Implementation Documentation

My project consists of the following modules/forms:

1. User form-simple user form to collect the Gmail credentials of the users.
2. Module 1-the main body of code that accomplishes the objective (described in detail later).
3. Module 2-the overhead code required to make the email and text functions work.

The following is a step-by-step narrative of how the VBA code accomplishes the stated objectives. To understand why much of the code is written the way it is, one must understand the nature of the associate's contracts, the nuances of the billing report, etc. To spare as many details as possible, after each block of code is discussed, I have included additional notes in blue.

Before the code is executed, the user pulls the detailed reports from the billing software. This contains thousands of lines of charges for each year (see Figure 1). The user may include one year of data, or several (each year on its own sheet).

Figure 1

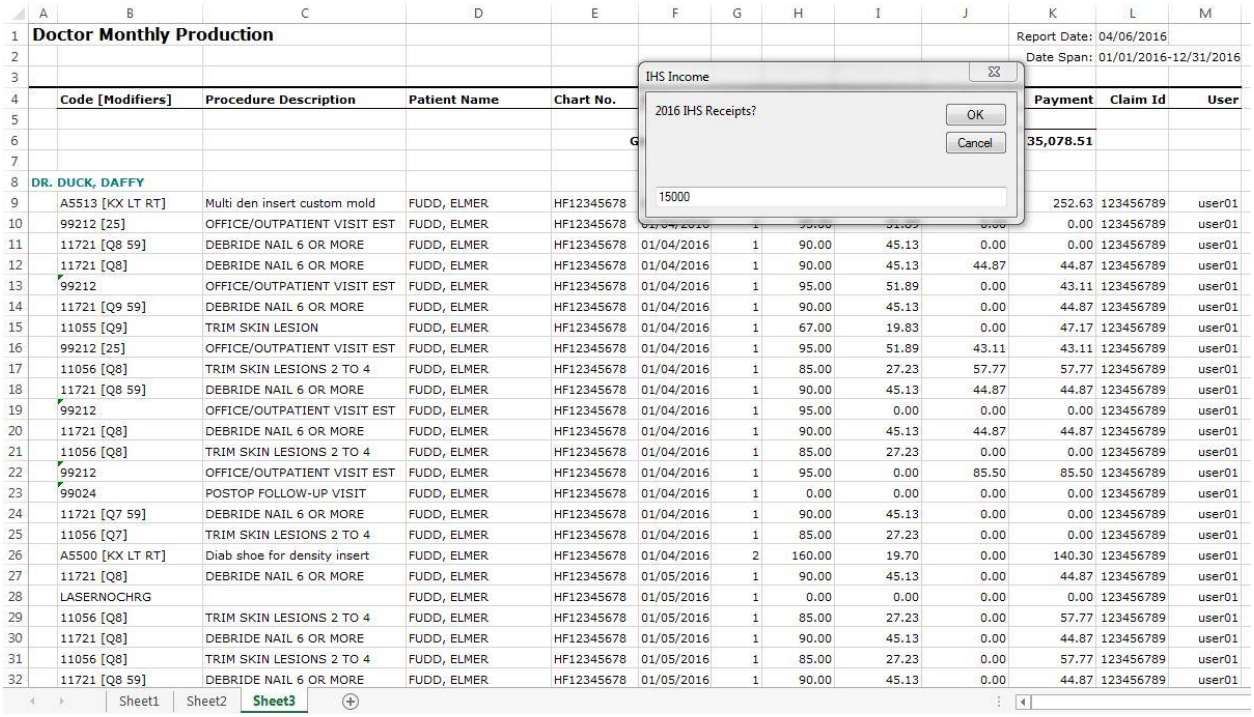
	A	B	C	D	E	F	G	H	I	J	K	L	M
1		**Doctor Monthly Production**									Report Date:	04/06/2016	
2											Date Span:	01/01/2016-12/31/2016	
3													
4		**Code [Modifiers]**	**Procedure Description**	**Patient Name**	**Chart No.**	**DOS**	**Units**	**Charge**	**Adjustment**	**PR Adj.**	**Payment**	**Claim Id**	**User**
5													
6						**Grand Total**	**1,157**	**#######**	**33,389.64**	**12,817.76**	**35,078.51**		
7													
8		**DR. DUCK, DAFFY**											
9		A5513 [KX LT RT]	Multi den insert custom mold	FUDD, ELMER	HF12345678	01/04/2016	6	300.00	47.37	0.00	252.63	123456789	user01
10		99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	51.89	0.00	0.00	123456789	user01
11		11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	0.00	123456789	user01
12		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	44.87	44.87	123456789	user01
13		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	51.89	0.00	43.11	123456789	user01
14		11721 [Q9 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	44.87	123456789	user01
15		11055 [Q9]	TRIM SKIN LESION	FUDD, ELMER	HF12345678	01/04/2016	1	67.00	19.83	0.00	47.17	123456789	user01
16		99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	51.89	43.11	43.11	123456789	user01
17		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	57.77	57.77	123456789	user01
18		11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	44.87	44.87	123456789	user01
19		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	0.00	0.00	0.00	123456789	user01
20		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	44.87	44.87	123456789	user01
21		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	0.00	0.00	123456789	user01
22		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	0.00	85.50	85.50	123456789	user01
23		99024	POSTOP FOLLOW-UP VISIT	FUDD, ELMER	HF12345678	01/04/2016	1	0.00	0.00	0.00	0.00	123456789	user01
24		11721 [Q7 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	0.00	123456789	user01
25		11056 [Q7]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	0.00	0.00	123456789	user01
26		A5500 [KX LT RT]	Diab shoe for density insert	FUDD, ELMER	HF12345678	01/04/2016	2	160.00	19.70	0.00	140.30	123456789	user01
27		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
28		LASERNOCHRG		FUDD, ELMER	HF12345678	01/05/2016	1	0.00	0.00	0.00	0.00	123456789	user01
29		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/05/2016	1	85.00	27.23	0.00	57.77	123456789	user01
30		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
31		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/05/2016	1	85.00	27.23	0.00	57.77	123456789	user01
32		11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
33		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
34		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	51.89	0.00	43.11	123456789	user01
35		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	0.00	0.00	0.00	123456789	user01
36		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	44.21	45.79	45.79	123456789	user01
37		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	51.89	43.11	43.11	123456789	user01
38		99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	52.58	0.00	42.42	123456789	user01
39		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.85	0.00	44.15	123456789	user01

