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MBA 614

Executive Summary: Excel Time Logging Application

The company I did an internship with last summer rolled out a system for tracking employee time. This system was designed to track the amount of time employees spend on various projects and activities, allowing managers to better understand and manage limited resources. Time was to be entered into a website. Unfortunately, this website was slow and timed out user sessions quickly requiring users to log in again.

Most users decided that it was too much of a hassle to enter time directly into the website every day, so they used other systems to write down time and then entered it into the website once a week. My solution was to setup a basic excel worksheet to enter dates, project numbers and time. This process worked, but required a lot of manipulation of the excel worksheet and only provided limited functionality. Projects generally had an official number needed for the website, but they also had a general name that was used to refer to the project. Before entering time for a new week, I had to spend time setting up the various projects that I thought I would be logging time for that week.

The goal of this project was to create an easy to use spreadsheet for logging time for various projects. The project was designed to make it easy and fast to log daily time for each project during a specific week. Past weeks can be navigated to easily for reference. Projects are easy to name and define, and easy to assign to an individual week. New weeks can use past weeks as a template for the projects active in the week, making it fast and simple to start logging time for a new week.

This project was also designed to add some additional features that were not available in a simple excel spreadsheet for logging time. The reporting functionality makes it easy to track time for individual projects. The upload functionality provides an automated process for entering a week of time data into the time tracking website (for this project a Blog was created to simulate the time tracking website).

Implementation documentation

The project consists primarily of four worksheets. The “Input Week” worksheet is primary worksheet to be used for entering time and adding projects to a week. The worksheet contents change as you navigate to and add other weeks. The “Time Log” worksheet contains the history all weeks entered. This worksheet is used for storage and for reference, but is not intended for direct user manipulation. The “Reports” worksheet contains the results of user run reports. The “Projects” worksheet contains the list of projects available for use in the log.

Input Week

Manage Time Log									
Week of:	12/18/2011 - 12/24/2011						Uploaded:		
	12/18/2011	12/19/2011	12/20/2011	12/21/2011	12/22/2011	12/23/2011	12/24/2011		
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total:	
testing - 123-123sd			3.8						3
project X - 5939032			5						5
Total:	0	8	0	0	0	0	0	0	8

The “Input Week” worksheet is for viewing and updating time information for a week. This sheet lists each project assigned to a week, if any. Time can be entered by project, by day, and is automatically totaled by day and by project. The first row lists the time range being displayed, and the date the data was uploaded (if applicable).

The week selected using the “Manage Time Log” window is displayed, listing all projects assigned to the active week. To change the active week, use the “Manage Time Log” window (section #2 in the Manage Time Log section). To assign additional projects to the active week, use the “Mange Time Log” window (see #5 in the Manage Time Log section). Weekdays are highlighted in blue, and weekends are highlighted light grey to differentiate.

The individual cells corresponding to a project for a specific day accept input in the form of a decimal number between 0 and 24 (which is enforced using Excel’s data validation rules).

Manage Time Log									
Week of:	12/18/2011 - 12/24/2011						Uploaded:		
	12/18/2011	12/19/2011	12/20/2011	12/21/2011	12/22/2011	12/23/2011	12/24/2011		
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total:	
test - 1234			aaaa						0
testing - 123-123sd			3	8					11
project X - 5939032			5						5
Total:	0	8	8						16

