THE UNIVERSITY CENTER FOR INTERNATIONAL STUDIES
INTERNATIONAL FACULTY EXPERTISE ONLINE DATABASE PROJECT

by
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This project is sponsored by the University Center for International Studies (UCIS) at University of North Carolina at Chapel Hill. The main purpose of the project is to update current International Faculty Expertise Database, which is outdated and corrupted in a mySQL database to a new Oracle database server and a new PHP web server.

Main tasks are developing a concrete plan to upgrade database application based on project evaluation; evaluating current database structure, determining specific changes that need to be made to database structure, reports, forms, and user login features; incorporating recommendations/requests from project manager, which will be gathered by the project manager from each of the Title VI center directors, UCIS was designated by the U.S. department of education as a Title VI national resource center; developing supporting application documentation for current and future users; and testing, incorporating feedback into application.

Headings:

- Database--Management--Systems
- Databases Information storage and retrieval
- Design Information systems
- Design Web databases
International Faculty Expertise Online Database

Project Background Analysis

The University Center for International Studies is one of only eight International Centers in the country designated by the U.S. Department of Education as a Title VI National Resource Center. Through Title VI, UCIS brings over $1 million in funding for international programs to UNC-CH through a three-year grant funding and activities cycle. In order to continue that funding, UCIS gathers, organizes, and disseminates detailed information about the international expertise of UNC’s faculty in a grant proposal to the US Department of Education. In addition, UCIS makes this information available to the other Title VI centers at UNC-CH, the broader UNC community, and the public.

In 2000, the Provost’s office funded a preliminary effort to create two online searchable databases, the International Linkages Database (www.unc.edu/linkages), and the International Faculty Expertise Database (www.ibiblio.org/international). When these applications were developed, both the ideas and the technology used were considered on the cutting edge. As of Fall 2002, both were deemed outdated and badly in need of upgrading. Considering that there are no available technical people who can make these upgrades and there are no database servers or web servers in UCIS. The project for upgrading the International Faculty Expertise Database became long overdue.

The main issues existing with the backend mySQL database are: 1. The database structure needs to be redesigned. Some tables like Region, Country, and noareastudyinfo should be removed. Some attributes in the tables need to be deleted. New tables need to be added. 2. Duplicate tables exist. Exper table and Experience table store the same information. So do the Public and Publication tables. 3. Three tables: Report, Report6 and Reportc are used for storing the report information. The concept of using tables to store the query information is outdated. The reports should be produced by using dynamic queries. So the three tables also need to be deleted. 4. Data in the database got corrupted. So correcting the corrupted data and migrating the data into a new database is a tedious job.

The concept of front-end PHP programming is outdated and web presentation is less satisfactory: 1. If a user makes a choice by clicking on one or more of the faculty, region, department, language dropdown lists, the information about a faculty in the search result page is piled together. It is hard for the user to tell title, education, appointment, language, experience and publications apart easily. So the presentation of the results needs to be changed. 2. In the administration page, the way to add/update/delete a faculty member is outdated. For example, in the update page, there is a “submit” button beside every text field or dropdown list. So if a user wants to update faculty information, he/she may
need to click on multi-submit button to be able to finishing the update. So just one submit button at the bottom of the form should be used instead.

The content included in this paper is the project description, Oracle database ER diagram, data dictionary, and database design explanations; Flow chart for front end PHP programming, user test case scenarios, risk management, and future enhancement. Sample reports, comparison between existing system and the new system and the project schedule are also included.

International Faculty Expertise Online Database
Project Description

Design Goals:

1. Redesign existing web-database that can be accessed through (http://www.ibiblio.org/international/) and immigrate it to www.ucis.unc.edu/databases/ directory.
2. Develop a concrete plan to upgrade database application based on project evaluation, incorporating recommendations/requests from Project Manager, which will be gathered by the Project Manager from each of the Title VI Center Directors. Some specific upgrades include:
   I. Add ONYEN login if possible, for faculty users (Second Phrase).
   II. Add keyword search (Second Phrase).
   III. Create more drop-down menus and other tools for controlling integrity of data.
   IV. Streamline the structure of the database, i.e. currently there are 3 tables that generate separate reports. These should be done through automatic queries or filters.
3. Develop supporting application documentation for current and future users.
4. Test and incorporate feedback into application.

User Group:

1. Departments:

All of the international units on campus of UNC-Chapel Hill including:

   The University Center for International Studies
   Department of African and Afro-American Studies
   Curriculum in Asian Studies
   Center for European Studies
2. People:

There are two levels of the usage of the database.

(1). All of the faculty at UNC-Chapel Hill who have a interest/experience in International Studies should be able to search for the database, add new information about themselves and update the existed information about themselves in the database. Both faculty and departments above are able to print out reports of the information in the database like the information of the entire faculty who are interested or have experience in international studies.