Sheet1 | Sheet2 | Sheet3

A series of nested if-then statements determine whether to inquire about current year receipts (see Figure 2).

In addition to his regular work at the office, one of the associates performs work at the Indian Health Service (IHS). If, among the reports found in the workbook, there is a report for the current year for that specific associate, the user will need to enter his Year-to-Date IHS receipts as these are not included in the practice's billing software.

Figure 2



	A	B	C	D	E	F	G	H	I	J	K	L	M
1		**Doctor Monthly Production**									Report Date:	04/06/2016	
2											Date Span:	01/01/2016-12/31/2016	
3													
4		**Code [Modifiers]**	**Procedure Description**	**Patient Name**	**Chart No.**						**Payment**	**Claim Id**	**User**
5													
6					G						**35,078.51**		
7													
8		**DR. DUCK, DAFFY**											
9		A5513 [KX LT RT]	Multi den insert custom mold	FUDD, ELMER	HF12345678						252.63	123456789	user01
10		99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678						0.00	123456789	user01
11		11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	0.00	123456789	user01
12		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	44.87	44.87	123456789	user01
13		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	51.89	0.00	43.11	123456789	user01
14		11721 [Q9 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	44.87	123456789	user01
15		11055 [Q9]	TRIM SKIN LESION	FUDD, ELMER	HF12345678	01/04/2016	1	67.00	19.83	0.00	47.17	123456789	user01
16		99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	51.89	43.11	43.11	123456789	user01
17		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	57.77	57.77	123456789	user01
18		11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	44.87	44.87	123456789	user01
19		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	0.00	0.00	0.00	123456789	user01
20		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	44.87	44.87	123456789	user01
21		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	0.00	0.00	123456789	user01
22		99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	0.00	85.50	85.50	123456789	user01
23		99024	POSTOP FOLLOW-UP VISIT	FUDD, ELMER	HF12345678	01/04/2016	1	0.00	0.00	0.00	0.00	123456789	user01
24		11721 [Q7 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	0.00	123456789	user01
25		11056 [Q7]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	0.00	0.00	123456789	user01
26		A5500 [KX LT RT]	Diab shoe for density insert	FUDD, ELMER	HF12345678	01/04/2016	2	160.00	19.70	0.00	140.30	123456789	user01
27		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
28		LASERNOCHRG		FUDD, ELMER	HF12345678	01/05/2016	1	0.00	0.00	0.00	0.00	123456789	user01
29		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/05/2016	1	85.00	27.23	0.00	57.77	123456789	user01
30		11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
31		11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/05/2016	1	85.00	27.23	0.00	57.77	123456789	user01
32		11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01

A loop is used to iterate across all the tabs in the workbook, create a new "Summary" tab for each year of data, and rename the sheets "Production 20XX" (for the billing software report), and "Summary 20XX" (for the report that will ultimately summarize that year's data). See Figure 3.

> Sometimes, this Macro will pull just one year of data and other times it may need to pull several years. The For Each…Next Loop assesses how many years of data are included, and names the tabs according to the report headings.

