Brandon Cook
MBA 614

Final Project

Executive Summary

In response to an ad I posted on Craigslist I received a call from a partner at an investment consulting firm who requested that I build a spreadsheet for their weekly reporting process. They already had a spreadsheet in use but they wanted it simplified and consolidated for all 3 of their reporting branches. This investment consulting firm sells consulting services to clients and tracks the number of leads, closed sales, and revenue generated by each client in each office. The partner asked that I create a way to summarize the results based on each consultant (employee), and corresponding charts showing the results. He also asked that the charts and tables be able to automatically update based on branch, fiscal quarter, and week of the quarter if desired. They also wanted to be able to summarize the results based on the partner that handled the transaction and have a sheet that calculated the bonus due to each consultant based on the number of closed sales and a sheet where daily transactions are added or updated.

Implementation

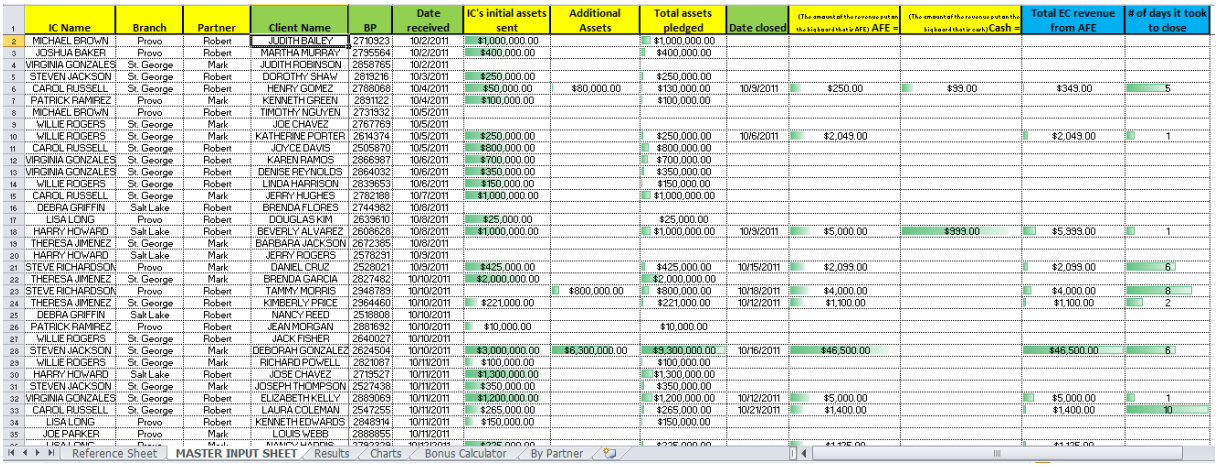
In building this spreadsheet my first thought was to use the spreadsheet and code that was in their existing spreadsheet and modify it to meet the company's requirements. After examining the existing code and trying to see where changes needed to be made I determined that the easiest and best way for me to proceed was to simply start from scratch. I copied the tables and data from their spreadsheet into a blank spreadsheet and began building the model they needed.

I first began on the sheet where new data was entered with each transaction and was called the Master Input Sheet. This sheet had the following columns:

1. The consultant's name
2. What branch they were in
3. The partner who handled the transaction
4. The name of the client
5. The date the lead was received
6. The amount of the assets initially pledged to manage
7. Any additional money sent after the fact
8. The total amount of money pledged to manage
9. The date the sale was closed
10. The amount of revenue generated by the sale that is still receivable
11. The amount of cash received
12. The total amount of revenue
13. The number of days it took to close

On examining the old spreadsheet I noticed there were a few places where errors occurred frequently in data entry. The columns recording the total amount of money pledged as well as the total amount of revenue were often incorrect. Either the person

