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ISYS 520

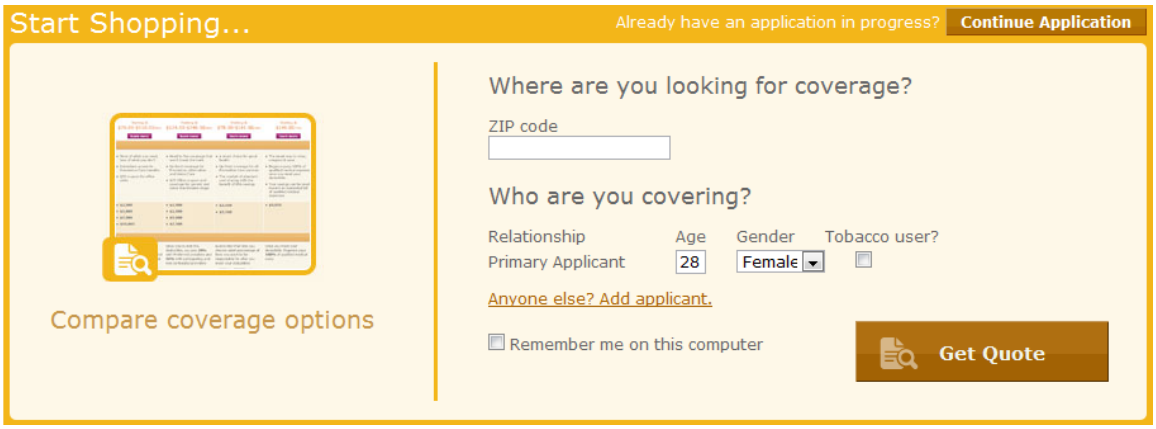
Final Project

Executive Summary

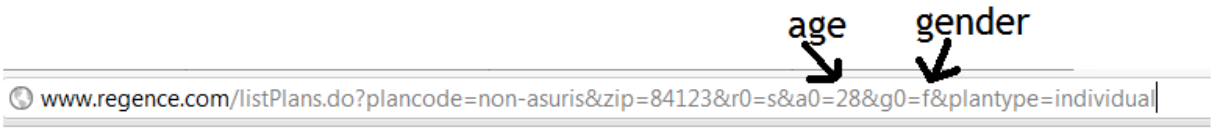
Every business needs to be aware of what their competitors are doing in order to maintain their competitive advantage. Health insurance is no different. As I am working as an actuary for SelectHealth, the largest health insurer in Utah, one of my tasks is to help determine the premium rates. The rates given to large and small employers vary greatly based on a large variety of factors and is not easy to compare. However the base rates for individual policies is determined mainly based on gender and age. In the past to compare our rates with those of Regence I have had to manually enter in an age and different number of dependents into their website and then enter the rates into excel. The goal of this project was to automate excel so that it would enter in the birthdates and genders for me and gather the rates much faster than I was able to, thus leaving me with more time to work on other areas of my job.

Implementation

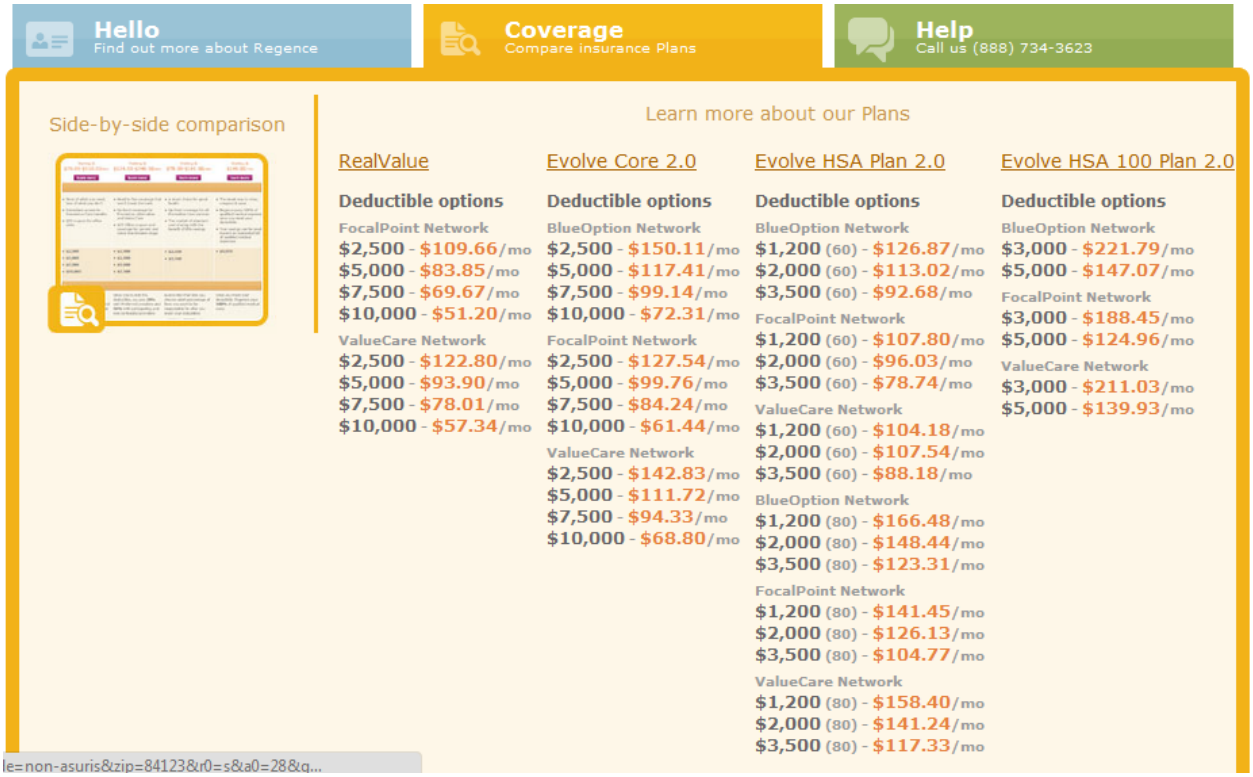
The first thing that I did was look at Regence's website to try and figure out what information I needed