Figure 3

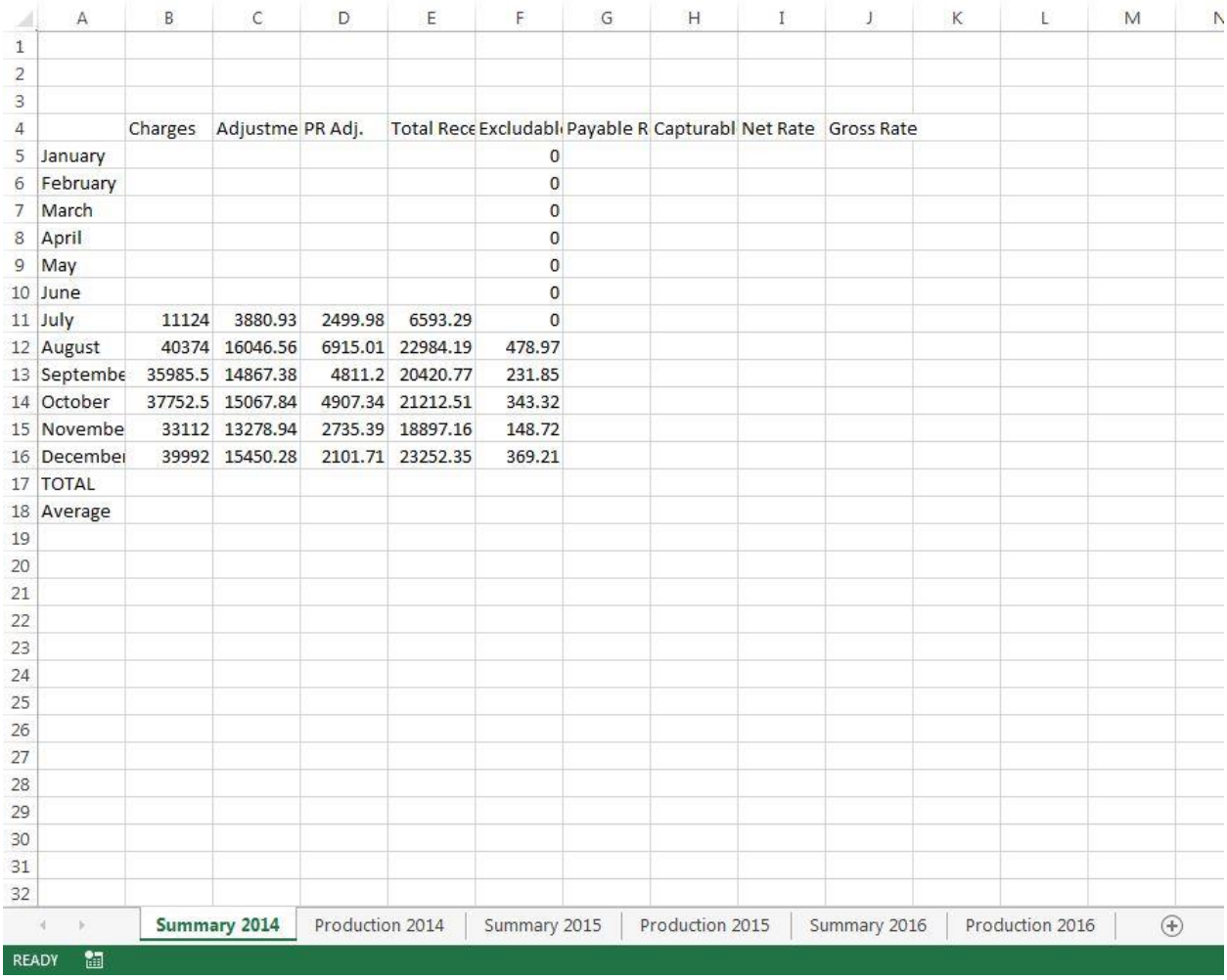
Data labels are printed on each Summary sheet.

The code iterates across every line of data and sums these values (by month) onto each respective Summary sheet (see Figure 4).

The code again iterates across every line of data to collect each "excludable charge/receipt" (see Figure 4).

> Some products dispensed by the doctors are excluded from their payable receipts. These products (called "excludable charges") are specifically identified in the doctors' contracts. Rather than list these items on a spreadsheet in the workbook (where they could be dynamically changed by the user), they are hard-coded to prevent unauthorized users from manipulating them.

Figure 4



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1														
2														
3														
4		Charges	Adjustme	PR Adj.	Total Rece	Excludabl	Payable R	Capturabl	Net Rate	Gross Rate				
5	January					0								
6	February					0								
7	March					0								
8	April					0								
9	May					0								
10	June					0								
11	July	11124	3880.93	2499.98	6593.29	0								
12	August	40374	16046.56	6915.01	22984.19	478.97								
13	Septembe	35985.5	14867.38	4811.2	20420.77	231.85								
14	October	37752.5	15067.84	4907.34	21212.51	343.32								
15	Novembe	33112	13278.94	2735.39	18897.16	148.72								
16	Decembe	39992	15450.28	2101.71	23252.35	369.21								
17	TOTAL													
18	Average													
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
32														

Summary 2014 | Production 2014 | Summary 2015 | Production 2015 | Summary 2016 | Production 2016

READY

With all the raw data pulled into the Summary sheet, the code now fills in various formulas so the report shows the desired information.

> Some sheets in the workbook show only a partial year of data. This occurs when a doctor was only employed for that portion of the year.