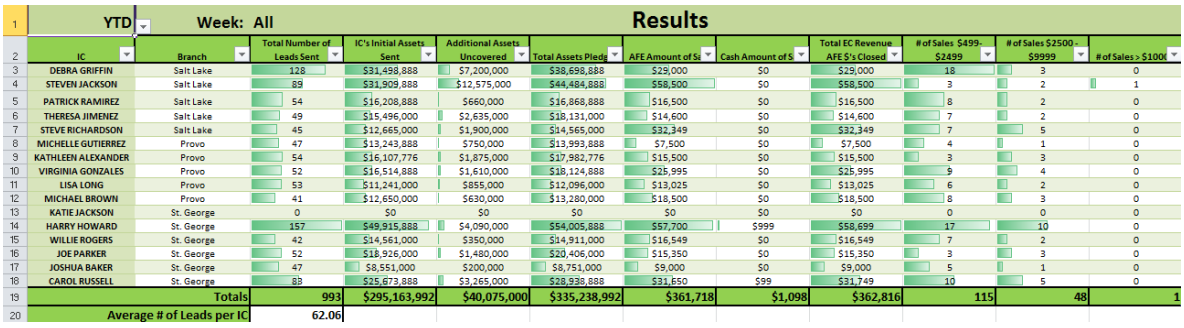
entering the data in the past would forget to put the total in or the total would be added incorrectly. I made these into auto-calculating columns of the two proceeding columns so that whenever there was a change to a cell in one of the columns to be summed an event was triggered that added the sum into the appropriate cell. The column specifying the number of days it took to close the deal was also often wrong. This column calculated the difference between the date the lead was received and the date it was closed. I made this field also be a calculation based on the two other date columns and had it filled in and reevaluated whenever there was a change to one of the other two columns. In addition to the general layout and the mathematical controls to prevent errors, I added a couple hidden columns to calculate the quarter and the week of the quarter based on the date the lead was received. This was to aid in filtering the transactions by quarter and by week.



	IC Name	Branch	Partner	Client Name	BP	Date received	IC's initial assets sent	Additional Assets	Total assets pledged	Date closed	(The amount of the revenue put on the highest that is AFE) AFE =	(The amount of the revenue put on the highest that is cash) Cash =	Total EC revenue from AFE	# of days it took to close
2	MICHAEL BROWN	Provo	Robert	JUDITH BAILEY	2710923	10/2/2011	$1,000,000.00		$1,000,000.00					
3	JOSHUA BAKER	Provo	Robert	MARTHA MURRAY	2795564	10/2/2011	$400,000.00		$400,000.00					
4	VIRGINIA GONZALES	St. George	Mark	JUDITH ROBINSON	2858765	10/2/2011								
5	STEVEN JACKSON	St. George	Robert	DOROTHY SHAW	2813216	10/3/2011	$250,000.00		$250,000.00					
6	CAROL RUSSELL	St. George	Robert	HENRY GOMEZ	2788068	10/4/2011	$50,000.00	$80,000.00	$130,000.00	10/9/2011	$250.00	$99.00	$349.00	5
7	PATRICK RAMIREZ	Provo	Mark	KENNETH GREEN	2891122	10/4/2011	$100,000.00		$100,000.00					
8	MICHAEL BROWN	Provo	Robert	TIMOTHY NGUYEN	2731932	10/5/2011								
9	WILLIE ROGERS	St. George	Mark	JOE CHAVEZ	2767769	10/5/2011								
10	WILLIE ROGERS	St. George	Mark	KATHERINE PORTER	2614374	10/5/2011	$250,000.00		$250,000.00	10/6/2011	$2,049.00		$2,049.00	1
11	CAROL RUSSELL	St. George	Robert	JOYCE DAVIS	2505870	10/5/2011	$800,000.00		$800,000.00					
12	VIRGINIA GONZALES	St. George	Robert	KAREN RAMOS	2866987	10/6/2011	$700,000.00		$700,000.00					
13	VIRGINIA GONZALES	St. George	Robert	DENISE REYNOLDS	2864032	10/6/2011	$350,000.00		$350,000.00					
14	WILLIE ROGERS	St. George	Robert	LINDA HARRISON	2839653	10/6/2011	$150,000.00		$150,000.00					
15	CAROL RUSSELL	St. George	Mark	JERRY HUGHES	2782188	10/7/2011	$1,000,000.00		$1,000,000.00					
16	DEBRA GRIFFIN	Salt Lake	Robert	BRENDA FLORES	2744382	10/8/2011								
17	LISA LONG	Provo	Robert	DOUGLAS KIM	2639610	10/8/2011	$25,000.00		$25,000.00					
18	HARRY HOWARD	Salt Lake	Robert	BEVERLY ALVAREZ	2606628	10/8/2011	$1,000,000.00		$1,000,000.00	10/9/2011	$5,000.00	$999.00	$5,999.00	1
19	THERESA JIMENEZ	St. George	Mark	BARBARA JACKSON	2672385	10/8/2011								
20	HARRY HOWARD	Salt Lake	Mark	JERRY ROGERS	2578231	10/9/2011								
21	STEVE RICHARDSON	Provo	Mark	DANIEL CRUZ	2528021	10/9/2011	$425,000.00		$425,000.00	10/15/2011	$2,093.00		$2,093.00	6
22	THERESA JIMENEZ	St. George	Mark	BRENDA GARCIA	2827482	10/10/2011	$2,000,000.00		$2,000,000.00					
23	STEVE RICHARDSON	Provo	Robert	TAMMY MORRIS	2948789	10/10/2011		$800,000.00	$800,000.00	10/18/2011	$4,000.00		$4,000.00	8
24	THERESA JIMENEZ	St. George	Robert	KIMBERLY PRICE	2964460	10/10/2011	$221,000.00		$221,000.00	10/12/2011	$1,100.00		$1,100.00	2
25	DEBRA GRIFFIN	Salt Lake	Robert	NANCY REED	2518808	10/10/2011								
26	PATRICK RAMIREZ	Provo	Robert	JEAN MORGAN	2881692	10/10/2011	$10,000.00		$10,000.00					
27	WILLIE ROGERS	St. George	Robert	JACK FISHER	2640027	10/10/2011								
28	STEVEN JACKSON	St. George	Mark	DEBORAH GONZALEZ	2624504	10/10/2011	$3,000,000.00	$6,300,000.00	$9,300,000.00	10/16/2011	$46,500.00		$46,500.00	6
29	WILLIE ROGERS	St. George	Mark	RICHARD POWELL	2821087	10/11/2011	$100,000.00		$100,000.00					
30	HARRY HOWARD	Salt Lake	Robert	JOSE CHAVEZ	2719527	10/11/2011	$1,300,000.00		$1,300,000.00					
31	STEVEN JACKSON	St. George	Mark	JOSEPH THOMPSON	2527438	10/11/2011	$350,000.00		$350,000.00					
32	VIRGINIA GONZALES	St. George	Robert	ELIZABETH KELLY	2869069	10/11/2011	$1,200,000.00		$1,200,000.00	10/12/2011	$5,000.00		$5,000.00	1
33	CAROL RUSSELL	St. George	Robert	LAURA COLEMAN	2547255	10/11/2011	$265,000.00		$265,000.00	10/21/2011	$1,400.00		$1,400.00	10
34	LISA LONG	Provo	Robert	KENNETH EDWARDS	2848314	10/11/2011	$150,000.00		$150,000.00					
35	JOE PARKER	Provo	Mark	LOUIS WEBB	2888855	10/11/2011								