Invalid Input

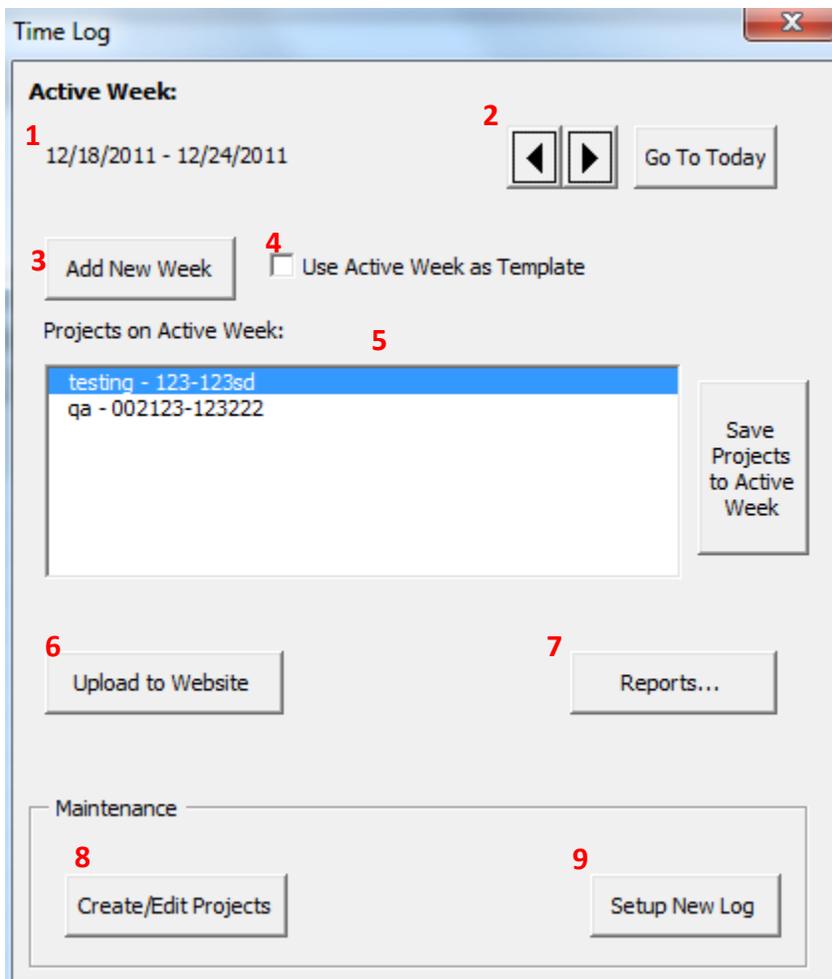
This cell is restricted to decimal numbers between 0 and 24

Retry Cancel Help

Managing the Time Log

Click the “Manage Time Log” button to open the “Time Log” window.

Manage Time Log	
Week of:	12/18/2011 - 12/24/2011
	12/18/2011 12/19/2011
	Sunday Monday
testing - 123-123sd	
nnriert X - 5939032	

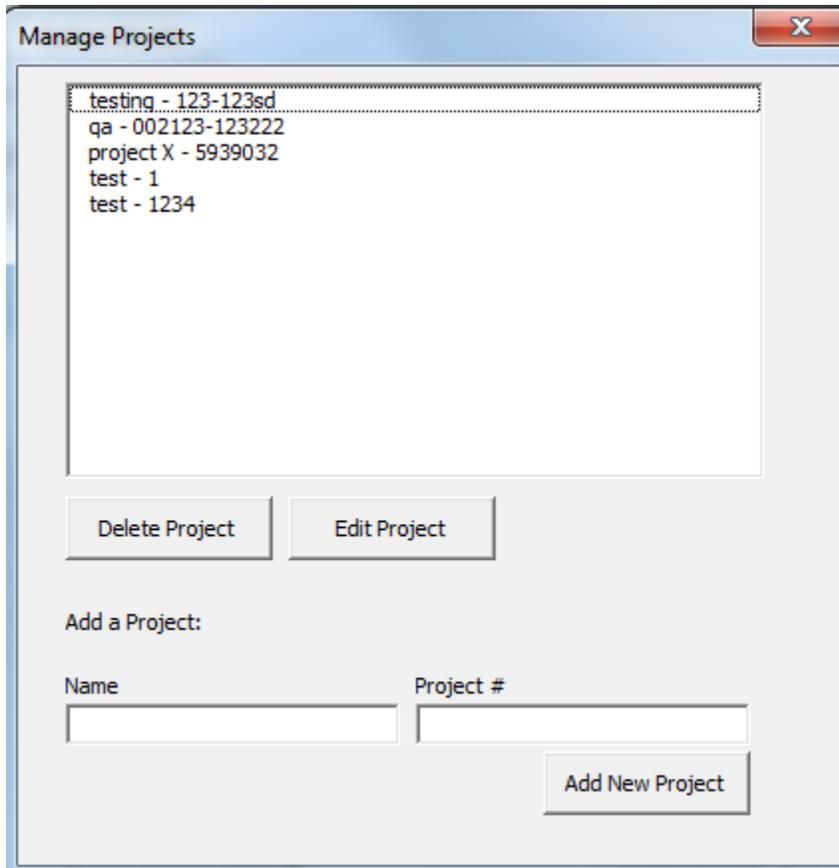


The time log management window is where most of the functionality of the project is accessed. Features and controls include:

1. **Active Week:** This displays the time range that is currently active on the “Entry Week” worksheet. Active week updates as you select other weeks to manage.
2. **Time navigation controls:** The forward and back arrows change the active week to either one week prior to or one week after the current active week. The contents of the “Entry Week” worksheet update automatically as you change the time frame. The “Go To Today” button changes the active week to the week containing the current date. If you try to navigate to a week after the last week in the log, or before the first week in the log, a message will be displayed to let you know you’ve reached the end/beginning of the log.
3. **Add New Week:** The “Add new week” button adds 1 week to the end of the log. After a new week is added, you can use the time navigation arrows to activate the week for adding projects and logging time.
4. **Use Active Week as Template checkbox:** This checkbox is an option for using the currently active week’s list of projects as a template for the next week to be added. If this is selected when the “Add New Week” button is clicked, the new week added will have the same list of projects as the currently active week.
5. **Projects on Active Week:** This list box shows all projects created in the time log, and highlights projects that have been assigned to the active week. It is updated automatically as you change the active week depending on the projects assigned to the active week. Any number of projects (from 0 to all displayed) can be selected. To change the assignment of projects on the active week, select or unselect the desired projects and click the “Save Projects to Active Week” button. The time log will not remove a project from a week if it currently has time assigned for that week. If you try to remove a project with time assigned, a message will be displayed reminding you to reassign or delete the time from the project.
6. **Upload to Website:** This button starts the process for automatically uploading the active week’s time information to the website. See the “Time Upload” section of this document for more details.
7. **Reports:** This button opens the report generation interface to generate reports for the active week. See the “Reports” section for more information
8. **Create/Edit Projects:** This button opens the interface for managing the projects in the time log. See the “Managing Projects” section for more details.
9. **Setup New Log:** This button is used to setup a new time log. All data currently stored in the time history will be deleted, and the current week and six prior weeks will be added. A window will be displayed to confirm that you want to delete the log data and setup a new log.

Managing Projects

The managing projects interface is used to add new projects to the time log. Projects must be added to the log before they can be assigned to a week.



The screenshot shows a window titled "Manage Projects" with a close button (X) in the top right corner. Inside the window, there is a list of projects in a text area:

- testing - 123-123sd
- qa - 002123-123222
- project X - 5939032
- test - 1
- test - 1234

