University California, Riverside
UCRFStotals

Innovation in Information Technology – Larry L. Sautter Award

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ABSTRACT

UCRFStotals is a campus-wide financial decision and online analytical reporting tool that enables users to quickly view the UC Riverside’s current and historical financial information based on simple selections made through an intuitive, friendly and colorful interface. By simply selecting their areas of interest, perhaps their desired FAU information, and a timeframe, such as the fiscal year and accounting period, the user could pull up to four years of archived information about how their department’s money was planned and spent.

Once obtained, this information can be itemized or summarized and drilled down into for further analysis with several tools for further exploration of the meaning of the data. For example, a user may wish to cross tabulate the information based on any two pieces of information, such as what departments used what funds for their planned spending. Not only can they see the information more clearly, but they can also forecast the information based on any one of four projection models and therefore obtain an estimate of future spending.

What drives the selection of the FAU information that the user wants to see is done through the Golden Tree Explorer. This part of the product provides a colorful graphical hierarchical layout of all the levels of the Activity, Fund and Account “Golden Trees”. These Golden Trees are the repository of all the possible “full accounting units” (FAU) values a user could ever want to report on. So, a novice or expert user can quickly search for any part of a FAU value or its description and see its relationship to the other values in the tree.

In addition to the information being presented in a highly flexible format that the user can manipulate to their liking, they may also export the information into a Microsoft Excel™-compatible spreadsheet or web page for further use.

UCRFStotals also offers functionality available only an administrative user to manage the addition and removal of user accounts, view how many users are currently on the system and what the important statistics are (such as the CPU load is on the Oracle server) for performance related issues. Furthermore, a query can be “tweaked” to increase performance by allowing the user to examine its index and opt to change it to an UCRFStotals recommended index.
PROJECT DESCRIPTION

An in depth description of UCRFStotals requires a tandem understanding of both what the user actually sees and interacts with and the “behind the scenes” database structure.

I. The Interface

UCRFStotals was developed using Microsoft Visual Basic 6.0 along with a few Third Party tools. The synergetic use of these products allows for the creation of a highly intuitive and flexible product. In the development environment, this means that we can easily respond to customer input for product enhancements.

After logging in, the user follows the five color-coded tabs across the main form to specify their query criteria, or can quickly open an existing query for immediate processing. The color-coded tabs provide a step-by-step method that correlates to how their query will be constructed and displayed. The user can refine their query based on the selection of the following fields or pieces of information:

- Fiscal year
- Accounting period
- Organization
- Ledger
- Source
- Fund
- Account
- Cost center
- Project code
- Function

Creating A Query

Creating a query involves the following tabs.

- **Query Tab**
  
  The Query Tab presents the user numerous options by which they can refine the information they want. This tab represents the “where” part of their query, such as “where fiscal year is 2002 and accounting period is 5, 6 and 7 and fund code is ‘General Funds’ “.
  
  Also, from this tab, the user will specify whether the returned data will be detailed or summarized. If the data is summarized, the user could then drill down into the information to see how many records were summarized and what the detailed amounts were.
  
  Finally, UCRFStotals provides an option for the user to break out the dollar amounts into their respective “colors” of money, such as to which ledger they are attributed, permanent, temporary or actual.

- **Standard Fields, Fund Award, Descriptions Tab**
  
  The next three tabs allow the user to choose which fields they would like to see on the worksheet as columns. These tabs represent the “select” part of their query, such as “select the accounting period, ledger, activity, activity description and dollar amount.”

- **Order Tab**
  
  Finally, the Order tab gives the user the opportunity to rearrange the order in which the columns will be displayed on their worksheet. This tab represents the “order by” part of their query, such as “order by activity, activity description, ledger, accounting periods and dollar amount.”

After making all the selections, a user may save their query for future use, view all their query settings at a glance and email the query as an attachment, all within UCRFStotals.
Golden Tree Explorer

As an enhancement to the manner in which a user can select what values to query on, the Golden Tree Explorer provides a hierarchical layout of the activity, fund and account FAU information. By using this feature, one can quickly search for a specific value on a tree and mark it to be on their query. Every level of the each tree is color-coded to represent its relationship to other levels.