Reference Sheet | MASTER INPUT SHEET | Results | Charts | Bonus Calculator | By Partner

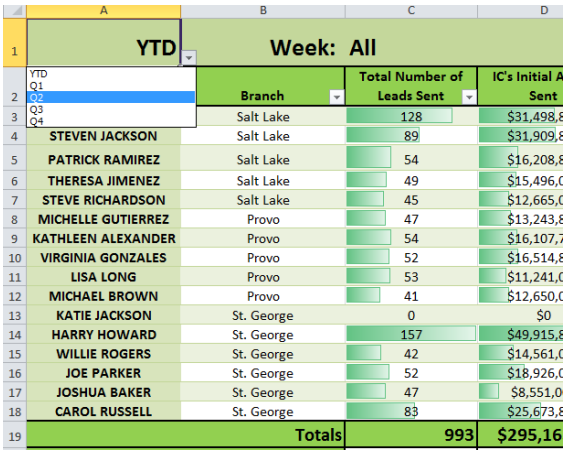
A results sheet was created that had a table that summed up the results of all the transactions in the Master Input Sheet. This listed all of the consultants, which branch they were in, and gave the total number of their leads, the amount of money pledged, the revenue made, and broke out the transactions into three buckets based on size. The data on this sheet would be dynamic and would update whenever the transactions were changed on the Master Input Sheet.