(2). Students, staff and public are able to search for the information in the database but not for commercial use. But they are not permitted to add/update data and are not permitted to print out reports.
ER - Diagram
Data Dictionary

1. Faculty Table

(1) facultyid:
   Definition: the unique value to delegate a faculty member
   Data type: Integer
   Constraints: Primary Key

(2) fname:
   Definition: the first name of the faculty
   Data type: Character
   Length: <=20

(3) minit:
   Definition: the middle initial or the middle name of the faculty
   Data type: Character
   Length: 12

(4) lname:
   Definition: the last name of the faculty
   Data type: Character
   Length: <=30

(5) suffix:
   Definition: First name of contributor.
   Data type: Character
   Length: <=3
   Possible values: Jr., Sr., II, III, IV, V, VI, VII

(6) telephone:
   Definition: the office telephone number of the faculty.
   Data type: Character
   Length: <=13

(7) email:
   Definition: the email address of the faculty
   Data type: Character
   Length<=50

(8) webpage:
   Definition: the address of the homepage of the faculty
   Data type: Character
   Length<=80

(9) app_year:
   Definition: the year that the faculty was appointed as faculty, professor and so on.
   Data type: Character
   Length: 4

(10) tenured:
    Definition: the status of a faculty if he/she is tenured or not.
(11) app_comment:
Definition: Any comment about the tenure and the detailed info. about the appointment
Data type: Character
Length: 200

(12) speciality:
Definition: The special research area that the faculty is familiar with or is interested in. For example, U.S. and Comparative environmental policy.
Data type: Character
Length: 2000

(13) general_experience:
Definition: the general experience that the faculty has which may include the research experience that the faculty have done in USA. For example, co-leads the CHAOS Biogeochemistry Laboratories.
Data type: Character
Length: 2000

(14) overseas_experience:
Definition: the researches that the faculty conducted abroad.
Data type: Character
Length: 2000

(15) distinctions:
Definition: Any award that the faculty achieved. For example, Phi Beta Kappa, 1973; first recipient of the Camões Prize for undergraduate excellence in Portuguese, 1975;
Data type: Character
Length: 500

(16) dissertations:
Definition: The title, year of the dissertations that a faculty member finished
Data type: Character
Length: 200

(17) latin_america_course_taught:
Definition: Any Latin-American course that a faculty member taught before
Data type: Character
Length: 1000

(18) intl_course_taught:
Definition: Any international course that a faculty member taught before
Data type: Character
Length: 1000

(19) onyen:
Definition: The onyen that a faculty member has. It’s used for the username when a faculty member
logs in.
Data type: Character
Length: 30

2. department table

(1) deptid:
   Definition: The unique id number of a department
   Data Type: Integer
   Constraints: Primary key
(2) dname:
   Definition: Name of the department.
   Data Type: Character
   Length: <=100

3. faculty_dept table

(1) facultyid:
   Definition: the unique value to delegate a faculty member
   Data type: Integer
   Constraints: Primary Key, foreign key to faculty table
(2) deptid:
   Definition: The unique id number of a department
   Data Type: Integer
   Constraints: Primary key, foreign key to department table
(3) dtitle:
   Definition: The title of the faculty hold. It is associated with the department.
   Data Type: Character
   Length: <=50

4. program table

(1) progid:
   Definition: The unique id number of a program/curriculum
   Data Type: Integer
   Constraints: Primary key
(2) pname:
   Definition: Name of the program/curriculum.
   Data Type: Character
   Length: <=100

5. faculty_prog table

(1) facultyid:
   Definition: the unique value to delegate a faculty member
   Data type: Integer
Constraints: Primary Key, foreign key to faculty table
(2) progid:
Definition: The unique id number of a program/curriculum
Data Type: Integer
Constraints: Primary key, foreign key to program table
(3) ptitle:
Definition: The title of the faculty hold. It is associated with the program/curriculum.
Data Type: Character
Length: 50

6. Center table

(1) centid:
Definition: The unique id number of a center
Data Type: Integer
Constraints: Primary key
(2) cname:
Definition: Name of the center
Data Type: Character
Length: <=100

7. faculty_cent table

(1) facultyid:
Definition: the unique value to delegate a faculty member
Data type: Integer
Constraints: Primary Key, foreign key to faculty table
(2) centid:
Definition: The unique id number of a center
Data Type: Integer
Constraints: Primary key, foreign key to center table
(3) ctitle:
Definition: The title of the faculty hold. It is associated with the center.
Data Type: Character
Length: 50

8. Institute table

(1) instid:
Definition: The unique id number of an institute
Data Type: Integer
Constraints: Primary key
(2) iname:
Definition: Name of the institute
Data Type: Character
9. **faculty_inst table**

(1) **facultyid:**
   - Definition: the unique value to delegate a faculty member
   - Data type: Integer
   - Constraints: Primary Key, foreign key to faculty table

(2) **instid:**
   - Definition: The unique id number of an institute
   - Data Type: Integer
   - Constraints: Primary key, foreign key to institute table

(3) **ititle:**
   - Definition: The title of the faculty hold. It is associated with the institute.
   - Data Type: Character
   - Length: 50

10. **Lab table**

(1) **labid:**
   - Definition: The unique id number of a lab
   - Data Type: Integer
   - Constraints: Primary key

(2) **lname:**
   - Definition: Name of the lab
   - Data Type: Character
   - Length: <=100

11. **faculty_lab table**

(1) **facultyid:**
   - Definition: the unique value to delegate a faculty member
   - Data type: Integer
   - Constraints: Primary Key, foreign key to faculty table

(2) **labid:**
   - Definition: The unique id number of a lab
   - Data Type: Integer
   - Constraints: Primary key, foreign key to lab table

(3) **ltitle:**
   - Definition: The title of the faculty hold. It is associated with the lab.
   - Data Type: Character
   - Length: 50

12. **Publication table**

(1) **pubid:**
Definition: The unique number to identity a publication.
Data Type: Auto Number
Constraints: Primary key

(2) year:
Definition: The year that the publication is published
Data Type: Character
Length: 4

(3) pub_detail:
Definition: The detailed information about a publication which includes Author(s), Title, Publisher and Pages.
Data Type: Character
Length: 500

(4) faculty_id:
Definition: The unique number to identity a faculty.
Data Type: Auto Number
Constraints: Foreign key to faculty table
(Note: Every faculty is permitted to submit less or equal to five publications.)

