

## Implementation Documentation

To begin, I first researched which events are the most common which we serve at BYU Guest Services. I gathered the top ten or so most common events and created a custom ribbon which would allow the user to quickly select the appropriate template to use. I used the custom ribbon editor to import images relevant to the ribbon buttons and which would be easy for the user to recognize. Additionally, I created three generic templates (one day, one week, and two weeks) which the user can select for the less common events that do occur occasionally. An image of the custom ribbon can be seen in [Figure 1](#).

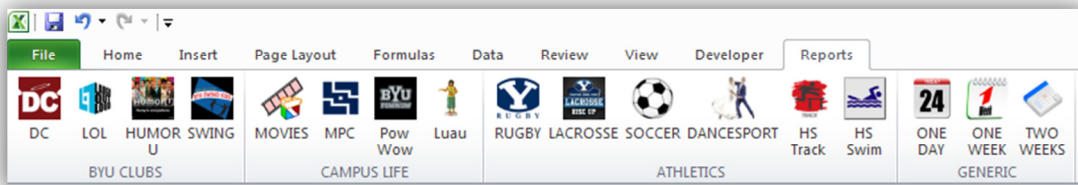


Figure 1 Custom Ribbon

I wanted the report templates to be robust and so much of my work was focussed on creating a standardized spreadsheet. Although little VBA was involved in creating this standardized spreadsheet, I wanted to note that certain aspects of the spreadsheet were designed to interact with the automation that I will describe later on. [Figure 2](#) on the following page is an image of the basic outline of the report template. The light yellow cells interact with the auto-fill feature of the spreadsheet and pull from the “Event Info” tab database.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

BYU GUEST SERVICES SALES REPORT

EVENT

UHSAA SWIM MEET

EVENT DATE

SPONSOR

HHP SERVICES

ACCOUNT #

HCO00020-4410-17365

TICKET DESCRIPTION

TICKET PRICE

NO. SOLD

EXPECTED REVENUE

LESS COMPS

TOTAL REVENUE

Thursday

5A Students

\$4.00

0

\$0.00

\$0.00

\$0.00

5A Adults

\$6.00

0

\$0.00

\$0.00

\$0.00

\$0.00

0

\$0.00

\$0.00

\$0.00

TOTALS

0

\$0.00

\$0.00

\$0.00

Friday

3A, 4A, 5A Students

\$4.00

0

\$0.00

\$0.00

\$0.00

3A, 4A, 5A Adults

\$6.00

0

\$0.00

\$0.00

\$0.00

\$0.00

0

\$0.00

\$0.00

\$0.00

\$0.00

0

\$0.00

\$0.00

\$0.00

TOTALS

0

\$0.00

\$0.00

\$0.00

Saturday

3A & 4A Students

\$4.00

0

\$0.00

\$0.00

\$0.00

3A & 4A Adults

\$6.00

0

\$0.00

\$0.00

\$0.00

\$0.00

0

\$0.00

\$0.00

\$0.00

\$0.00

0

\$0.00

\$0.00

\$0.00

TOTALS

0

\$0.00

\$0.00

\$0.00

GRAND TOTAL

\$0.00

Send to: matthew\_nix@byu.edu, widerburg@uhsaa.org

Contact Person: Matt Nix, Jeanne Widerburg

Phone:

Legend

Editable

Update

Don't Edit

Don't Edit

Check Figure

Print PDF Report

Duplicate Report

Print PDF

Thursday

14-Feb

Thursday, February 14

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

\$ -

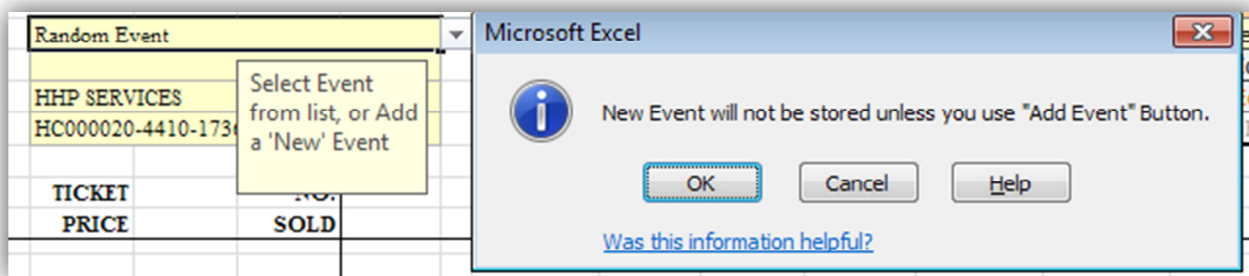
\$ -

\$ -

\$ -

<

Once the appropriate template is selected, the user then verifies the contents of the yellow highlighted cells to ensure that information regarding the customer is accurate and up to date. For example, ticket sales price must be updated on an event by event basis but email and phone contact information is stored and automatically updated when the event is selected. If the user chooses to use a generic template, the information is not pulled immediately for the customer. Instead, the user must select the desired event from the drop-down menu in the “Event” cell, and then click Auto-fill. Many different prompts can occur at this point. If the Event does not already exist in the database, the user will be prompted to decide whether to create a new event, or select one that is already in the database. Alternatively, the user can simply cancel the prompts and enter the information for a single-time use of the spreadsheet without saving information for future use. Figures 3 and 4 shows this interface.