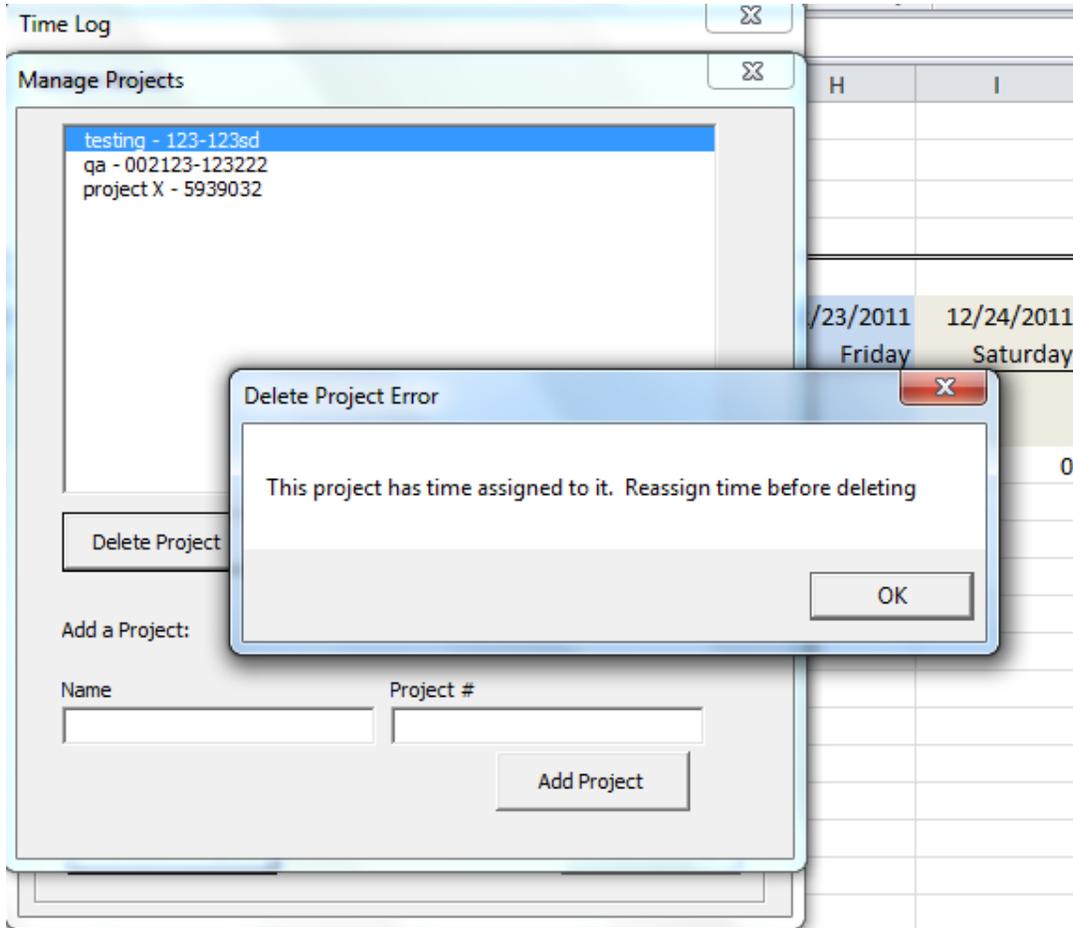
Below the list are two buttons: "Delete Project" and "Edit Project".

Underneath these buttons is the section "Add a Project:" which contains two input fields: "Name" and "Project #". To the right of these fields is an "Add New Project" button.

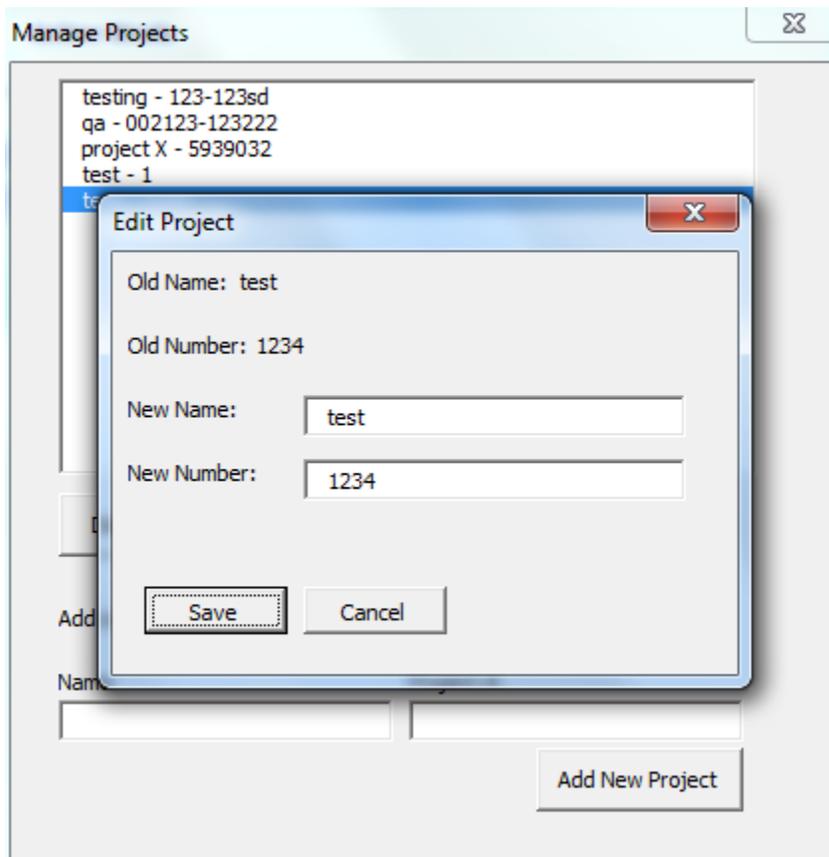
To enter a new project, enter a name and project number, and click "Add Project." Projects are displayed on the form using a Name – Number format. Projects can also be viewed on the "Projects" worksheet.