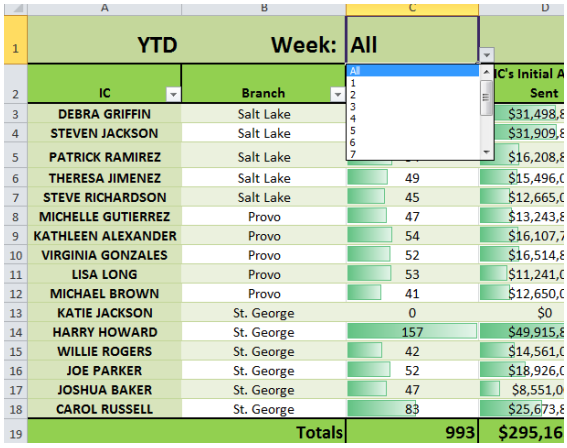
	YTD	Week: All	Results										
2	IC	Branch	Total Number of Leads Sent	IC's Initial Assets Sent	Additional Assets Uncovered	Total Assets Pledg	AFE Amount of Si	Cash Amount of S	Total EC Revenue AFE $'s Closed	# of Sales $499-- $2499	# of Sales $2500-- $9999	# of Sales > $100(
3	DEBRA GRIFFIN	Salt Lake	128	$31,458,888	$7,200,000	$38,658,888	$29,000	$0	$29,000	18	3	0
4	STEVEN JACKSON	Salt Lake	89	$31,909,888	$12,575,000	$44,484,888	$58,500	$0	$58,500	3	2	1
5	PATRICK RAMIREZ	Salt Lake	54	$16,208,888	$660,000	$16,868,888	$16,500	$0	$16,500	8	2	0
6	THERESA JIMENEZ	Salt Lake	49	$15,496,000	$2,635,000	$18,131,000	$14,600	$0	$14,600	7	2	0
7	STEVE RICHARDSON	Salt Lake	45	$12,665,000	$1,900,000	$14,565,000	$32,349	$0	$32,349	7	5	0
8	MICHELLE GUTIERREZ	Provo	47	$13,243,888	$750,000	$13,993,888	$7,500	$0	$7,500	4	1	0
9	KATHLEEN ALEXANDER	Provo	54	$16,107,776	$1,875,000	$17,982,776	$15,500	$0	$15,500	3	3	0
10	VIRGINIA GONZALES	Provo	52	$16,514,888	$1,610,000	$18,124,888	$25,995	$0	$25,995	9	4	0
11	LISA LONG	Provo	53	$11,241,000	$855,000	$12,096,000	$13,025	$0	$13,025	6	2	0
12	MICHAEL BROWN	Provo	41	$12,650,000	$630,000	$13,280,000	$18,500	$0	$18,500	8	3	0
13	KATIE JACKSON	St. George	0	$0	$0	$0	$0	$0	$0	0	0	0
14	HARRY HOWARD	St. George	157	$49,915,888	$4,090,000	$54,005,888	$57,700	$999	$58,699	17	10	0
15	WILLIE ROGERS	St. George	42	$14,561,000	$350,000	$14,911,000	$16,549	$0	$16,549	7	2	0
16	JOE PARKER	St. George	52	$18,926,000	$1,480,000	$20,406,000	$15,350	$0	$15,350	3	3	0
17	JOSHUA BAKER	St. George	47	$8,551,000	$200,000	$8,751,000	$9,000	$0	$9,000	5	1	0
18	CAROL RUSSELL	St. George	83	$25,673,888	$3,265,000	$28,938,888	$31,650	$99	$31,749	10	5	0
19		Totals	993	$295,163,992	$40,075,000	$335,238,992	$361,718	$1,098	$362,816	115	48	1
20		Average # of Leads per IC	62.06									

In addition to simply filtering by branch, the company wanted to be able to filter the results based on quarter and week if desired but didn't want to show any columns for

quarter or week. In doing this I built custom filters into two cells at the top of the table. If the user clicks on the cell in the top left (the one that says “YTD”), the user can choose which quarter to show, or whether to show the whole year up to that point. When the value in the first cell changes the data on the table is filtered to show only the corresponding data. If a particular quarter is selected and the user would like to see the results of a specific week in that quarter, they can click on the cell next to the one that says, “Week,” and select which week to show. When a week is selected the data is filtered to only show the appropriate results.

