through the use of online surveys that asked questions about a customers' pets: what kind of pet, pet birth date, and other product-related type questions. Additionally, as customers shopped, each transaction was recorded; from examining products and placing them in a shopping cart to whether or not those items are even purchased. The results were saved to the database and encoded, and then saved on the

browser as cookies. This allows for profile-appropriate products to be pushed to the customers the next time they visit the site. The long profiling queries to the database were run at night so as not to slow down the site during the day. The profile string is a 32-character identifier string.

The shopping cart was persistent; cookies were used to tell how many items were in the cart. This was done through server-side includes, a feature of Apache servers. A program looks at the shopping cart, provides the customer profile, and then links to login information and use. Once a visitor visits the site, a cookie checks to see if the profile cookie has been saved, then customized advertisements are served so that ad space is not wasted. Erik clarified that there is a difference between session and persistent cookies.

Abandoned shopping carts were also tracked. The system saved credit card information in a database physically distinct from the shopping cart and database of products. Customized low-priced impulse-buys, and other "overly-priced" toys, tailored to the customer's profile, are promoted on the shopping cart page. Interactive features such as a dog food calculator gave customers bonus functionality. The site was created using Oracle on the backend, server-side includes, and Sun hardware.

### **Cherry Hill**

The second panelist was Cary Gordon the founder and president of The Cherry Hill Company of Los Angeles, California. The Cherry Hill Company manages the California State Library Web site and acts as system integrator for 24/7 Reference.

It all began 10 years ago when Cary was given a stack of papers that contained the beginnings of the California State Library Web site. The first static site quickly demanded a more robust technology and dynamic content. In 1994 they bought Netscape's Server Side Job Descriptor, but found they were not able to change content as easily as they would have liked. They switched to Cold Fusion, which speed up the redesign. Cary advised that it is simpler to use a content management tool and publish on the fly. Caching is also used with their website since memory is so inexpensive. The State site uses a BroadVision enterprise system that runs in Java that is fast and big.

Another site worked on by The Cherry Hill Company is the Burbank Public Library's website. This site is fully dynamic and made with Cold Fusion. The back end content management tool has an MS Word-like editing interface. It is a static site with form data entry into the database.

Yet another website Cary talked about was the 24/7 Reference website, which used customer relationship management software from CRM that was developed to assist customers online, with support agents in one room using the same web site. For 24/7 Reference, functionality was broadened out to include librarians all over the world using many pages. Cold Fusion was used to manage the program and to build interface tools and surveys. The 24/7 Reference administration page is unique in that each item on the page is an application that allows management of a program. There is a set of policies for each library system.

As far as tools go, in Cary's opinion, PHP is free but not the best performer. However, there are a tremendous amount of resources and

Cary's helpful product matrix chart describes major tools and rates their ease of development, cost and scalability (see chart below).

The top 4 scripting programs are Cold Fusion, .Net, Java Server Pages and PHP. Program-driven applications use CGI or Java applets. These don't allow the separation of content and connectivity, separating the content from the application, the best possible design. Cold Fusion is very scalable. As it slows, add another server.

Flash began as a graphics presentation program but now has interface development capabilities. It is a plug-in that runs on most browsers. It allows the development of a rich interface.

### Server-Side Programming / Scripting Languages

Product	Major Vendor(s)	Ease of Development	Scalability	Software Cost	Notes
ColdFusion	Macromedia, NewAtlanta	5	4	3	Product cost offset by development speed. MX version is Java based and enterprise ready.
.Net	Microsoft	3	4	4	Part of Microsoft operating systems
Java Server Pages	Sun, IBM, BEA, open source	2	5	1	Preferred for enterprise applications
PHP	open source	3	3	5	Not the best performer.
Perl, Python	open source	4	2	5	Difficult to adopt to a modern development idiom. Great for fast development of specialized applications
CGI	you	1	1	4	Very difficult to scale
Java applets	Sun	2	1	4	Limited to special applications
Flash	Macromedia	2	4	3	Requires user plugin

Currently, Cary is very involved with XML; using it to build Web services.

XML allows for a true separation of content from the interface so that the same content can be presented in a web browser, email, or document. Furthermore, XML allows interfaces in different languages.

### **Webography**

PETsMART.com <http://www.petsmart.com/>

Vignette <http://www.vignette.com/>

Erik Adams [erik@earthlink.net](mailto:erik@earthlink.net)

Burbank Public Library <http://216.133.245.221/>

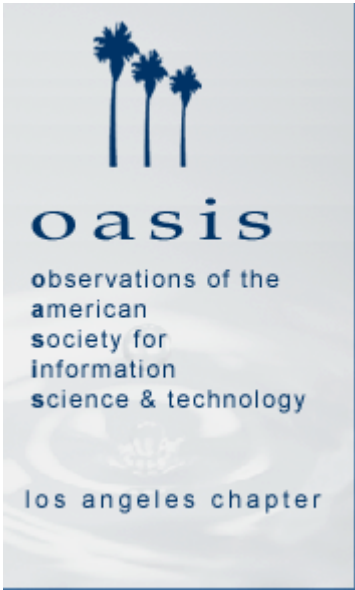
State of California [http://www.ca.gov/state/portal/myca\\_homepage.jsp](http://www.ca.gov/state/portal/myca_homepage.jsp)

CRM <http://www.cio.com/research/crm/>

Cary Gordon [cgordon@chillco.com](mailto:cgordon@chillco.com)

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## Unique Applications Of Databases: LACASIS Workshop

By Marcia Henry

Panel presenters, David Yamamoto, from UCLA, David Walker, from California State University, San Marcos, and Tracy Mayfield, from California State University, Long Beach, described unique applications of databases.