Every project must have both a project name and a project number. Each combination of project name and number is treated as a unique combination. If you try to add a project name/number combination that is already in the projects list, a message will be displayed reminding you that you must enter a unique name/number combination. Project names cannot contain the "-" character. An error message will be displayed if you attempt to enter a project name that contains the "-" character.

Deleting: Projects can be deleted by selecting a project and clicking the “Delete Project” button. Once a project is deleted it can no longer be added to or removed from weeks in the time log. Projects can be deleted only if there is no time assigned to the project on any date in the time log. If there is any time on the project, an error message will be displayed:

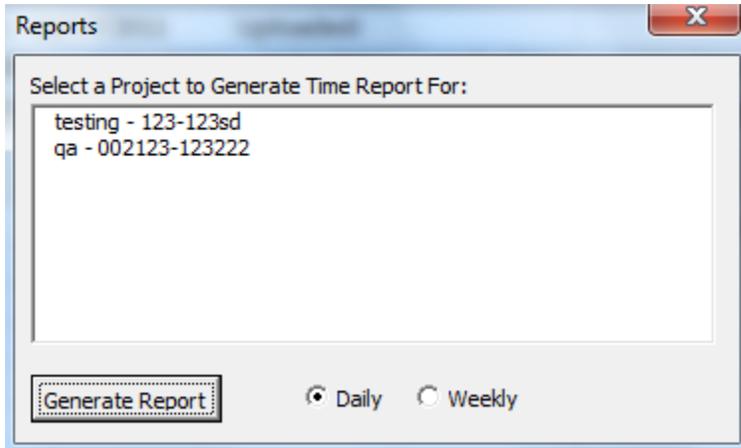


Editing: Project names and numbers can be edited by selecting a project in the listbox, and clicking the “edit” button. This brings up the “Edit Project” window. The old project name and number are displayed, and can be edited in the “New Name” and “New Number” text boxes. The “Cancel” button exits the window without attempting to save the change. The “Save” button will update the name and number (enforcing the same naming rules as a new project), and will update the project name displayed on the “Time Log” and “Entry Week” worksheets.



Reports

The Reports generator can be launched from the main Time Log form.