13. areastudy table

(1) areastudyid:
Definition: The unique number to identify an area study
Data type: Integer
Constraints: Primary key

(2) areaname:
Definition: The name of the area study.
Data type: Character
Length: 20
Possible values: Africa, Asia, Canada, East Asia, Europe, Inner Asia, International, Latin America, Middle East, Pacific Islands, Russia/East Europe, South Asia, Southeast Asia, Western Europe

14. faculty_areastudy table

(1) facultyid
Definition: The unique number to identity a faculty.
Data Type: Auto Number
Constraints: Primary key, foreign key to faculty table

(2) areastudyid:
Definition: The unique number to identify an area study
Data type: Integer
Constraints: Primary key, foreign key to areastudy table

(3) scope:
Definition: how many percent of the time that the faculty exposed into the area
study.
  Data type: Character
  Length: <=6
  Possible values: 10-25%, 25-50%, >50%

15. Language table

(1) langid:
  Definition: The unique number to identify a language
  Data type: Auto number
  Constraints: Primary key
(2) langname:
  Definition: the name of the language.
  Data type: Character
  Length: <=20

16. faculty_language table

(1) facultyid
  Definition: The unique number to identity a faculty.
  Data Type: Auto Number
  Constraints: Primary key, foreign key to faculty table
(2) langid:
  Definition: The unique number to identify a language
  Data type: Auto number
  Constraints: Primary key, foreign key to faculty table
(3) num_compet:
  Definition: The unique number to identify a competence level that a faculty has for a single language
  Data type: Integer
  Constraints: foreign key to the competence table

17. Competence table

(1) num_compet:
  Definition: ID of the competence table.
  Data type: Integer
  Constraints: Primary key.
(2) description:
  Definition: The detailed description of the competence level that a faculty has
  Data type: Character
  Length: >=40

18. State table

(1) stateid:
(2) state:
  Definition: The full name of the state in America
  Data type: Character
  Length: <=30

(3) st_abbrev:
  Definition: The two character abbreviation of a state
  Data type: Character
  Length: 2

19. University table

(1) univid:
  Definition: The unique number to identify a university
  Data type: Auto_number
  Constraints: Primary key.

(2) uname:
  Definition: The full name of the university
  Data type: Character
  Length: <=100

(3) st_abbrev:
  Definition: The two character abbreviation of a state
  Data type: Character
  Length: 2
  Constraints: Foreign key to the state table

(4) USA
  Definition: The field to determine a university is an American university or not
  Data type: Boolean
  Length: 1

20. degree

(1) degreeid
  Definition: The unique number to identity a degree.
  Data Type: Character
  Length: 1
  Constraints: Primary key

(2) name_form:
  Definition: The full name of the degree used in the web form
  Data type: Character
  Length: <=20
  Possible values: Bachelor, Master, Doctorate, Juris Doctor and Certificate

(3) name_report:
  Definition: The full name of the degree used in the report
Data type: Character
Length: <=20
Possible values: Bachelor Degree, Master Degree, Ph.D., J. D. and Certificate

21. faculty_university

(1) fuid:
   Definition: The unique number to identity a record in this table.
   Data Type: Integer
   Constraints: Primary key
(2) facultyid
   Definition: The unique number to identity a faculty.
   Data Type: Integer
   Constraints: Foreign key to faculty table
(3) uid:
   Definition: The unique number to identify a university
   Data type: Integer
   Constraints: Foreign key to the university table.
(4) degree:
   Definition: The degree of a faculty member achieved
   Data type: Character
   Length: 1
   Constraints: Foreign key to the degree table.
(5) year:
   Definition: the year that a faculty member received his/her degree
   Data type: Integer
Oracle Database Design Explanations

There are 430 faculty’s information existed in the mySQL database. To migrate the data from mySQL/Access to Oracle is a tedious job for this database. The main reasons are:

1. The data in the mySQL database got corrupted. So before I started to work on this project, the project manager has already put every field of this database into a huge Access table and the data in the Access table was claimed “clean.” First of all, because the project manager is not a technical person, so the way she put the all of data in one Access table caused the difficulty to fulfill the migration. For example, if there is a person in the faculty who can speak seven languages, then all of the names of the seven languages and the degrees of fluency (scale from 1 to 5) were put into a single field called language in Access. As we know, if there are multi-values in an attribute, we need to build a separate table for all of the values and add the primary key in the main table to keep one field one value in our relational database concept. So when I set up the language table in Oracle, I needed to give every language a faculty ID and at the same time, a language table is built to store all of the possible languages in the world in Oracle to be able to do a drop-down list in the front-end database design, then every language has to be matched up with the language ID in the language table. This process took lots of effort.

   Secondly, although the data was claimed “clean,” there are still many existing problems. For example, there are fields called “title,” “department” and “school/center” in the Access table. When I started to migrate the data from Access to Oracle, I found that sometimes, the title of a faculty member was put into the field of the “department” or “school/center” fields instead of the “title” field. So I had to check all of the three fields for the title information.