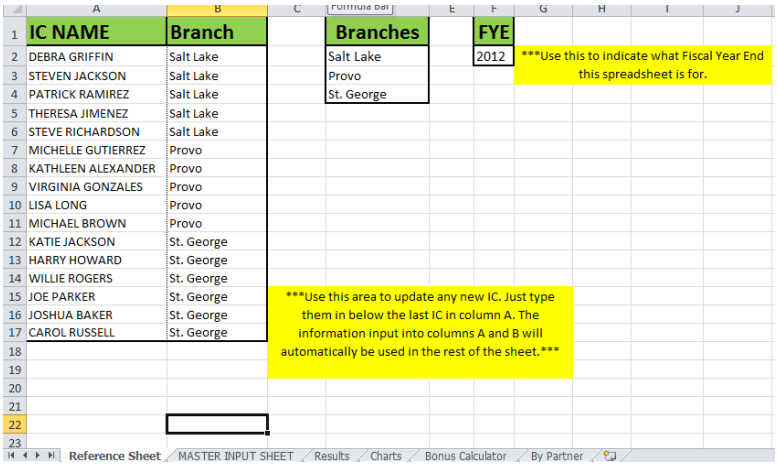


YTD	Week: All		
	Branch	Total Number of Leads Sent	IC's Initial A Sent
STEVEN JACKSON	Salt Lake	89	$31,909,8
PATRICK RAMIREZ	Salt Lake	54	$16,208,8
THERESA JIMENEZ	Salt Lake	49	$15,496,0
STEVE RICHARDSON	Salt Lake	45	$12,665,0
MICHELLE GUTIERREZ	Provo	47	$13,243,8
KATHLEEN ALEXANDER	Provo	54	$16,107,7
VIRGINIA GONZALES	Provo	52	$16,514,8
LISA LONG	Provo	53	$11,241,0
MICHAEL BROWN	Provo	41	$12,650,0
KATIE JACKSON	St. George	0	$0
HARRY HOWARD	St. George	157	$49,915,8
WILLIE ROGERS	St. George	42	$14,561,0
JOE PARKER	St. George	52	$18,926,0
JOSHUA BAKER	St. George	47	$8,551,0
CAROL RUSSELL	St. George	83	$25,673,8
Totals		993	$295,16



YTD	Week: All		
IC	Branch		IC's Initial A Sent
DEBRA GRIFFIN	Salt Lake		$31,498,8
STEVEN JACKSON	Salt Lake		$31,909,8
PATRICK RAMIREZ	Salt Lake		$16,208,8
THERESA JIMENEZ	Salt Lake	49	$15,496,0
STEVE RICHARDSON	Salt Lake	45	$12,665,0
MICHELLE GUTIERREZ	Provo	47	$13,243,8
KATHLEEN ALEXANDER	Provo	54	$16,107,7
VIRGINIA GONZALES	Provo	52	$16,514,8
LISA LONG	Provo	53	$11,241,0
MICHAEL BROWN	Provo	41	$12,650,0
KATIE JACKSON	St. George	0	$0
HARRY HOWARD	St. George	157	$49,915,8
WILLIE ROGERS	St. George	42	$14,561,0
JOE PARKER	St. George	52	$18,926,0
JOSHUA BAKER	St. George	47	$8,551,0
CAROL RUSSELL	St. George	83	$25,673,8
Totals		993	$295,16

Another sheet was added that acted as a master sheet for the consultants, the branches and the fiscal year of the workbook. Since this workbook was to be used for one year, then have another clean copy built for every following year, I created a place where the fiscal year could be input and then that year could then be used to calculate the starts of all the fiscal quarters in the year as well as each week within the quarters. Another column was added where the branches could be listed and used as a master list to make sure that whenever a branch name was typed in somewhere, it matched the name to the list and made sure it was a valid branch and was spelled correctly. Also included on this sheet was a list of all the consultants employed by the company and what branch they worked for.



IC NAME	Branch
DEBRA GRIFFIN	Salt Lake
STEVEN JACKSON	Salt Lake
PATRICK RAMIREZ	Salt Lake
THERESA JIMENEZ	Salt Lake
STEVE RICHARDSON	Salt Lake
MICHELLE GUTIERREZ	Provo
KATHLEEN ALEXANDER	Provo
VIRGINIA GONZALES	Provo
LISA LONG	Provo
MICHAEL BROWN	Provo
KATIE JACKSON	St. George
HARRY HOWARD	St. George
WILLIE ROGERS	St. George
JOE PARKER	St. George
JOSHUA BAKER	St. George
CAROL RUSSELL	St. George