The code formats all the data to improve readability (see Figure 5).

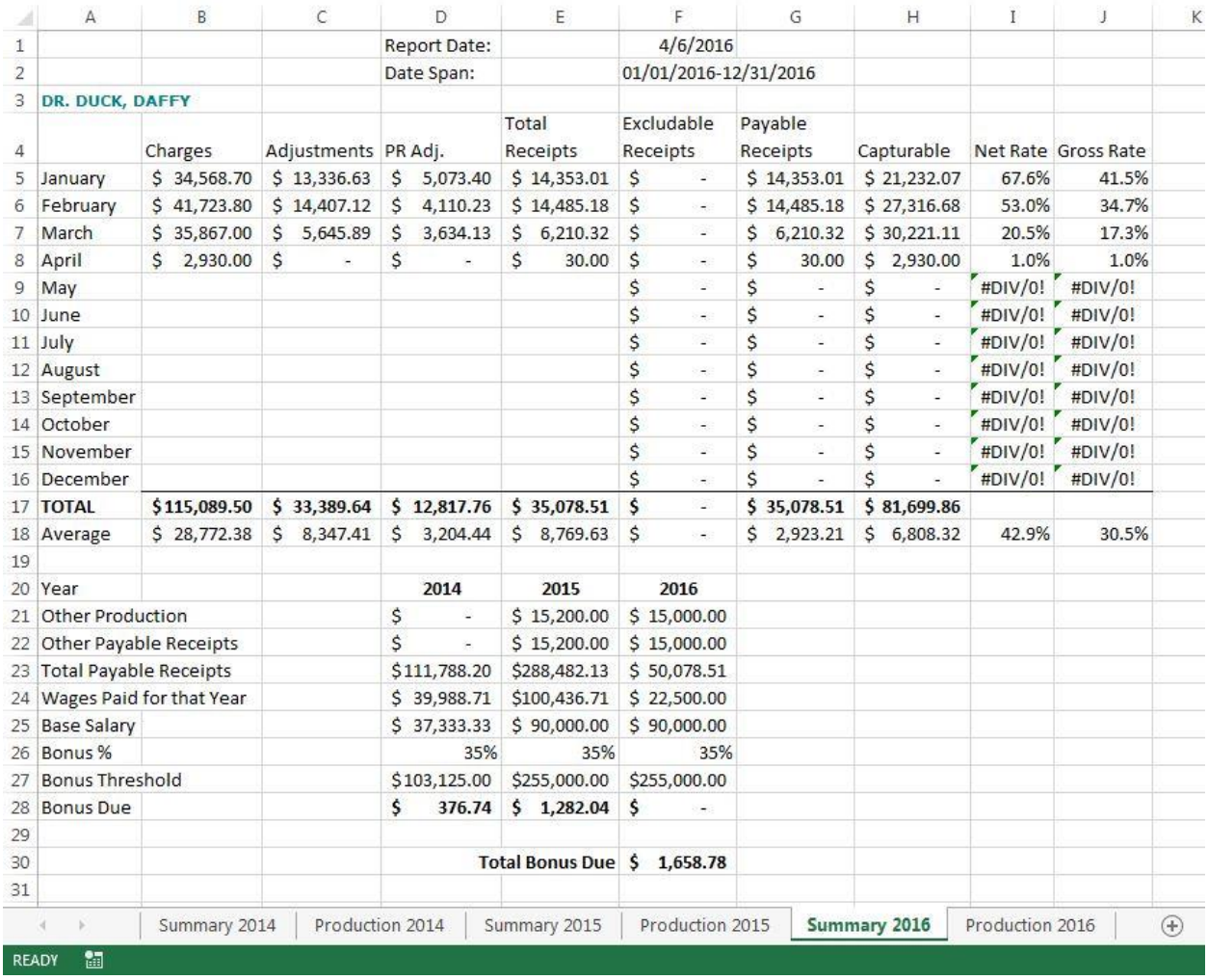
Figure 5

	A	B	C	D	E	F	G	H	I	J
1				Report Date:		4/6/2016				
2				Date Span:		01/01/2015-12/31/2015				
3	DR. DUCK, DAFFY									
4		Charges	Adjustments	PR Adj.	Total Receipts	Excludable Receipts	Payable Receipts	Capturable	Net Rate	Gross Rate
5	January	$ 49,685.00	$ 21,869.06	$ 9,340.99	$ 26,976.37	$ 166.25	$ 26,810.12	$ 27,815.94	97.0%	54.3%
6	February	$ 38,089.50	$ 16,464.53	$ 4,332.74	$ 20,936.86	$ 150.96	$ 20,785.90	$ 21,624.97	96.8%	55.0%
7	March	$ 41,106.00	$ 15,640.47	$ 7,428.12	$ 24,266.69	$ 153.41	$ 24,113.28	$ 25,465.53	95.3%	59.0%
8	April	$ 46,146.00	$ 18,385.15	$ 7,247.97	$ 26,574.20	$ 229.50	$ 26,344.70	$ 27,760.85	95.7%	57.6%
9	May	$ 34,311.00	$ 14,707.61	$ 4,991.45	$ 19,112.05	$ 150.96	$ 18,961.09	$ 19,603.39	97.5%	55.7%
10	June	$ 43,817.50	$ 17,177.69	$ 5,968.04	$ 25,480.27	$ 274.05	$ 25,206.22	$ 26,639.81	95.6%	58.2%
11	July	$ 39,817.00	$ 15,040.20	$ 6,104.72	$ 21,980.61	$ 153.41	$ 21,827.20	$ 24,776.80	88.7%	55.2%
12	August	$ 46,244.00	$ 16,736.18	$ 5,825.49	$ 28,040.65	$ 75.00	$ 27,965.65	$ 29,507.82	95.0%	60.6%
13	September	$ 38,530.00	$ 14,910.96	$ 3,027.83	$ 22,126.01	$ 2,755.92	$ 19,370.09	$ 23,619.04	93.7%	57.4%
14	October	$ 40,729.00	$ 16,395.52	$ 5,352.25	$ 22,481.16	$ 157.50	$ 22,323.66	$ 24,333.48	92.4%	55.2%