2. For the goal of “Create more drop-down menus and other tools for controlling integrity of data”, nine new tables were created in Oracle. They are: department, program (and curriculum), center, institute, lab, language, state, university and degree. These tables are independent of the main table-faculty table and include the possible values of their own field. For example, there are 2050 universities in the university table. To be able to link the faculty table with the new tables, I needed to link the faculty ID with the primary keys of the new tables, the match-up process is very difficult because the new tables storing large amount of attributes and if the spelling of the according attribute in the faculty table does not match with the attributes in the new table or one attribute in the faculty table does not belong to the new table, there is a problem. For both of the problems, I needed to check with the project manager to either delete one attribute in
the faculty table or add one attribute in the new table or correcting the spelling in the faculty table to be able to match-up with the new tables.

3. The limitation of the knowledge increased the difficulty of the migration. When I discussed it with the project manager, we decided that five tables – department, program, center, institute and lab would include all of the work units where faculty members work. Schools would be only associated with the departments because it is very easy to tell the school which a department belongs to if you know the name of the department. But when I started to do the migration, I found out that some work units don't have a department. So these kinds of schools need to be included in the five tables also.

4. Time conflict is a big issue for this database design and implementation. I started to discuss with the project manager for the project in the early January. But I need to turn in my Master's paper in April. So there are three and half months in total. In the three and half months, both the Oracle database design, implementation and PHP programming need to be finished. Plus the time I need to write my paper. So although the data collection and migration from mySQL/Access to Oracle is very difficult, it needs to be finished as soon as possible to be able to leave time for the PHP programming and the time to write my paper. At the same time, the quality of the Oracle database should also be at a high level to make the database driven website useful to the users and provide a convenient tool for the users to search the database.
# User Test Case Scenarios

<table>
<thead>
<tr>
<th>Step</th>
<th>Expected Result</th>
<th>Error Checking</th>
</tr>
</thead>
</table>
| 1. Type the URL into the web browser:                               | **Page Loads.**  
On the top of the web page, there is a logo of the university center for the international studies. Under it, there are four paragraphs to give the database a brief introduction and to describe the database objective. Under the four paragraphs, you will see a Keyword search text field and four dropdown lists. The keyword search text field is separated by a blue dotted line from four drop down lists: Faculty, Department, Area study and Language. There is a “find” button after keyword search text field. A “Submit” button and a “Clear” button are under the four drop-down lists. Beside the keyword search text field, and every faculty, department, area study and language dropdown list, there is a help icon. At the bottom of the page, the contact person’s information is provided. | If a user inputs nothing and clicks on the “find” button, the user will see “Please input a keyword” and a “back” link to bring the user back to the index.php page. |
| 2.1 after 1 User types in a keyword and clicks on the “find” button. | **Search1.php page loads.**  
On the top of the web page, there is a logo of the university center for the international studies. Under it, there is a line to tell you how many results retrieved like 30 faculty member(s) retrieved. In the situation that there are faculty members retrieved: you will see the information of the matched faculty. If there is more than one faculty member retrieved, the information of the faculty members will be separated by a horizontal line.

In the situation that there are no faculty members retrieved: you will see “No matches, please try again” and there is a “back” link to bring you back to the index.php page. At the bottom of the page, the contact person’s information is provided. | If the user doesn’t make any choice and clicks on the “submit” button, the user will see “No matches, please try again.” |
| 2.2 after 1 User clicks on one or more of the four dropdown lists    | **Result is the same as above.**                                                                                                                                                                                                                                                                                                                    | If the user doesn’t make any choice and clicks on the “submit” button, the user will see “No matches, please try again.” |
| 2.3 after 1 | User clicks on the “Administration Page” link | Admin.html page loads.  
On the top of the web page, there is a logo of the university center for the international studies. Under it, two text fields: one for username, one for password is provided. Then there is a “Submit” button under the two text fields. At the bottom of the page, the contact person's information is provided. | If the user doesn’t input a username or a password, a warning box will pop up. The message is “The following error(s) occurred. – Username is required. – Password is required”. |
| 3.1 after 2.3 | If the user didn’t input the correct username and password | Userchecking.php page loads.  
On the top of the web page, there is a logo of the university center for the international studies. Under it, you will see “Your username or password is incorrect!” and there is a “back” link to bring you back to the Admin.html page. At the bottom of the page, the contact person’s information is provided. |
| 3.2 after 2.3 | If the user inputted the correct username and password | Change.html page loads.  
On the top of the web page, there is a logo of the university center for the international studies. In the middle of the page, you will see a gray-bordered table. In the table, there is one line to tell you to make a choice “Choose one of the following” and under it, there are four lines and four buttons: “Add A FACULTY MEMBER:” and a “GO” button, “UPDATE A FACULTY MEMBER:” and a “GO” button, “DELETE A FACULTY MEMBER:” and a “GO” button, and “REPORT PAGE” and a “GO” button. At the bottom of the page, the contact person’s information is provided. |
| 4.1 after 3.1 | After a user clicks on the “back” link in the userchecking.php page | Please follow the result of 2.3. |
| 4.2 after 3.2 | User clicks on the “Go” button after “Add A FACULTY MEMBER:” | Addfaculty.php page loads.  
"Add A New Faculty Member" is at the top of the page. Under it, you will see 16 text fields: first name, middle initial, last name, suffix, telephone, email, webpage, appoint year, comment about appointment, specialty, |