Branches
Salt Lake
Provo
St. George

FYE: 2012

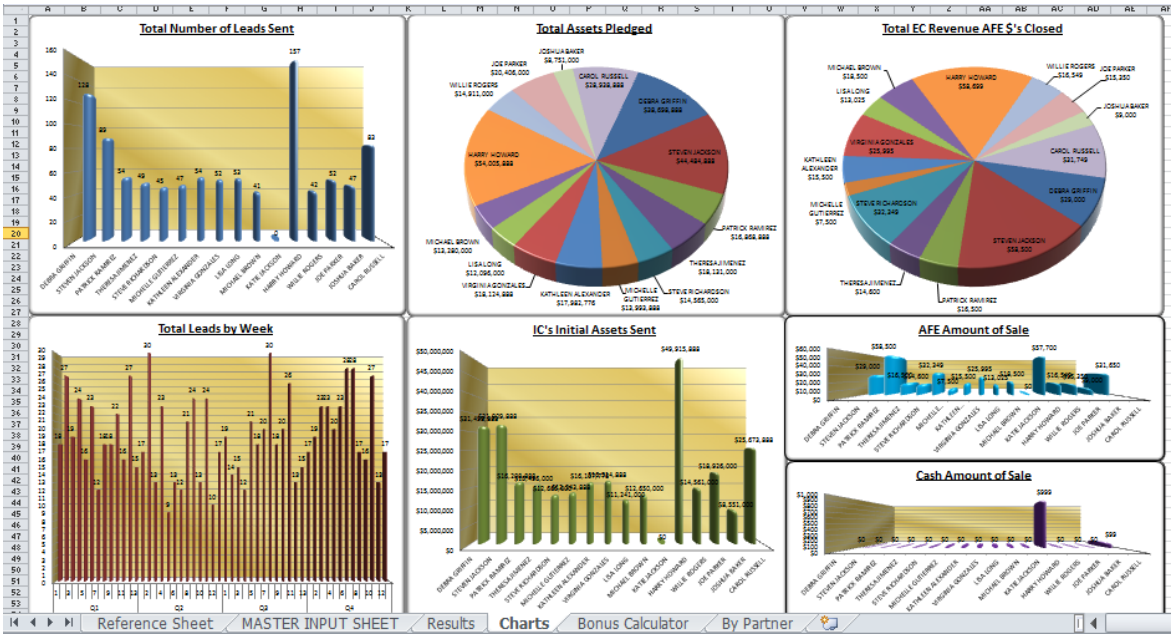
***Use this to indicate what Fiscal Year End this spreadsheet is for.

Use this area to update any new IC. Just type them in below the last IC in column A. The information input into columns A and B will automatically be used in the rest of the sheet.

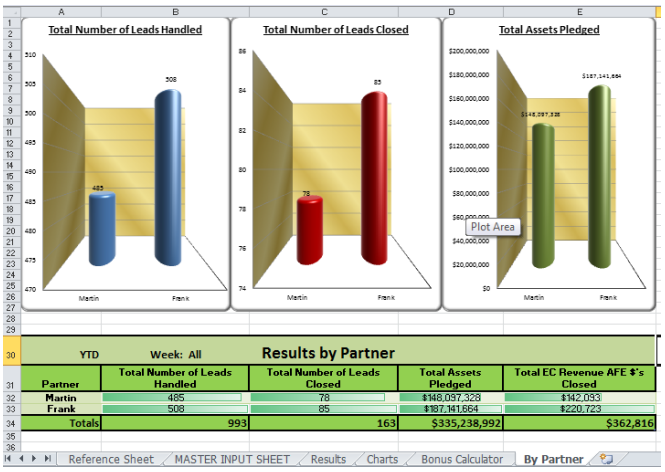
Reference Sheet | MASTER INPUT SHEET | Results | Charts | Bonus Calculator | By Partner

Whenever the company decides that they want to add to the list of consultants, they would simply add the name to the bottom of the list and then a procedure will run that rebuilds the results sheet and adds the new consultant to the that sheet, recalculating all of the sheets in the workbook.

I created another sheet with charts summarizing the data on the results sheet into charts. Each of these charts summarized one of the main columns in the in the results table by consultant. I created a procedure that would refresh the data in the charts based on what was in the table on the results sheet whenever the sheet with the charts was opened. An additional chart was added to this sheet that grouped the transactions by quarter and by week. If the results were filtered so that only one quarter was showing, then the graph would show that quarter only.



Another sheet was added that showed the number of leads, closed leads, money pledged and revenue made based on the partner handling the transaction instead of the consultant who made the sale. Corresponding charts were also made to show this data.