15	November	$ 27,615.00	$ 10,328.00	$ 3,677.75	$ 15,242.76	$ -	$ 15,242.76	$ 17,287.00	88.2%	55.2%
16	December	$ 42,207.00	$ 16,524.23	$ 3,224.70	$ 24,416.26	$ 84.80	$ 24,331.46	$ 25,682.77	95.1%	57.8%
17	**TOTAL**	**$488,297.00**	**$194,179.60**	**$ 66,522.05**	**$277,633.89**	**$ 4,351.76**	**$273,282.13**	**$294,117.40**		
18	Average	$ 40,691.42	$ 16,181.63	$ 5,543.50	$ 23,136.16	$ 362.65	$ 22,773.51	$ 24,509.78	94.4%	56.9%
19										

If the user elected (upon execution of the Macro) to include payroll calculations, those calculations are completed now (see Figure 6). Most of the numbers are hard-coded (rather than left dynamic) to prevent unauthorized users from altering this information.

> Sometimes, this macro is run to generate payroll information. Other times, it is run for management personnel and the billing department who merely want to analyze performance (but who are not privy to payroll information).
>
> Many aspects of the "real code" have been changed to preserve confidentiality, such as doctor names (Dr. Daffy Duck and Dr. Bugs Bunny), patient names (Elmer Fudd), salary amounts, bonus percentages, etc. The "real code" pulls updated salary information stored locally in other workbooks. The code submitted for this project is made static.
>
> As the base and bonus amounts vary each year, the code assesses which year is being analyzed to calculate the bonus due.