to put in. I decided that the zip code I would use would be 84123, or the same zip code that SelectHealth is in. After putting in a test applicant I looked at the subsequent URL to see if I could discover what was changing in it so that I could manipulate it and grab the data from it. Below is the following URL and what I noticed.



The next thing that I did was looked on the website to find the premium rates that I was looking for. At first glance the rates were not on the page, however if you hovered your mouse over the “coverage” tab on the top of the screen the rates appeared. This popup showed all the rates for all the different plans and deductible options.



I was worried that the rates, because they were in the popup and not the main page, would not be contained in the HTML coding. Fortunately for me, they were located in the HTML. Scrolling through the HTML source code I noticed the rates were formatted as seen below.

```
<li>

        <span>$2,500</span>

          - <span class="price">$109.66</span>/mo
</li>
```

The first value is the deductible amount and the second value is the monthly premium amount. After knowing where everything is located I began writing my VBA code. The first thing that I did was create an array with the different ages I wanted to get the rates for. Premium rates are set in 5 year age intervals at SelectHealth, so I took the middle age of each of these intervals and put them in an array. I then made different sub-procedures for single males, single females, couples, and families as the URL’s for each of these groups is different. I navigated the web pages using the agent class module provided to us by Professor Allen. I created a loop of ages that would manipulate the URL and navigate to the correct page. There are 44 different plan and deductible combinations, so I created a loop that would go 44 times through, first finding the “$” tag, and then moving to the subsequent dollar sign. This

number was the premium price for each of the options. I repeated this process for all of the marital statuses as well. It was not enough to just get the prices in an array, I had to be able to display them in a manner that was user friendly and that others could easily decipher just what it is they were looking at. I decided to create a tab for each of the 5 plan types. On each tab I have three sections, one for each of the various network options. In each section I have it split into the deductible options. I believe this makes it very easy to read and navigate.

Blue Option Network

$1200/person Deductible

Age Group	Single Male	Single Female	Married	Family
<= 19	$ 95.42	$ 95.42	$ 190.84	$ 286.26
20-24	$ 95.42	$ 95.42	$ 190.84	$ 286.26
25-29	$ 133.99	$ 158.36	$ 292.35	$ 387.77
30-34	$ 160.39	$ 188.81	$ 349.20	$ 444.62
35-39	$ 182.72	$ 207.09	$ 389.81	$ 485.23
40-44	$ 213.17	$ 229.42	$ 442.59	$ 538.01
45-49	$ 245.66	$ 255.81	$ 501.47	$ 596.89
50-54	$ 286.26	$ 294.38	$ 580.64	$ 676.06
55-59	$ 330.93	$ 334.98	$ 665.92	$ 761.34
60-64	$ 385.75	$ 385.75	$ 771.49	$ 866.92

$2000/person Deductible

Age Group	Single Male	Single Female	Married	Family
<= 19	$ 85.08	$ 85.08	$ 170.17	$ 255.26
20-24	$ 85.08	$ 85.08	$ 170.17	$ 255.26
25-29	$ 119.48	$ 141.20	$ 260.68	$ 345.76
30-34	$ 143.01	$ 168.36	$ 311.37	$ 396.46
35-39	$ 162.93	$ 184.65	$ 347.57	$ 432.66
40-44	$ 190.08	$ 204.56	$ 394.64	$ 479.72
45-49	$ 219.04	$ 228.10	$ 447.14	$ 532.23
50-54	$ 255.25	$ 262.49	$ 517.74	$ 602.82
55-59	$ 295.08	$ 298.70	$ 593.78	$ 678.86
60-64	$ 343.95	$ 343.95	$ 687.90	$ 772.99