YTD Week: All **Results by Partner**

Partner	Total Number of Leads Handled	Total Number of Leads Closed	Total Assets Pledged	Total EC Revenue AFE $'s Closed
Martin	485	78	$148,097,328	$142,093
Frank	508	85	$187,141,664	$220,723
Totals	993	163	$335,238,992	$362,816

Reference Sheet | MASTER INPUT SHEET | Results | Charts | Bonus Calculator | By Partner

In addition to this sheet, I added a sheet that would take the data in the summary table, and calculate the bonus per consultant based on certain thresholds that the company established. These bonuses were commissions on the closed deals.

BONUS CALCULATOR

Office	IC	Total Number of Closes	Total From Sales $499-$2499	Total From Sales $2500-$9999	Total From Sales $10000+	Total	Avg Bonus per Closed Lead
Salt Lake	DEBRA GRIFFIN	21	$1,350.00	$525.00	$0.00	$1,875.00	$89.29
Salt Lake	STEVEN JACKSON	6	$225.00	$350.00	$375.00	$950.00	$158.33
Salt Lake	PATRICK RAMIREZ	10	$600.00	$350.00	$0.00	$950.00	$95.00
Salt Lake	THERESA JIMENEZ	9	$525.00	$350.00	$0.00	$875.00	$97.22
Salt Lake	STEVE RICHARDSON	12	$525.00	$875.00	$0.00	$1,400.00	$116.67
Provo	MICHELLE GUTIERREZ	5	$300.00	$175.00	$0.00	$475.00	$95.00
Provo	KATHLEEN ALEXANDER	6	$225.00	$525.00	$0.00	$750.00	$125.00
Provo	VIRGINIA GONZALES	13	$675.00	$700.00	$0.00	$1,375.00	$105.77
Provo	LISA LONG	7	$450.00	$350.00	$0.00	$800.00	$114.29
Provo	MICHAEL BROWN	11	$600.00	$525.00	$0.00	$1,125.00	$102.27
St. George	KATIE JACKSON	0	$0.00	$0.00	$0.00	$0.00	
St. George	HARRY HOWARD	26	$1,275.00	$1,750.00	$0.00	$3,025.00	$116.35
St. George	WILLIE ROGERS	9	$525.00	$350.00	$0.00	$875.00	$97.22
St. George	JOE PARKER	6	$225.00	$525.00	$0.00	$750.00	$125.00
St. George	JOSHUA BAKER	6	$375.00	$175.00	$0.00	$550.00	$91.67
St. George	CAROL RUSSELL	16	$750.00	$875.00	$0.00	$1,625.00	$101.56
	Totals	163	$8,625.00	$8,400.00	$375.00	$17,400.00	$108.71

Learning and Difficulties

In building this model for the company, I ran into several difficulties. Included in the difficulties were the following: misplaced lines in the code that enabled or disabled events, grouping transactions by week, eliminating categories on the charts that had no data, creating custom filters for quarters and weeks, and filtering the data on the tables.

There were several times after the model was getting close to being done that, while running and testing the model, I noticed that I had been caught in an infinite loop. The code would run and run and run and never stop! At first I thought my computer was just freezing up but then I noticed that it really was running over and over again. One night, after I had been working on it for over 12 hours that day, I couldn't find out what was wrong and was getting very frustrated since I was approaching the deadline of when the partner wanted the model done by. As it got later and I got more and more tired, I determined that my best option was to open an earlier version that I had saved when everything worked fine. This version was several hours of work behind where I was so I was very reluctant but ended up reverting to an earlier version and then chugging away

again. I put another couple hours in that night and went to bed frustrated, but when I awoke the next morning and pulled open the project I was getting close to where I had been the night before. As I reached that point I realized that I had enabled events in the wrong place in my code. What was happening was that with all of the events that ran code whenever there was a change to a particular sheet, whenever a procedure ran that updated a cell on a sheet, the event would trigger and start another procedure, which would call the procedure that was originally running, which would change the cell, trigger the event, and start all over again. I had deliberately tried to avoid this by disabling events until after a procedure ran, then enabling them again, but with all of the procedures calling other procedures, had negligently re-enabled them at the end of one sub procedure that was being called by another sub procedure. The result was an infinite loop that I had spent over 5 hours trying to debug but only that only took 30 seconds to fix once I'd found it. I learned that I needed to be more careful in the beginning when planning and structuring the procedures and determining how to carry out a particular task.