If the required fields like “first name”, “last name” are not filled or a field is not filled in correct format like email address, a warning box will pop
<p>| 4.3 after 3.2 | User clicks on the “Go” button after “Update A FACULTY MEMBER:” | Choice.php page loads. A dropdown list of all of the faculty members will show up. Under it, there is a “Submit” button. | If the user choose nothing and click on the “Submit” button, a warning box will pop up to ask the user to make a choice. |
| 4.4 after 3.2 | User clicks on the “Go” button after “Delete A FACULTY MEMBER:” | The result is the same as above. | The result is the same as above. |
| 4.5 after 3.2 | User clicks on the “GO” button after “REPORT PAGE:” | Reportinput.php page loads. The result is similar to the result of 1. Four dropdown lists of faculty, department, area study and language are in the middle of the page to let the user to make a choice on what information that the user wants to print out. | |
| 5.1 after 4.2 | User clicks on “Next” in the Addfaculty.php page | Addtitle.php page loads. In the middle of the page, there are four title text fields and four department dropdown lists beside the four title text fields. Under it, there is a “next” button. | The first title text field and the department dropdown list are required. So if the user doesn’t fill in this information, a warning box will pop up. |
| 5.2 after 4.3 | User makes a choice and clicks on the “Submit” button in the choice.php page | Updatefaculty.php page loads. The result is similar to the result of 4.2 except every text field and dropdown list is filled in with the existing information about the faculty member. | After the user make the changes and click on the “submit” button. If the required fields like “first name”, “last name” are not filled or a field is not filled in correct format like email address, a warning box will pop up to ask user to fill in all of the required fields and the valid fields. |
| 5.3 after 4.4 | User makes a choice and clicks on the “Submit” button in the Deletefaculty.php page loads. The partial information of a faculty member like “first name”, “last name”, “title”, and “department” will show up. Under it, there | | |</p>
<table>
<thead>
<tr>
<th>choice.php page</th>
<th>is a sentence like “Are you sure you want to delete this faculty member”, a “yes” button and a “no” button.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.4 after 4.5</strong> User makes a choice by clicking on the dropdown list</td>
<td>Reportresult.php page loads. The result is similar to the result of 2.1. More information will be provided like tenured or not.</td>
</tr>
<tr>
<td><strong>6.1 after 5.1</strong> User clicks on the “Next” button</td>
<td>Addpublication.php page loads. Five text fields and five text boxes beside the five text fields show up. The five text field is for the user to input the year that a publication is published and five text boxes is for the detailed information about the publications like title, author. Under it, there is a “Next” button.</td>
</tr>
<tr>
<td><strong>6.2 after 5.2</strong></td>
<td>Updatefaculty1.php page loads. The result is similar to above except the information of the publications has already existed. Under it, there is a “Next” button.</td>
</tr>
<tr>
<td><strong>6.3 after 5.3</strong> If the user clicks on the “yes” button</td>
<td>Deletefaculty1.php page loads. The confirmation information “The faculty member is successful deleted” is in the middle of the page and there is a link to bring the user back to the administration page and a link to bring the user back to the index.php page.</td>
</tr>
<tr>
<td><strong>6.4 after 5.3</strong> If the user clicks on the “no” button</td>
<td>The user will be redirected to the administration page again.</td>
</tr>
<tr>
<td><strong>7.1 after 6.1</strong> User clicks on the “Next” button</td>
<td>Adduniversity.php page loads. There are four dropdown lists of states in America. There is a “Next” button under it.</td>
</tr>
<tr>
<td><strong>7.2 after 6.2</strong> User clicks on the “Next” button</td>
<td>Updateuniversity.php page loads. Four text fields for year, four dropdown lists of degrees and four dropdown lists of universities are in the middle of the page. Under them, there is a “Submit” button.</td>
</tr>
<tr>
<td><strong>8.1 after 7.1</strong> User clicks on the “Next” button</td>
<td>Adduniversity1.php page loads. Four text fields for year, four dropdown lists of degrees and four dropdown lists of universities are in the middle of the page. Under them, there is a “submit” button.</td>
</tr>
</tbody>
</table>
required. So if the user doesn’t make a choice in this dropdown list, a warning box will pop up.

| 8.2 after 7.2 | The confirmation information “The faculty member is successful updated” is in the middle of the page and there is a link to bring the user back to the administration page and a link to bring the user back to the index.php page. |
| User updates the fields and the dropdown lists and clicks on the “Submit” button |

| 9.1 after 8.1 | The confirmation information “The faculty member is successful added” is in the middle of the page and there is a link to bring the user back to the administration page and a link to bring the user back to the index.php page. |
| User clicks on the “Submit” button. |
## Risk Management