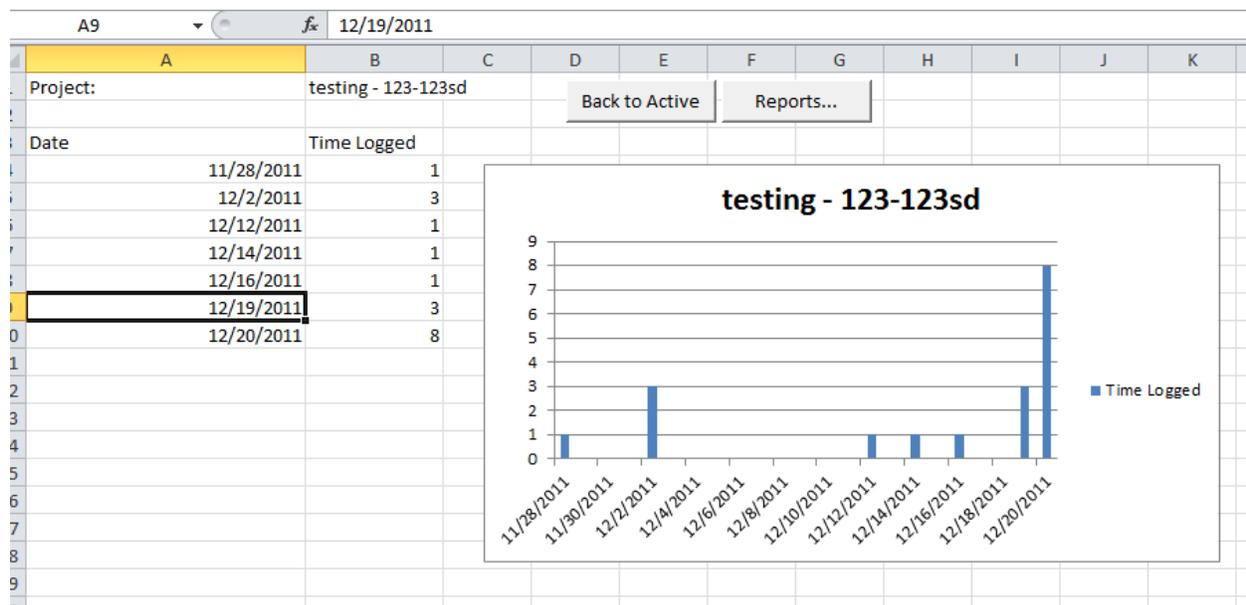
Select a Project to Generate Time Report For:

- testing - 123-123sd
- qa - 002123-123222

Generate Report

Daily Weekly

Select a project from the list, and select either daily or weekly summaries. Click “Generate” report to run the report. You will automatically be taken to the “Reports” worksheet.

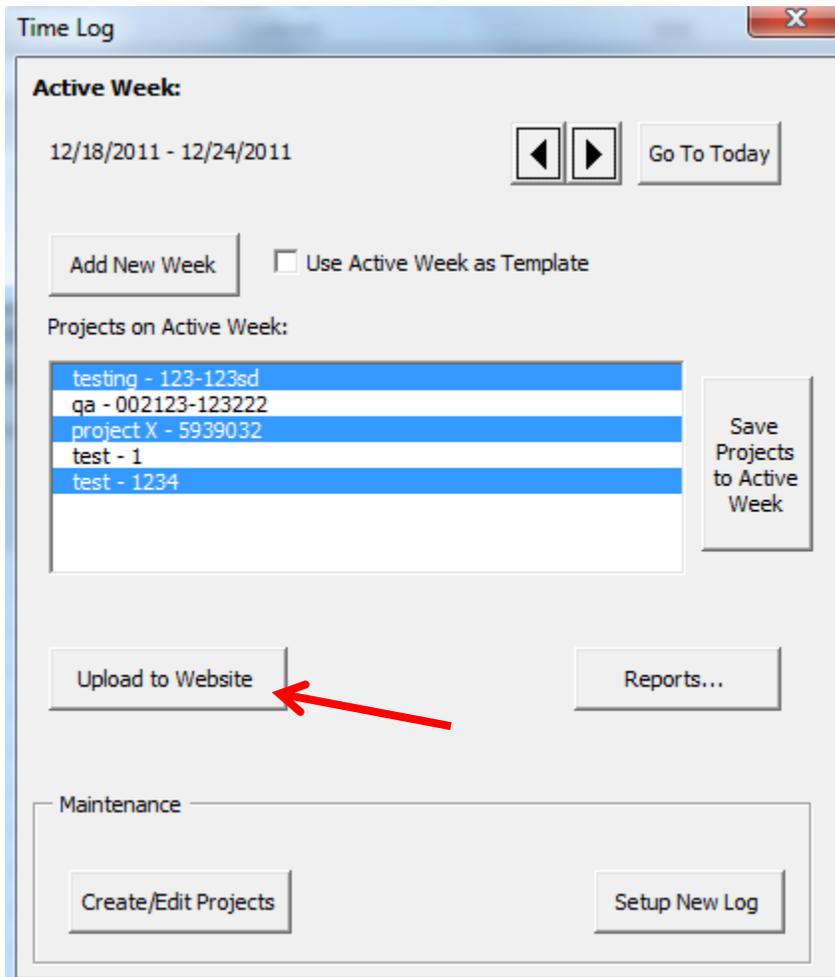


The reports worksheet lists the Name and Number of the project being reported on. The report lists the date or week range (depending on the report type selected) of any time period that had time logged for the specified project. A chart is automatically generated for the data.