Another problem I encountered was creating a chart that broke out the transactions into weeks. My first thought on this was to create a pivot table on a hidden sheet and have that data change based on the filtered selections, then to have that data linked to the appropriate chart. I tried this and grouped the transactions by date and then noticed that I could only choose the start date and have them grouped by 7 day increments to create a week. This was a problem since the first day of the fiscal year could be any day of the week and they wanted their weeks to go from Monday to Sunday. If the quarter started on a Saturday then taking my first approach would give me Saturday to Saturday when it should give me Saturday and Sunday for week 1, then the following Monday to Sunday for week 2. In attempting to solve this problem I first created a procedure that would determine what day of the week the starting day of the quarter was and would adjust the start date of the groupings accordingly. For example, if Friday was the first day of the quarter the procedure would make the start date be 4 days earlier than the real start of the quarter and group every 7 days from there. This would make every week go from Monday to Sunday. The problem with this is that it could potentially include transactions from the last four days of the previous period. To mitigate this I decided to filter out everything that was not the selected period so that even if the start date was 4 days early, there was no data for those 4 days to it would still be correct. I ran into another problem when implementing this solution. I consulted with the partner about this time and he said that he would like the axis of the chart to show an integer for the week instead of the week range (when using a pivot chart in Excel and grouping by dates, the axis is automatically the date range and there is no way to change that. I ultimately ended up adding two hidden column on the input sheet that would calculate the quarter and the week numbers as data is entered into the appropriate columns. I then had the hidden pivot table group by the number of the week instead of the date itself.

I also had an issue with the formatting of the charts themselves. The charts would show all of the consultants, regardless of whether they had any data or not. Since some of the offices had quite a few consultants, whenever there were several with no data, Excel

would superimpose the labels on each other and make the chart look unprofessional and not legible. It took quite a while to figure out how to do this and then when I did I put the code in the wrong place so that it when it reached the last consultant, it would reset the format to the way it had previously been and re-insert all of the blank consultants that had just been removed. This ended up being very similar to the infinite loops with the events since I just moved one line of code down by a couple lines and it worked fine.

One of the most intricate difficulties I encountered was trying to create some custom filters for the quarter and the week. Because of my use of a table in Excel, the other filters were very simple and whenever they changed, the charts automatically did since they referenced the table column and not a particular cell. The quarter and week filters, however, were quite challenging. The way I decided to structure the sheet so that a long procedure doesn't need to run to rebuild all the totals and summaries on the results table every time a new transaction is entered, was to place formulas in the results table that referenced columns in the Master Input Sheet where the transactions were recorded. This made it difficult to add additional filter criteria to the formula. I ultimately ended up creating variables that would evaluate the filter criteria (whether it was year-to-date, Q1, Q2, Q3 or Q4 for the quarter filter; or what week was selected for the week filter) and add additional criteria to the formulas if there was a filter selected. This created some very long and tedious formulas with a confusing amount of quotes to make the variables work properly. To select the filters, and at the request of the partner, I created two dropdown cells at the top of the table that when the value in these cells changed, the procedure mentioned above ran and altered the formulas to show only desired criteria.

Perhaps the biggest pain of all the problems I encountered was trying to get the formulas and everything to update when the data in the results table was filtered (not my custom built filters, but the normal filter functionality in Excel). This was a problem because I wanted to run procedures that updated the charts and the other sheets to make the filter criteria the same throughout all the sheets (including the hidden pivot table one) whenever a filter was selected and in excel there is not an event that is triggered when a filter is changed since no cell changes value or is selected, just what is visible is changed. I spent a good amount of time researching online trying to find a solution and finally found what needed to be done and how. I learned that filtering triggers a recalculation of the data on the sheet and that if I put a "Now()" or a "Rand()" function in a cell anywhere on the sheet (these would change whenever there is a recalculation) and then have an event that is triggered when the calculation of the spreadsheet changes and runs the appropriate code, I could get my code to run whenever the filters are changed on the table. This was pretty simple in theory but because of the number of macros and procedures I had in the model I had a difficult time tweaking things to get them to run smoothly and properly. I also got into another infinite loop when doing this because I had the first part of my code look and see what both filters were that were selected, if the first one was "YTD" (the whole year), I didn't want the option of selecting a specific week, just if a specific quarter was selected, because of this if the quarter filter was "YTD" then I had the procedure set the week

filter to “All.” This triggered the recalculate event and it ran the procedure again, which set the week filter to “All” again and triggered the recalculate event again, and so on. I then learned to disable events at the start of this procedure and enable them again at the end.

Assistance

The building of this project took me approximately 70 hours and I did not receive much help from other persons in doing this project with the exception of my two visits to Professor Allen’s office to help get me out of a bind.