Figure 6



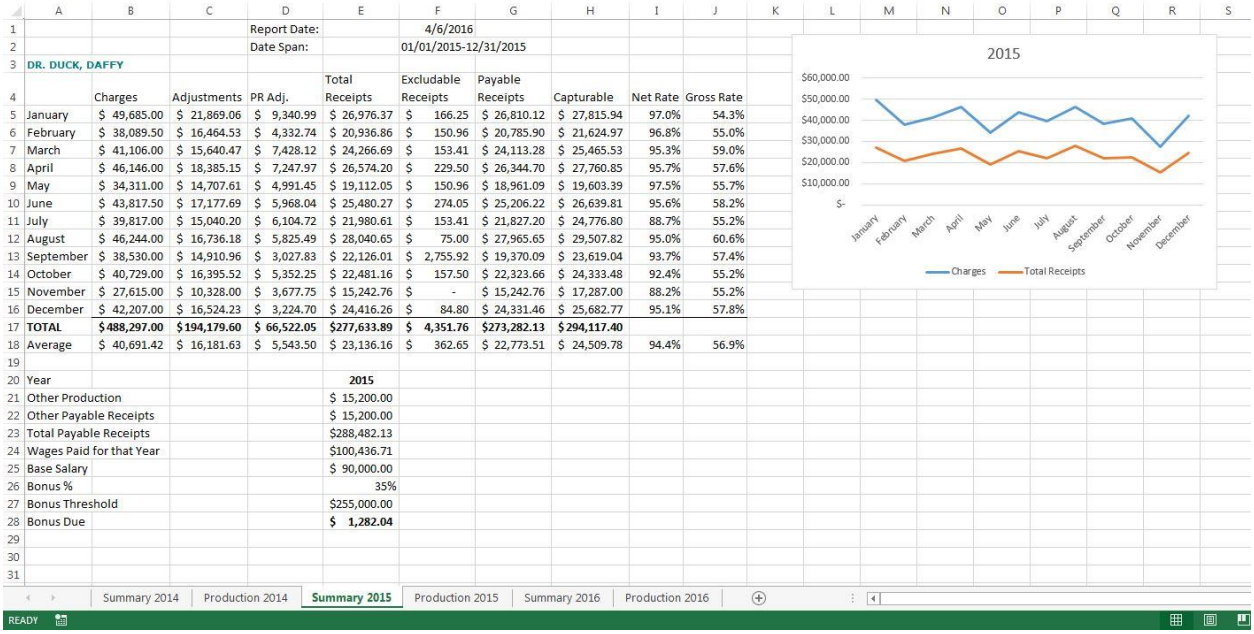
	A	B	C	D	E	F	G	H	I	J	K
1				Report Date:		4/6/2016					
2				Date Span:		01/01/2016-12/31/2016					
3	DR. DUCK, DAFFY										
4		Charges	Adjustments	PR Adj.	Total Receipts	Excludable Receipts	Payable Receipts	Capturable	Net Rate	Gross Rate	
5	January	$ 34,568.70	$ 13,336.63	$ 5,073.40	$ 14,353.01	$ -	$ 14,353.01	$ 21,232.07	67.6%	41.5%	
6	February	$ 41,723.80	$ 14,407.12	$ 4,110.23	$ 14,485.18	$ -	$ 14,485.18	$ 27,316.68	53.0%	34.7%	
7	March	$ 35,867.00	$ 5,645.89	$ 3,634.13	$ 6,210.32	$ -	$ 6,210.32	$ 30,221.11	20.5%	17.3%	
8	April	$ 2,930.00	$ -	$ -	$ 30.00	$ -	$ 30.00	$ 2,930.00	1.0%	1.0%	
9	May					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
10	June					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
11	July					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
12	August					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
13	September					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
14	October					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
15	November					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
16	December					$ -	$ -	$ -	#DIV/0!	#DIV/0!	
17	**TOTAL**	**$115,089.50**	**$ 33,389.64**	**$ 12,817.76**	**$ 35,078.51**	**$ -**	**$ 35,078.51**	**$ 81,699.86**			
18	Average	$ 28,772.38	$ 8,347.41	$ 3,204.44	$ 8,769.63	$ -	$ 2,923.21	$ 6,808.32	42.9%	30.5%	
19											
20	Year			2014	2015	2016					
21	Other Production			$ -	$ 15,200.00	$ 15,000.00					
22	Other Payable Receipts			$ -	$ 15,200.00	$ 15,000.00					
23	Total Payable Receipts			$111,788.20	$288,482.13	$ 50,078.51					
24	Wages Paid for that Year			$ 39,988.71	$100,436.71	$ 22,500.00					
25	Base Salary			$ 37,333.33	$ 90,000.00	$ 90,000.00					
26	Bonus %			35%	35%	35%					
27	Bonus Threshold			$103,125.00	$255,000.00	$255,000.00					
28	Bonus Due			**$ 376.74**	**$ 1,282.04**	$ -					
29											
30					**Total Bonus Due**	**$ 1,658.78**					
31											

Summary 2014 | Production 2014 | Summary 2015 | Production 2015 | **Summary 2016** | Production 2016

READY

After each year is summarized, a chart is created to show the charges billed out vs. the receipts that were collected. Each chart is appropriately labeled and placed on the spreadsheet (see Figure 7).