The “Back to Active” button can be used to quickly navigate back to the active week. The “Reports...” button can be used to reopen the report generation form to choose another report.

Time Upload

Click on the “Upload to Website” button to begin uploading the active week to the website.



This project uses a blog to simulate uploading the time data to a web based time logging system. This blog can be accessed at <http://vbatimelog.blogspot.com/>.

VBA Time Log

MONDAY, DECEMBER 5, 2011

12/11/2011 - 12/17/2011

	12/11/2011	12/12/2011	12/13/2011	12/14/2011	12/15/2011	12/16/2011	12/17/2011	Total:
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
project X - 5939032			2					2
testing - 123-123sd		1		1		1		3
Total:	0	1	2	1	0	1	0	5

Posted by VBA Time Log at 2:33 PM 

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BLOG ARCHIVE

▼ 2011 (7)

▼ December (7)

[12/11/2011 - 12/17/2011](#)

[11/20/2011 - 11/27/2011](#)

[11/27/2011 - 12/4/2011](#)

[11/13/2011 - 11/20/2011](#)

[test](#)

[test](#)

[Blog Created](#)

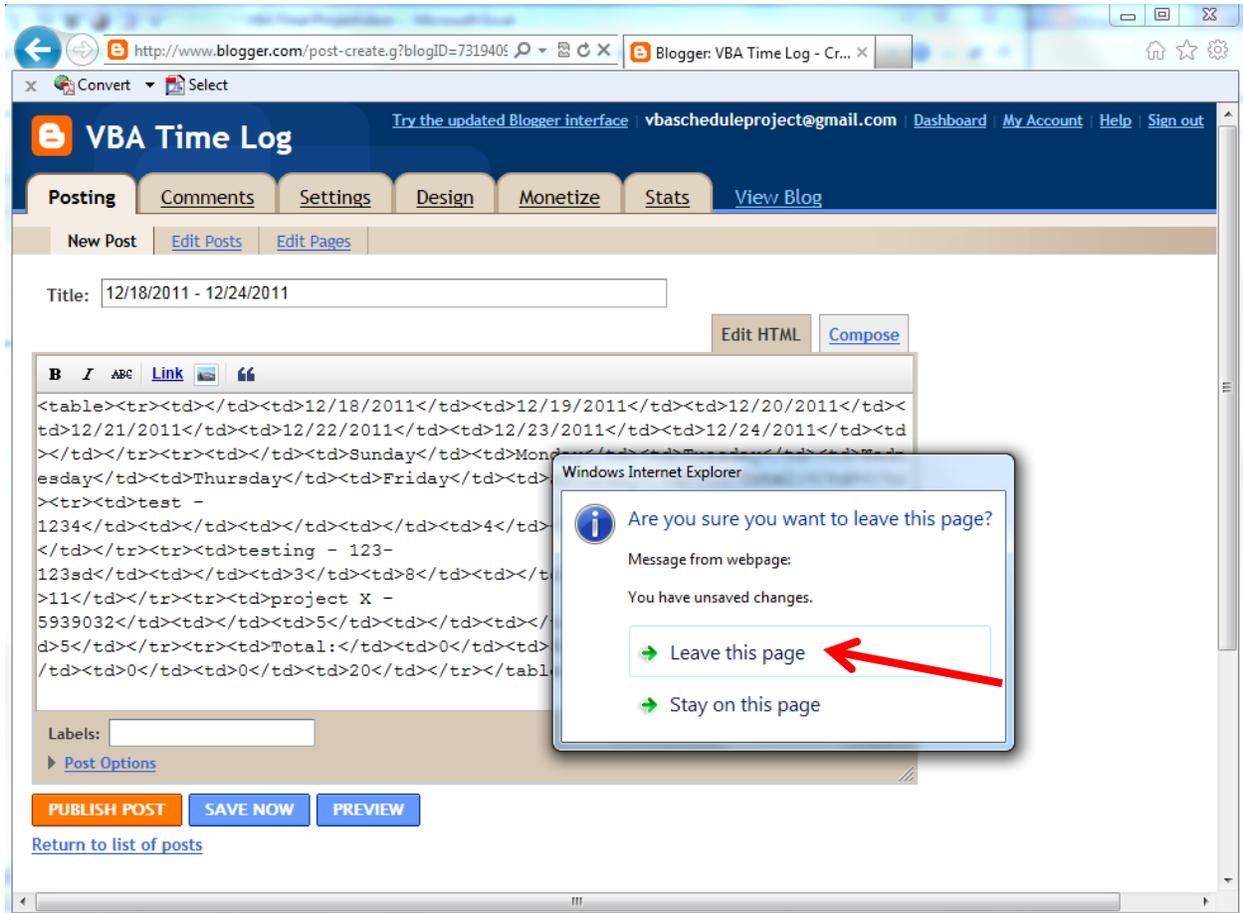
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When the upload process is started, an Internet Explorer window is opened and the project logs in as vascheduleproject@gmail.com. Once the login is completed, a "New Post" window with the HTML editor is opened. The project takes the data from the "Entry Week" worksheet and formats it as an HTML table and sets the title as the date range displayed on the worksheet.