$3500/person Deductible

Age Group	Single Male	Single Female	Marri
<= 19	$ 70.68	$ 70.68	$ 14
20-24	$ 70.68	$ 70.68	$ 14
25-29	$ 99.25	$ 117.29	$ 21
30-34	$ 118.80	$ 139.85	$ 25
35-39	$ 135.34	$ 153.38	$ 28
40-44	$ 157.90	$ 169.92	$ 32
45-49	$ 181.96	$ 189.47	$ 37
50-54	$ 212.03	$ 218.05	$ 43
55-59	$ 245.11	$ 248.12	$ 49
60-64	$ 285.72	$ 285.72	$ 57

Focal Point Network

$1200/person Deductible

Age Group	Single Male	Single Female	Married	Family
<= 19	$ 81.07	$ 81.07	$ 162.15	$ 243.22
20-24	$ 81.07	$ 81.07	$ 162.15	$ 243.22
25-29	$ 113.85	$ 134.56	$ 248.40	$ 329.48
30-34	$ 136.28	$ 160.43	$ 296.71	$ 377.78
35-39	$ 155.25	$ 175.95	$ 331.20	$ 412.28
40-44	$ 181.13	$ 194.93	$ 376.06	$ 457.13
45-49	$ 208.73	$ 217.35	$ 426.08	$ 507.15
50-54	$ 243.23	$ 250.13	$ 493.36	$ 574.43
55-59	$ 281.18	$ 284.63	$ 565.81	$ 646.88
60-64	$ 327.75	$ 327.75	$ 655.50	$ 736.58

$2000/person Deductible

Age Group	Single Male	Single Female	Married	Family
<= 19	$ 72.29	$ 72.29	$ 144.58	$ 216.88
20-24	$ 72.29	$ 72.29	$ 144.58	$ 216.88
25-29	$ 101.52	$ 119.98	$ 221.49	$ 293.79
30-34	$ 121.52	$ 143.05	$ 264.56	$ 336.86
35-39	$ 138.43	$ 156.89	$ 295.32	$ 367.62
40-44	$ 161.51	$ 173.81	$ 335.32	$ 407.61
45-49	$ 186.12	$ 193.81	$ 379.92	$ 452.22
50-54	$ 216.88	$ 223.03	$ 439.91	$ 512.20
55-59	$ 250.72	$ 253.79	$ 504.51	$ 576.80
60-64	$ 292.25	$ 292.25	$ 584.49	$ 656.79

$3500/person Deductible

Age Group	Single Male	Single Female	Marri
<= 19	$ 60.05	$ 60.05	$ 12
20-24	$ 60.05	$ 60.05	$ 12
25-29	$ 84.33	$ 99.66	$ 18
30-34	$ 100.94	$ 118.83	$ 21
35-39	$ 115.00	$ 130.33	$ 24
40-44	$ 134.16	$ 144.38	$ 27
45-49	$ 154.61	$ 160.99	$ 31
50-54	$ 180.16	$ 185.27	$ 36
55-59	$ 208.27	$ 210.83	$ 41
60-64	$ 242.77	$ 242.77	$ 48

Value Care Network

$1200/person Deductible

Age Group	Single Male	Single Female	Married	Family
<= 19	$ 90.79	$ 90.79	$ 181.58	$ 272.37

$2000/person Deductible

Age Group	Single Male	Single Female	Married	Family
<= 19	$ 80.95	$ 80.95	$ 161.91	$ 242.86

$3500/person Deductible

Age Group	Single Male	Single Female	Marri
<= 19	$ 67.25	$ 67.25	$ 13

To accomplish putting the data in the correct locations I used the following case statement.

```
Select Case y
    Case 1
        row = 18
        column = 4
        z = 0
    Case 13, 24, 33, 41
        row = 18
        column = 4
    Case 5, 17, 27, 36, 43
        row = 33
        column = 4
    Case 9, 21, 30, 39
        row = 4
        column = 4
        z = z + 1
    Case Else
        column = column + 6
End Select

Sheets(plans(z)).Cells(row + x, column).Value = prices(y)
```

This statement made sure that if it was the beginning of a new network it changed to column 2, and if it was the beginning of a new plan type it changed over to a new sheet. After running through all of the different scenarios the macro closes the internet explorer.

Challenges

The initial plan was to also compare the rates from Altius and Humana in addition to Regence. Altius did not have any rates on their website, but only offered for me to talk to a representative. Humana did have rates on their website, however it was a secure server that, although I tried many ways and searched for solutions online, I was unable to figure out how to access the data for various ages and genders.

Conclusion

I believe this project was successful as it allowed me to access the rates of Regence, one of our top competitors here in Utah. It reduced the time that I take to find the rates from 5 hours to that of 15 minutes allowing me to focus on other projects that are more worth my time. Doing this project helped me to more fully understand how to navigate through the HTML code to find exactly what I was looking for. I also was able to see how much easier the case statement was, instead of multiple if statements, when placing the data into the tables. I am sure that my supervisor at work will be pleased with this macro.