BYU GUEST SERVICES SALES REPORT									
EVENT	UHSAA SWIM MEET				Auto Fill	New Event	Update Event		
EVENT DATE	TRI-MEET								
SPONSOR	UHSAA SWIM MEET								
ACCOUNT #	VALENTINE DANCE								
	VARSITY THEATER MOVIE								
	VIRTUE 5K								
	WHITE TIE BALL								
	WOMEN IN SCIENCE								
	ZUMBA NIGHT								
TICKET					EXPECTED		LESS		TOTAL
DESCRIPTION	PRICE	SOLD			REVENUE		COMPS		REVENUE

Figures 3 and 4

The majority of the VBA coding for this project involved the buttons “Auto Fill,” “New Event,” and “Update Event” as seen in Figure 4 above. The “Auto Fill” button executes a sub procedure which searches the database on the “Event Info” tab for information regarding a desired event. If the Event is not found, the user is prompted to select a different event or create a new one as discussed previously. If

the event returns a match, then the information stored in the database is pulled and inserted into the template in various locations. The sub procedure searches the template for specific key words which indicate where the desired destination cells are (Event, Sponsor, Account#, Contact, etc.) and then concatenates the results onto the existing fields.

The “New Event” button brings up the user form seen in [Figure 5](#) below. This user form prompts the user for some basic information regarding the new event. Certain fields are required while others are optional, and the user is show how fields should be formatted. The VBA code behind the user form prevents the user from creating an event that already exists by comparing the event name with the event names stored in the data base. The code also verifies that the required fields are filled and prompts the user when a mistake is made. When the “Save” button is selected in the user form, a new record is added to the database, and then the database is sorted so as to facilitate the drop-down feature in the Event cell on the spreadsheets. [Figure 6](#) shows the Database and a recently inserted record. Also, after executing the “New Event” button code, the user is taken to the line of the new record in the database so that they can verify that information was input correctly.

Figure 5 Add Event User Form

38	MATT COSTA CONCERT	BYUSA CAMPUS ACTIVITIES	12525000-4580-15710	Logan Mann	logan_mann@byu.edu	
39	MEN'S SOCCER	EXTRAMURAL	12330020-4580-00000	Jim Slaughter	james_slaughter@byu.edu	
40	MPC	MPC	19258003-6109	Museums Peoples	mpc.byu.edu	
41	MPC SPHINXES	MPC	19258003-6109	Museums Peoples	mpc.byu.edu	
42	MPC WEAVING SWORDS	MPC	19258003-6109	Museums Peoples	mpc.byu.edu	
43	NEW RECORD TEST	JAKE A	12345678-9101-00000	Jake	jm.albrechtsen@byu.edu,	(801)678-5959

Figure 6 New Record and Visual Verification

The “Update Event” button allows the user to make edits to the currently selected Event. VBA coding prevents the user from renaming an event to a name that is already in use, and the code gives appropriate prompts should the user try to use the “Update Event” record with a non-existing record. Figure 7 below shows the user form that autopopulates with the information that was previously stored in the database. Note that the “Save” button is hidden and that now, an “Update” button has become visible instead. Also, the user form title is updated with the current event name and the event in question is highlighted in the database to allow the user to verify changes were made appropriately.

The screenshot shows a spreadsheet with a list of events. A dialog box titled "Update NEW RECORD TEST event information" is open, displaying the following data:

Event Name:	NEW RECORD TEST
Sponsor:	JAKE A
Account #:	12345678-9101-00000
Contact Person:	Jake
Email:	jm.albrechtsen@byu.edu,
Telephone:	(801)678-5959

The spreadsheet background shows a list of events, with row 43 highlighted. The data in row 43 matches the information in the dialog box.

29	HOME COMING				Logan Mann	logan_mann@byu.edu	
30	HUNGER BANQUET					byu.sid@gmail.com	
31	KOREAN FESTIVAL				Michael Bertrand	michael_bertrand@byu.edu	(801) 422-7349
32	LACROSSE				Jim Slaughter	james_slaughter@byu.edu	
33	LADIES PREFERENCE DANCE				Logan Mann	logan_mann@byu.edu	
34	LATINO DANCE				Diane Hill	diane_hill@byu.edu	
35	LOL				Michael Bertrand	michael_bertrand@byu.edu,	(801) 422-7350
36	LUAU				Diane Hill	diane_hill@byu.edu	
37	MASON JENNINGS CONCERT				Logan Mann	logan_mann@byu.edu	
38	MATT COSTA CONCERT				Logan Mann	logan_mann@byu.edu	
39	MEN'S SOCCER				Jim Slaughter	james_slaughter@byu.edu	
40	MPC				Museums Peoples	mpc.byu.edu	
41	MPC SPHINXES				Museums Peoples	mpc.byu.edu	
42	MPC WEAVING SWORDS				Museums Peoples	mpc.byu.edu	
43	NEW RECORD TEST	JAKE A	12345678-9101-00000	Jake	jm.albrechtsen@byu.edu,	(801)678-5959	

Figure 7 Update Event Information

Finally, the “Print Report” button seen in Figure 1 allows the user to quickly print the report for customer use. Areas irrelevant to the customer are trimmed off and the report is saved as a PDF ready to be sent to the customer. Figure 8 has the final product.