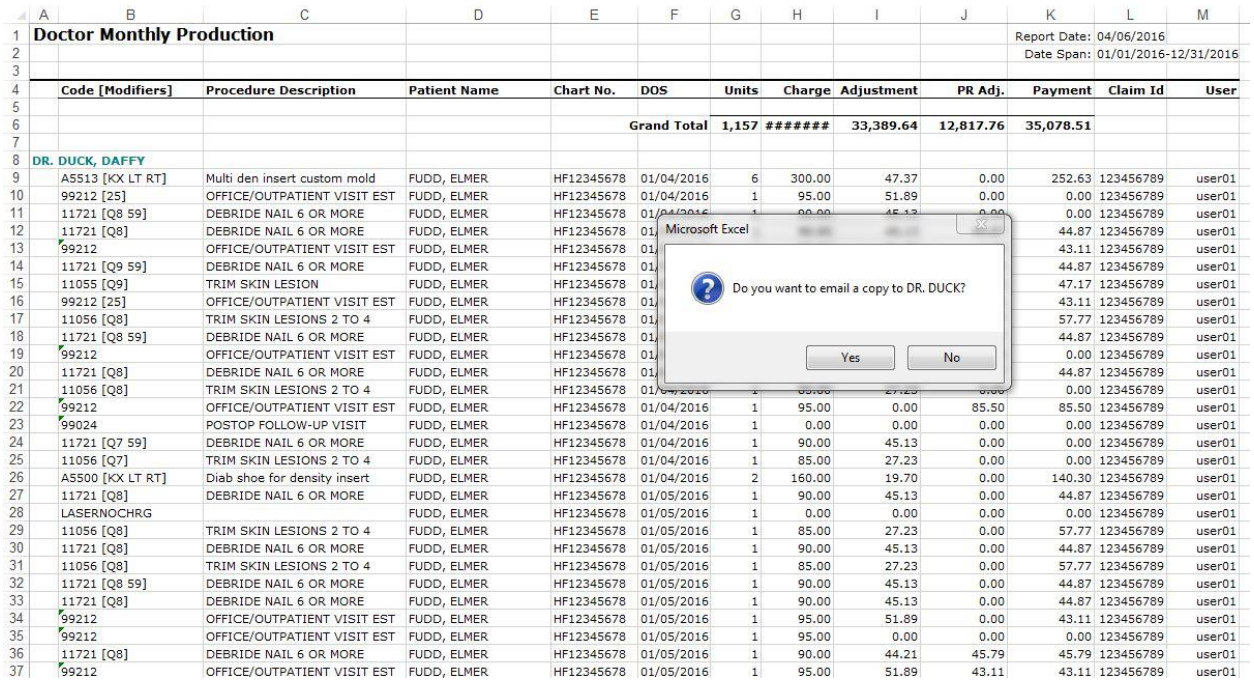
Figure 7



			Report Date:		4/6/2016					
			Date Span:		01/01/2015-12/31/2015					
DR. DUCK, DAFFY										
	Charges	Adjustments	PR Adj.	Total Receipts	Excludable Receipts	Payable Receipts	Capturable	Net Rate	Gross Rate	
January	$ 49,685.00	$ 21,869.06	$ 9,340.99	$ 26,976.37	$ 166.25	$ 26,810.12	$ 27,815.94	97.0%	54.3%	
February	$ 38,089.50	$ 16,464.53	$ 4,332.74	$ 20,936.86	$ 150.96	$ 20,785.90	$ 21,624.97	96.8%	55.0%	
March	$ 41,106.00	$ 15,640.47	$ 7,428.12	$ 24,266.69	$ 153.41	$ 24,113.28	$ 25,465.53	95.3%	59.0%	
April	$ 46,146.00	$ 18,385.15	$ 7,247.97	$ 26,574.20	$ 229.50	$ 26,344.70	$ 27,760.85	95.7%	57.6%	
May	$ 34,311.00	$ 14,707.61	$ 4,991.45	$ 19,112.05	$ 150.96	$ 18,961.09	$ 19,603.39	97.5%	55.7%	
June	$ 43,817.50	$ 17,177.69	$ 5,968.04	$ 25,480.27	$ 274.05	$ 25,206.22	$ 26,639.81	95.6%	58.2%	
July	$ 39,817.00	$ 15,040.20	$ 6,104.72	$ 21,980.61	$ 153.41	$ 21,827.20	$ 24,776.80	88.7%	55.2%	
August	$ 46,244.00	$ 16,736.18	$ 5,825.49	$ 28,040.65	$ 75.00	$ 27,965.65	$ 29,507.82	95.0%	60.6%	
September	$ 38,530.00	$ 14,910.96	$ 3,027.83	$ 22,126.01	$ 2,755.92	$ 19,370.09	$ 23,619.04	93.7%	57.4%	
October	$ 40,729.00	$ 16,395.52	$ 5,352.25	$ 22,481.16	$ 157.50	$ 22,323.66	$ 24,333.48	92.4%	55.2%	
November	$ 27,615.00	$ 10,328.00	$ 3,677.75	$ 15,242.76	$ -	$ 15,242.76	$ 17,287.00	88.2%	55.2%	
December	$ 42,207.00	$ 16,524.23	$ 3,224.70	$ 24,416.26	$ 84.80	$ 24,331.46	$ 25,682.77	95.1%	57.8%	
TOTAL	**$488,297.00**	**$194,179.60**	**$ 66,522.05**	**$277,633.89**	**$ 4,351.76**	**$273,282.13**	**$294,117.40**			
Average	$ 40,691.42	$ 16,181.63	$ 5,543.50	$ 23,136.16	$ 362.65	$ 22,773.51	$ 24,509.78	94.4%	56.9%	
Year				**2015**						
Other Production				$ 15,200.00						
Other Payable Receipts				$ 15,200.00						
Total Payable Receipts				$288,482.13						
Wages Paid for that Year				$100,436.71						
Base Salary				$ 90,000.00						
Bonus %				35%						
Bonus Threshold				$255,000.00						
Bonus Due				**$ 1,282.04**						

The user is asked if he/she wants to create a copy. If Yes is selected, a copy is saved to a local folder named after the doctor and the time the file was saved. Depending on the content of the sheet (whether it includes payroll information or not), a series of prompts allow the user to email a copy to the associate, the owner, and the user (if the sheet has confidential information) or to the billing department and the user (if there is no confidential information). If the user elects not to save a copy, they simply return to the workbook.