The Query Worksheet

The full power of the product is brought to bear not in how the user can create their queries, however, but in what they can do with the returned information. When the user has constructed their query, they can hit the Run button, wait a few moments and see the results of their selections, such as in the figure below.

For example, a query may contain the fiscal year, accounting period, activity, fund and the summarized dollar amounts spent for each row.

On the worksheet, one can insert or delete rows and columns, rearrange, reorder and hide columns, save the worksheet as a web page and export to a Microsoft™ Excel compatible worksheet.

Cross Tab & Forecasting

Given that the user wants a summarization of their data, they can take any two or three pieces of information and create a worksheet showing the cross tabulation of data.

By using the Cross Tab feature, the user can create a new worksheet that shows the selected departments down the side and the corresponding accounting periods going across the top further summarizing the data and giving a much clearer view of how much was spent or planned per department and per period.

As shown in light blue the figure to the right, the user can apply one of four forecasting methods in any manner to their worksheet. This gives an estimate or projection of how much money they plan to spend in the future months.
For example, in the above figure, the average of all prior accounting periods was calculated and extrapolated for another three periods. But, the user may also elect to forecast based on the amount from the last period, or the average of any number of prior periods or, finally, a flat rate amount. In any case, a percentage can be added on, such as 5% on top of the calculated amount.

II. The Data

The prime directive in the development of this product was allowing the user to retrieve meaningful information quickly. To date, there are over 3.5 million rows of data that have been archived in our data warehouse, so one can see how important the underlying design and implementation of such tool can be.

A data mart in an Oracle database has been created that houses the consolidated information from our expansive PeopleSoft Financial System, populated on a nightly basis. All possible pieces of information that any user could ever want to query on have been boiled down into the data mart. Then, by adding a comprehensive number of Oracle indices to the data mart, UCRFStotals can quickly pull the information the user needs, with a minimal amount of waiting. A user’s query is maximized to take advantage of these indices, but in the unlikely case that a particular query takes longer than expected to run, the user can override the default Oracle Index Optimizer with UCRFStotals best guess of which index to use.
OBJECTIVE CUSTOMER SATISFACTION

We have received many emails of how the customers like what they see, and how to improve the product. The following email indicates what we consider the best example of our communication with the user community and itemizes a few ideas that we have since implemented in the subsequent release of UCRFStotals.

Thanks for giving me the opportunity to test UCRFStotals Version 4.0.
I compared UCRFStotals versions 3.1 and 4.0. I also ran some reports. Here are my findings:
1. In general version 4.0 is more organized and functional.
2. The output reports look very similar.
3. The features that I liked are:
   a. Addition of a Journal ID# field. This is an excellent tool. One improvement can be made by making the field uppercase only. When I typed "pd####...", no data was pulled.
   b. I absolutely like the "find and mark" feature as I usually would like to mark what I do a find on.
   c. "Summary accounts" is another enhancement to quickly identify the transactions.
   d. I do like naming the very first screen as "Query".
   e. "Common fields" tab has changed to "Standard". I suggest naming it "Standard fields".
   f. Incorporating the "show subtotal row" and "separate budget, financial amounts" options in the body of Standard tab was a great idea. As in my case, occasionally I forgot to check the option that was located on top.
   g. Consolidating the "fund info" and the "Award info" is great. I suggest expanding the tab to "Fund/award info" or "Fund/award attributes".
H. "Order Detail Drilldown Fields" seems to be a great guide once is activated. This is especially helpful tool for first time user and staff who do not work with UCRFStotals routinely. When I first started using UCRFStotals, the challenge was to select the criteria. Hope this is helpful.

A means by which we communicate the latest features is through our online features guide called "What’s New?" found at:
http://oneclick.ucr.edu/ucrs/ucrfstotals/whatsnew.html
Here, the user can read what all the newest enhancements are along with descriptions of how to use them.

UCRFStotals is our flagship product that is the best client tool for analyzing current and historical financial information. All of this has been possible with planning and intentional foresight, but with only the scarcest of resources, as it was developed and implemented with only a single programmer (1.0 FTE) dedicated to the project.

All in all, UCRFStotals provides the UCR campus with reliable, expedient and flexible information in an easy to use format that over 400 users find to be a lifesaving financial tool, especially when trying to close the books at the end of the month!