<table>
<thead>
<tr>
<th>#</th>
<th>Risk Description</th>
<th>Condition</th>
<th>Consequence</th>
<th>Triggers</th>
<th>(1-5) Prob.</th>
<th>(1-5) Imp.</th>
<th>(1-5) Exp.</th>
<th>Assignee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Loss of data</td>
<td>Data must be recovered</td>
<td>Data is lost.</td>
<td></td>
<td>3</td>
<td>5</td>
<td>15</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>2</td>
<td>Project feature creep</td>
<td>The project will not be</td>
<td>New feature is brought to the attention of me</td>
<td></td>
<td>3</td>
<td>5</td>
<td>15</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>3</td>
<td>Either Oracle server or PHP server is not able to find or take long time to find</td>
<td>The project cannot be</td>
<td>UCIS does not have their own servers</td>
<td></td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>4</td>
<td>Changing system requirements</td>
<td>A decision must be made</td>
<td>The system requirements change.</td>
<td></td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>5</td>
<td>Scope of the project is too big for one person to finish all of the requirements</td>
<td>A decision must be made</td>
<td>The complexity of the project is under estimated</td>
<td></td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>6</td>
<td>Loss of project manager due to illness, resignation or severe events</td>
<td>The client side information will be blocked. The requirements may not be completely given by the client.</td>
<td>Project manager resigns. Project manager leaves the project due to severe events. Project manager gets sick.</td>
<td></td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>7</td>
<td>Illness of myself</td>
<td>The process for the project will be delayed and the deadline might not be completed within the project deadline</td>
<td>I get sick.</td>
<td></td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>Sunny Liu</td>
</tr>
<tr>
<td>8</td>
<td>Dissatisfaction of users</td>
<td>The users do not like the system and are not motivated to use it.</td>
<td>User expresses dissatisfaction with the system (during testing, interviews, … etc) when we interact with the user</td>
<td></td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>Sunny Liu</td>
</tr>
</tbody>
</table>
## Dissatisfaction of clients

The clients do not like the system and are not motivated to use it.

Client expresses dissatisfaction with the system when we interact with the client.

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Mitigation</th>
<th>Contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Dissatisfaction of clients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Severe weather condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Unknown risks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Severe weather condition

The communication with the clients, server administrator is stopped.

Severe weather condition like frozen rain, storm happened. The power lost due to weather condition.

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Mitigation</th>
<th>Contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Severe weather condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Unknown risks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Unknown risks

The project is not able to finish in the time for the deadline.

A risk not listed in the risk assessment is brought to the attention of me.

<table>
<thead>
<tr>
<th>#</th>
<th>Condition</th>
<th>Mitigation</th>
<th>Contingency</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Unknown risks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Condition Mitigation

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Loss of data</td>
<td>Keep multiple back ups of all data that has the document name and date. Establish naming conventions for past documents.</td>
<td>Go through back up documents to find the latest document. Replace the lost document with the latest back up. Include this impact in system documentation.</td>
</tr>
<tr>
<td>2</td>
<td>Project feature creep</td>
<td>Establish a list of features with the client early and only add features (that have been requested by the client) to the consensus of the group. Establish a cut off time where no new features can be added. Add a &quot;drop dead&quot; date. A date after which no more new features can be added and the project moves to the next phase of the plan.</td>
<td>Discuss the new feature and the impact of not adding it to the system. Can the new feature be designed in the remaining time? Can the documentation be built to surround the new function? Was the function part of changing system requirements or a last-minute request by the client? Document the decision in the system documentation.</td>
</tr>
<tr>
<td>3</td>
<td>Either Oracle server or PHP server is not able to find or take long time to find</td>
<td>Open the communication channel. Ask for ATN's help.</td>
<td>Talk with the administrators in UCIS first; try to find other departments' solutions; Place tickets in ATN to help us solve the problems.</td>
</tr>
<tr>
<td>4</td>
<td>Changing system requirements</td>
<td>Discuss the list of system requirements given to us by the client.</td>
<td>Discuss the following questions with the project manager. How will the new requirement affect the use of the system (time and effort)? Why was the requirement left out of the initial documentation? Did the environment change? Is the client making a new request? Is the changing requirement because of factors the project manager and I could not for see? Include the system requirement change in the documentation and the decision that was made.</td>
</tr>
<tr>
<td>5</td>
<td>Scope of the project is too big for one person to finish all of the requirements in three and half</td>
<td>Make a timeline on finishing the tasks. Report the problems on the way to finish the tasks.</td>
<td>Talk with the project manager to increase her understanding of the large scope and complexity of the project. Make a plan on the order of the tasks need to be address in the timeline according to the importance.</td>
</tr>
<tr>
<td>Month</td>
<td>Issue Description</td>
<td>Action 1</td>
<td>Action 2</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>6</td>
<td>Lose of project manager due to illness, resignation or severe events</td>
<td>Collect the information about the project requirement; databases, and servers at the early stage to minimum the cost of lose of the project manager.</td>
<td>Establish a meeting with other managers in UCIS to find someone can offer temporary help on this project.</td>
</tr>
<tr>
<td>7</td>
<td>Dissatisfaction of clients</td>
<td>Make an agreement with the clients on the important issues of the project.</td>
<td>Show the client the result of the project on several stages to find problems earlier.</td>
</tr>
<tr>
<td>8</td>
<td>Dissatisfaction of users</td>
<td>Perform pilot testing of prototypes with the users. Work closely with the users and attempt to capture their workflow in this process.</td>
<td>Try to understand why the user is not satisfied. Attempt to change the system and prototypes to satisfy the user as much as possible given the constraints of time and resources</td>
</tr>
</tbody>
</table>
Future Enhancement

Considering the time issue and technical issues with this projects, there are some good features that would be nice to have in the future:

1. Make Keyword search have more functions to get better results. Currently, the keyword search is just a simple text field. It takes the users' input to use it to match the attributes in the database. It would be nice to have an “AND” and an "OR" button beside the text field to let the users to input two or more words/phrases with an “and” or an “or” relationship to find the matches. Advanced search methods are also very nice to have.