Figure 8



Doctor Monthly Production

Report Date: 04/06/2016
Date Span: 01/01/2016-12/31/2016

Code [Modifiers]	Procedure Description	Patient Name	Chart No.	DOS	Units	Charge	Adjustment	PR Adj.	Payment	Claim Id	User
				Grand Total	**1,157**	**#######**	**33,389.64**	**12,817.76**	**35,078.51**		
DR. DUCK, DAFFY											
A5513 [KX LT RT]	Multi den insert custom mold	FUDD, ELMER	HF12345678	01/04/2016	6	300.00	47.37	0.00	252.63	123456789	user01
99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	51.89	0.00	0.00	123456789	user01
11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	0.00	123456789	user01
11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/					44.87	123456789	user01
99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/					43.11	123456789	user01
11721 [Q9 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/					44.87	123456789	user01
11055 [Q9]	TRIM SKIN LESION	FUDD, ELMER	HF12345678	01/					47.17	123456789	user01
99212 [25]	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/					43.11	123456789	user01
11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/					57.77	123456789	user01
11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/					44.87	123456789	user01
99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/					0.00	123456789	user01
11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/					44.87	123456789	user01
11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/					0.00	123456789	user01
99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/04/2016	1	95.00	0.00	85.50	85.50	123456789	user01
99024	POSTOP FOLLOW-UP VISIT	FUDD, ELMER	HF12345678	01/04/2016	1	0.00	0.00	0.00	0.00	123456789	user01
11721 [Q7 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/04/2016	1	90.00	45.13	0.00	0.00	123456789	user01
11056 [Q7]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/04/2016	1	85.00	27.23	0.00	0.00	123456789	user01
A5500 [KX LT RT]	Diab shoe for density insert	FUDD, ELMER	HF12345678	01/04/2016	2	160.00	19.70	0.00	140.30	123456789	user01
11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
LASERNOCHRG		FUDD, ELMER	HF12345678	01/05/2016	1	0.00	0.00	0.00	0.00	123456789	user01
11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/05/2016	1	85.00	27.23	0.00	57.77	123456789	user01
11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
11056 [Q8]	TRIM SKIN LESIONS 2 TO 4	FUDD, ELMER	HF12345678	01/05/2016	1	85.00	27.23	0.00	57.77	123456789	user01
11721 [Q8 59]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	45.13	0.00	44.87	123456789	user01
99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	51.89	0.00	43.11	123456789	user01
99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	0.00	0.00	0.00	123456789	user01
11721 [Q8]	DEBRIDE NAIL 6 OR MORE	FUDD, ELMER	HF12345678	01/05/2016	1	90.00	44.21	45.79	45.79	123456789	user01
99212	OFFICE/OUTPATIENT VISIT EST	FUDD, ELMER	HF12345678	01/05/2016	1	95.00	51.89	43.11	43.11	123456789	user01

If a copy was saved and was emailed to the associate, a text message is sent to the payroll clerk so they know how much to add to that associate's next paycheck.

Conceptual Difficulties Encountered

Although my code eventually ran just as I imagined it, there were several areas that gave me grief along the way:

1. Pushing vs. pulling data. Usually we refer to sheets by their name or by their index number (in a collection). I struggled to refer to different sheets in the workbook because they were named after the year of the report (which varies each time the program runs) and their index number was unpredictable (since the number of sheets varies also). To summarize all information on the last tab, I kept trying to "pull" the data from previous sheets but didn't know how to refer to them with all the variability. I then had the idea to "push" the information: when a year was summarized, I copied the relevant information on the last sheet (which was known and easy to refer to). Once I figured out that it was easier to "push" data than to "pull" data, it became easier to move information between tabs of the workbook.
2. Speed. Up to this point, most of my programs have been simple and speed wasn't an issue. When code is not logic intensive, the time difference is indiscernible. But when the program must handle four data values for 15,000+ lines of data, inefficient code becomes a problem. I re-wrote most of my code several times, reducing the time it takes to run from about 90 seconds to 30 seconds. For example, Select…Case is faster than If…Then statements. Using With…End With can shave off seconds. And while selecting one or two cells prior to altering them is no big deal, having to select an additional 15,000 cells will take a lot of time.
3. Providing for an unpredictable number of iterations. For example, it is easy to write code that summarizes one year of data, but I wanted my code to be able to summarize two (or more) years of data, even if years were missing in between. I improved my use of For Each loops (as opposed to For Next loops), and made better use of nicknaming worksheets as I created them.
4. Email attachments. We learned in class how to construct and send an email, but we didn't work with email attachments. As part of my project, I wanted to have the option to send each doctor an email with the reports attached (rather than save the reports and email them manually). I struggled to get the email to attach, then to get the email to open, then to get it to open without error messages, etc. Every time I thought the problem was solved, something else would go wrong. Eventually, I found success by learning that (1) the workbook you are trying to attach must be closed when the email is sent, and (2) multiple problems and error messages can be avoided by saving the workbook as an.xls Excel file.
5. Many of the numbers in my "real code" are pulled from local Excel files on my computer. When I attempted to save these reports (to email to the other users), the cells referencing other workbooks on my computer would not carry over, thus making the reports inaccurate and worthless. Eventually I got around this problem by setting the value of those cells equal to themselves. This changed the value from a formula (referencing another workbook) to a static number value.

Assistance from Others

I wrote all of the code in this project, with the exception of the overhead code (Module 2) needed for the email/text capabilities. This code was copied from the Excel files we used in class when learning about automating email/text messages.