## BYU GUEST SERVICES SALES REPORT

EVENT	DIVINE COMEDY
EVENT DATE	
SPONSOR	THEATER AND MEDIA ARTS
ACCOUNT #	13264069-4580-00000

TICKET DESCRIPTION	TICKET PRICE	NO. SOLD	EXPECTED REVENUE	LESS COMPS	TOTAL REVENUE
<u>Pre-sale:</u>					
Friday Early	\$5.00	0	\$0.00	\$0.00	\$0.00
Friday Late	\$5.00	0	\$0.00	\$0.00	\$0.00
Sat Early	\$5.00	0	\$0.00	\$0.00	\$0.00
Sat Late	\$5.00	0	\$0.00	\$0.00	\$0.00
20+ Discount	(\$1.00)	0	\$0.00	\$0.00	\$0.00
'	\$0.00	0	\$0.00	\$0.00	\$0.00
'	\$0.00	0	\$0.00	\$0.00	\$0.00
'	\$0.00	0	\$0.00	\$0.00	\$0.00
<b>TOTALS</b>		<b>0</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<u>Door:</u>					
Friday Early	\$5.00	0	\$0.00	\$0.00	\$0.00
Friday Late	\$5.00	0	\$0.00	\$0.00	\$0.00
Sat Early	\$5.00	0	\$0.00	\$0.00	\$0.00
Sat Late	\$5.00	0	\$0.00	\$0.00	\$0.00
T-Shirts	\$8.00	0	\$0.00	\$0.00	\$0.00
Posters	\$1.00	0	\$0.00	\$0.00	\$0.00
Stickers	\$1.00	0	\$0.00	\$0.00	\$0.00
'	\$0.00	0	\$0.00	\$0.00	\$0.00
<b>TOTALS</b>		<b>0</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
<b>Ticket Sales Summary</b>		<b>0</b>			
Friday Early		0			
Friday Late		0			
Sat Early		0			
Sat Late		0			
			<b>2% of ticket sales at the Information Desk</b>		<b>\$0.00</b>
Prepared by: Jake Albrechtsen				<b>GRAND TOTAL</b>	<b>\$0.00</b>
Preparation Date: 4/8/2013					
BYU Guest Services 422-5672					

Figure 8 PDF Report for Customer

## **Learning and Difficulties**

This project was a great opportunity to not only work my way through a difficult and challenging problem, but it served as an opportunity to experience VBA programming in the “real world.” My initial plan for this project was to automate all aspects of the accounting at my work. I knew that some human intervention would be necessary, but I thought that for the most part, things could just be automated. The slap in the face and awakening to reality did not take long. I quickly realized as I began this project just how time-consuming and difficult programming is and I would like to share some of the different difficulties I encountered.

First, no matter how creative you may want to be, if the end user’s needs aren’t being met, your programming is not effective. I realized early on that for certain things simplicity would prove to be useful than complex solutions. For example, I wanted to create a combo list in the Ribbon that would allow the user to scroll through and select from among all of the possible events and have it generate the report upon selection. What I realized after discussing this option with my replacement accountant was that she preferred simple pictures of the most common events, and she would be willing to use the spreadsheet list and button for those not as common. This made it easier on me as I did not have to spend time programming the combo list that would ultimately go unutilized.

Another lesson learned while doing this project was the importance of ample, clear documentation, relevant to the end user. Again, if what I write and document doesn’t make sense to the person using the spreadsheet application then my work is ineffective. I realized how important clear notes in my programming would be for future users as well as message boxes and comment suggestions instructing the user on how to work with the program. This brings me to the final lesson learned while doing this project—learn to expect the unexpected.

As I created my separate buttons allowing the user to auto fill the spreadsheet, add a new event, and edit existing events I had a hard time thinking of how an everyday user might potentially cause the code to break. I had to think of the unordinary instances such as trying to edit an event that doesn’t exist, or adding an event that already exists. I usually didn’t discover all of these loopholes all at once, nor do I profess to have found all of them, but I found it a beneficial exercise to try and think of all of the different ways the end user might encounter errors with my program.

One aspect of the project that I would have liked to have implemented was the ability for the user to save the report as a PDF and automatically email the respective customer. Two things prevented me from implementing this feature. First of all, from what I gleamed from online forums, Microsoft VBA does not interact well with CutePDF writer. Because this is the application that I have at work for creating PDF's, I did not feel that it would be worth it to create a function that would not work at the job. Secondly, I feared that the user might forget to verify to whom they were sending the reports and so I thought that by requiring the manual step of having to copy the email address into their email client, the user would at least have one more step of verifying that the recipient was appropriate.

## **Assistance**

I did not receive any substantial assistance in the completion of this project. I will state however that I would not have completed this project without the brilliant aid of online forums where other VBA programmers post help and advice.