2. Alternatively, a keyword field can be added in the back-end Oracle database to speed up the keyword search.

3. If there are more than 100 matches returned for a search result, the result page will be loaded very slowly. Although there is a buffer added to show the title image first to show the user that the page is working, it’s nice to set buffers to let the screen print 10 or 20 records at one time to avoid the long waiting time for the user.

4. Similar to 3, it would also be nice to let one page only show 10 results then the user can click on a “Next” button to see the next 10 results. By doing so, the user needn't to scroll down the screen very much.
Sample Reports --- Graphic Report 1

Query:
select faculty.facultyid from faculty, areastudy, faculty_areastudy where faculty.facultyid=faculty_areastudy.facultyid AND areastudy.areastudyid=faculty_areastudy.areastudyid AND areastudy.areastudyid=2;

Notes: Asia includes Asia, East Asia, Inner Asia, South Asia and Southeast Asia.
Europe includes Europe, Russia/East Europe and Western Europe.

Percentage of Faculty Per Area of Study

Notes: Asia includes Asia, East Asia, Inner Asia, South Asia and Southeast Asia. Europe includes Europe, Russia/East Europe and Western Europe.
Sample Reports --- Graphic Report 2

QUERY:
select count(faculty.facultyid), language.langname
from faculty, faculty_language, language
where faculty_language.langid=language.langid AND
faculty.facultyid=faculty_language.facultyid
Group by language.langname
order by count(faculty.facultyid) DESC;

Notes: There are 68 languages like Polish, Hebrew included in the Others.
Sample Reports --- Search Result

Linda Adair

Email

Title  Associate Professor
Education  Ph.D. (1980), University of Pennsylvania
Appointed  1988

Region  International; Southeast Asia

Specialization  Maternal and child nutrition in developing countries

Experience  Research Project in Cebu, Philippines (1988-present)


# Back End Databases Comparison

<table>
<thead>
<tr>
<th>Database Type</th>
<th>Current</th>
<th>New (Revised)</th>
<th>Reasons for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mysql</td>
<td>Areastudy</td>
<td>Areastudy</td>
<td>ATN has an Oracle server</td>
</tr>
<tr>
<td>Country</td>
<td>Areastudy</td>
<td>Country</td>
<td>No need</td>
</tr>
<tr>
<td>Department</td>
<td>Areastudy</td>
<td>Department</td>
<td>Build a dropdown list</td>
</tr>
<tr>
<td>Program</td>
<td>Areastudy</td>
<td>Program</td>
<td>As above</td>
</tr>
<tr>
<td>Center</td>
<td>Areastudy</td>
<td>Center</td>
<td>As above</td>
</tr>
<tr>
<td>Institute</td>
<td>Areastudy</td>
<td>Institute</td>
<td>As above</td>
</tr>
<tr>
<td>Lab</td>
<td>Areastudy</td>
<td>Lab</td>
<td>As above</td>
</tr>
<tr>
<td>Faculty_department</td>
<td>Areastudy</td>
<td>Faculty_department</td>
<td>Link to department table</td>
</tr>
<tr>
<td>Faculty_program</td>
<td>Areastudy</td>
<td>Faculty_program</td>
<td>Link to program table</td>
</tr>
<tr>
<td>Faculty_center</td>
<td>Areastudy</td>
<td>Faculty_center</td>
<td>Link to center table</td>
</tr>
<tr>
<td>Faculty_institute</td>
<td>Areastudy</td>
<td>Faculty_institute</td>
<td>Link to institute table</td>
</tr>
<tr>
<td>Faculty_lab</td>
<td>Areastudy</td>
<td>Faculty_lab</td>
<td>Link to lab table</td>
</tr>
<tr>
<td>Education</td>
<td>Areastudy</td>
<td>Education</td>
<td>Build a dropdown list</td>
</tr>
<tr>
<td>University</td>
<td>Areastudy</td>
<td>University</td>
<td>As above</td>
</tr>
<tr>
<td>State</td>
<td>Areastudy</td>
<td>State</td>
<td>As above</td>
</tr>
<tr>
<td>Degree</td>
<td>Areastudy</td>
<td>Degree</td>
<td>As above</td>
</tr>
<tr>
<td>Faculty_university</td>
<td>Areastudy</td>
<td>Faculty_university</td>
<td>Link to university table</td>
</tr>
<tr>
<td>Exper</td>
<td>Areastudy</td>
<td>Exper</td>
<td>No need</td>
</tr>
<tr>
<td>Experience</td>
<td>Areastudy</td>
<td>Experience</td>
<td>A field in the faculty table</td>
</tr>
<tr>
<td>Faculty</td>
<td>Areastudy</td>
<td>Faculty</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>Areastudy</td>
<td>Language</td>
<td></td>
</tr>
<tr>
<td>Faculty_language</td>
<td>Areastudy</td>
<td>Faculty_language</td>
<td>Link to language table</td>
</tr>
<tr>
<td>Competence</td>
<td>Areastudy</td>
<td>Competence</td>
<td>Need for the new data</td>
</tr>
<tr>
<td>Noareastudyinfo</td>
<td>Areastudy</td>
<td>noareastudyinfo</td>
<td>No need</td>
</tr>
<tr>
<td>Outreach</td>
<td>Areastudy</td>
<td>Outreach</td>
<td>No need</td>
</tr>
<tr>
<td>Public</td>
<td>Areastudy</td>
<td>Public</td>
<td>No need</td>
</tr>
<tr>
<td>Publication</td>
<td>Areastudy</td>
<td>Publication</td>
<td></td>
</tr>
<tr>
<td>Region</td>
<td>Areastudy</td>
<td>Region</td>
<td>No need</td>
</tr>
<tr>
<td>Report</td>
<td>Areastudy</td>
<td>Report</td>
<td>No need</td>
</tr>
<tr>
<td>Report6</td>
<td>Areastudy</td>
<td>Report6</td>
<td>No need</td>
</tr>
<tr>
<td>Reportc</td>
<td>Areastudy</td>
<td>Reportc</td>
<td>No need</td>
</tr>
<tr>
<td>Special</td>
<td>Areastudy</td>
<td>Special</td>
<td>No need</td>
</tr>
<tr>
<td>Title</td>
<td>Areastudy</td>
<td>Title</td>
<td>A field in the faculty table</td>
</tr>
<tr>
<td>No. Of tables</td>
<td>18</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