Once the data is formatted and entered, the “Publish Post” button is automatically clicked. An internet Explorer dialog box will pop-up to confirm that you want to submit the post. Click “Leave this page” to submit the post.



Discussion of learning and conceptual difficulties encountered

The primary learning goal I had for this project was to build experience with manipulating worksheet data. The functionality for navigating and manipulating the time log gave me a lot of exposure to working with ranges and cells. The first challenge I encountered was designing the layout and components of the data. I initially laid out the data without “Total” rows and columns. When I went back to add those in later, it required me to make changes to numerous functions designed to either find or manipulate data. I ended up writing a new version of my “ActivateWeek” sub after making a few changes to the data structure. I spent some time trying to change the original “ActivateWeek” sub to work with the new data structure, but eventually I decided that I could do it faster and cleaner by just writing a new procedure. This highlighted the importance of taking time to design.

In addition to data design changes, I found myself making numerous user interface design changes. I built the UI incrementally as I added feature to the project. Eventually I ran into issues where the UI was to separate or not logical, because I hadn’t designed the overall interface up front. For example, the listbox for assigning projects to the active week was originally part of a separate userform. As I start to put everything together, it became obvious that assigning projects needed to be quick and easy, so it should be part of the main UI. Fortunately, it was fairly simple to reuse the code I had already written and I was able to consolidate the ActiveProjects form onto the main userform.

In regards to my learning objective of gaining experience with manipulating worksheet data in VBA, the advantage I found of manipulating worksheets with VBA was the flexibility I had once the basic functionality was created. For example, once I had created the function to copy a specific week from the log worksheet to the entry worksheet, it was simple to add in formatting, data validation and formulas. Once I had created the “Reports” function to search the data and list time for a specific project, it was easy to automatically create a chart of the data.

Not surprisingly, one of areas of difficulty and learning was the upload to a website functionality. The internet agent class greatly simplified the programming challenges, but I still had to spend some time in this area. Setting up a blog and generating the code to login to the blog was pretty simple. Once I had that done, it spent some time trying to get the code to create a post setup. The page for creating a post utilizes Javascript to provide a more advanced text editor, and even getting the VBA to input the body of the post proved challenging. Eventually I found that if I set the blog settings to default to the HTML editor for posts, I could more easily manipulate the input for the page. This also proved beneficial, as I wanted to use HTML tags to format the data into a table so it would be readable. Of course, even after getting the post text input, I still ran into the Internet Explorer pop-up for “Are you sure you want to

leave this page?" I decided I was okay with that, and that I wanted to leave IE visible during the upload process. If was to use this project to upload to the website used for time tracking at my internship, I would want to see what was happening on the web page and I would want a final chance to abort the data entry.