UCLA's database driven web site <http://hours.library.ucla.edu> offers hours for all the UCLA campus libraries, a visit planner that allows users to locate open libraries on any given day or time. A public services statistics tracking and reporting database features an online tally sheet for capturing data, which requires a password to view. The subject-specific library resources page generator utilizes a content management system to dynamically build lists of online and print resources from the library's OPAC and Electronic Resources Database. For more information contact David Yamamoto at [davmoto@library.ucla.edu](mailto:davmoto@library.ucla.edu).

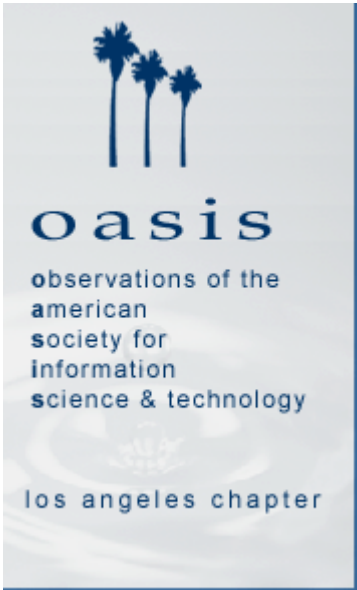
California State University, San Marcos, has several database-driven applications on its staff Web site <http://library.csusm.edu/intranet/>. The web site offers interactive staff meeting agendas and current news feeds pulled from the Chronicle of Higher Education and other sources. It was done using XML, RSS, ASP, and Access databases. The site also tracks the library's database usage statistics, dynamically displaying the results using Flash and XML. Contact David Walker at [dwalker@csusm.edu](mailto:dwalker@csusm.edu) for more details.

California State University, Long Beach, has put up a Lecture Request System using Resource Scheduler (formerly RedESoft) software, which they purchased. It runs on an SQL server 2000 and uses ASP technology. A description of the software is available at [http://www.meetingmaker.com/solutions/resource\\_scheduler/](http://www.meetingmaker.com/solutions/resource_scheduler/)

The software has two modules, the Request module and the Calendar. The Calendar advises which classrooms are booked and is accessible as a web page. The Request module for library instruction reservations is interactive and uses a date field popup with calendar. Contact Tracy Mayfield at [tmayfiel@csulb.edu](mailto:tmayfiel@csulb.edu) for more details.

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## Lessons Learned; Hit and Hurdles: LACASIS Workshop

By Judy King

Following the afternoon break, the panel discussion topic was "Lessons Learned; Hit and Hurdles."

### Cal State Fullerton

In the first presentation Theresa Liedtka, from California State University, Fullerton's Pollak Library, spoke of a few hurdles that their library had with their website:

- Original website had been decentralized, static pages with a lot of different design structures and security issues,
- The library staff did not have a venue to discuss the website,
- Certain branding was required when working in a campus environment, and,
- Library staff had many other systems projects and /or changes going on at the same time

To help with some of these issues they formed a web team, along with a web admin team to help guide the team along and to help ease the tension between the system department and reference department. Progress was slow with such a big team but on the plus side it meant that the web site become more useful for all library staff.

Michael Blyleven, California State University, Fullerton, Pollak Library, helped to develop an inventory database for the library and discussed the questions that came about when building the database:

- Should you merge the electronic resources inventory with the physical resource inventory?
- How do you maintain user permissions?
- How to maintain user accounts?

He then discussed some of the hurdles of the database project:

- Do you want to go "live" or go to a holding pattern
- Do you want to make changes that fast?
- Content is fresh, but can a "typo" slip by?

One result from such hurdles was the decision to have a staging area in order to make structural changes first before going live.

### California State Library

The second presentation was John Jewell and Kris Ogilvie, from the California State Library, who discussed their lessons learned as content

managers of the State's Portal.

Two challenges they faced were:

- One of the most Internet connected states
- The website had a lot of heavily used agencies that were confusing to clients.

County portal information architecture was discussed also discussed. Was there enough in common within the counties to have the same architecture? Some county portals had the same architecture, but had a different look and feel. The portal now has 12 counties working together.

Lessons learned:

- Times, people and conditions change
- Access to information is available through several different paths
- Using information in different databases in different ways
- Teams are smaller
- Need to adjust as web sites grow
- Agencies aided by adding information to the FAQ's part of the portal

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