NOTES: Delete
## Front End Comparison

<table>
<thead>
<tr>
<th>Page Name</th>
<th>Current</th>
<th>New (Revised)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Four dropdown list: Faculty name, Department, Region, Language</td>
<td>Keyword Search, Four dropdown list: Faculty name, Department, Area Study, Language</td>
</tr>
<tr>
<td>New Features:</td>
<td>(1) Department dropdown list is separated into five categories: department/school, program/curriculum, center, institute and lab to help users locate the information. (2) Region is replaced by area study. The area study dropdown list is composed of 14 areas that is the standard classification of the international area studies. It conforms to Title VI Dept of Ed categories. (3) Language list is now equal to ELIAS with some additions from the international linguistics institute. The language and their dialects are not repeated twice like the current language list does. (4) Add a keyword search feature. This feature is required by the client—the university center for international studies for giving users another tool to find information in the database. (5) Help information is provided. There are five help icons beside the keyword search, faculty name, department, area study and language drop down list.</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Search result page</td>
<td>Search result page</td>
</tr>
<tr>
<td>New Features:</td>
<td>If there are faculty retrieved, 1. One record will be separated by a horizon line from another record if there is more than one record. 2. For every record, bold titles are added to make the record easier to read and there are spaces between grouped titles, which is grouped by their contents.</td>
<td></td>
</tr>
<tr>
<td>Page Name</td>
<td>Add/update/delete pages</td>
<td>Add/update/delete pages</td>
</tr>
<tr>
<td>Content</td>
<td>Add/update/delete a faculty member</td>
<td>Add/update/delete a faculty member</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------</td>
<td>-----------------------------------</td>
</tr>
</tbody>
</table>
| **New Features:** | 1. There is only one “Next” or “Submit” button in every form. So in one form, the user needn’t to click on multiple “submit” button to add/update/delete the data of one faculty member.  
2. More fields are added to let the user to change the information.  
3. More dropdown lists are added to convenience the user input. |
<table>
<thead>
<tr>
<th>Sample</th>
<th>Current</th>
<th>New (Revised)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose “Mandarin Chinese” from Language Dropdown list</td>
<td>Choose “Chinese, Mandarin” from Language Dropdown list</td>
</tr>
<tr>
<td>Result</td>
<td>3 faculty members retrieved</td>
<td>17 faculty members retrieved</td>
</tr>
<tr>
<td></td>
<td>Reason: The data got corrupted. Take Mandarin for example; there are</td>
<td></td>
</tr>
<tr>
<td></td>
<td>not only “Mandarin Chinese”, but also “Chinese (Mandarin)” and “Chinese”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in the dropdown list. So the search result is only part of the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>of the faculty member who know Chinese and the user is easily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>got confused with the choices, because “Mandarin Chinese” and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Chinese (Mandarin)” are the same but appeared twice.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Choose “Europe” from region Dropdown list</td>
<td>Choose “Europe” from Area study Dropdown list</td>
</tr>
<tr>
<td>Result</td>
<td>3 faculty members retrieved</td>
<td>91 faculty members retrieved</td>
</tr>
<tr>
<td></td>
<td>Reason: After the improvement of changing “Region” to “Area Study”,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Europe” includes “Europe”, “Russia/East Europe” and “western Europe”.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>So when the user clicks on “Europe”, a bigger result set will show up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>than before. This situation is also applicable for the “Asia” area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>study.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Choose “Anthropology” from department Dropdown list</td>
<td>Choose “Anthropology” from department Dropdown list</td>
</tr>
<tr>
<td>Result</td>
<td>20 faculty members retrieved</td>
<td>28 faculty members retrieved</td>
</tr>
<tr>
<td></td>
<td>Reason: Data corrupted. There is not only “Anthropology” but also</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Anthropolgy” (miss spelling word of “Anthropology”).</td>
<td></td>
</tr>
</tbody>
</table>
## Project Schedule

<table>
<thead>
<tr>
<th>Project Steps</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain Info</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oracle Database</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PHP Programming</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Write Final Paper</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### January

<table>
<thead>
<tr>
<th></th>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>T</th>
<th>F</th>
<th>S</th>
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### Note:
1. Gain information about the current database
2. Create the oracle database and migrate the data to the oracle database
3. Setup the PHP server and rewrite the PHP code to fulfill the connection
4. Write final paper.
5. Holidays. The workload might be lighter, but I don't plan to stop working in holidays.
References


