Tipcalculator_US

October 19, 2018

1 First tutorial US01

1.1 First python code:the tip exercise

1.1.1 Question: Calculate the final tip based on the quality of service and the state given.

First, we get a raw data from Wikipedia

```
In [4]: rawTaxes = """Alabama         4%         13.5%
        Alaska         0%         7%
        Arizona         5.6%         10.725%
        Arkansas         6.5%         11.625%         1.5%+
        California         7.25%         10.25%
        Colorado         2.9%         10%
        Connecticut         6.35%         6.35%                                                    1%
        Delaware         0%         0%
        District of Columbia         5.75%         5.75%                  10%
        Florida         6%         7.5%                  9% (max)
        Georgia         4%         8%         4% (max)[40]
        Guam         4%         4%
        Hawaii         4.166%         4.712%
        Idaho         6%         8.5%                          [41]
        Illinois         6.25%         10.25%         1%+         8.25%+         1%+         1%+
        Indiana         7%         7%                  9% (max)
        Iowa[42]         6%         7%
        Kansas         6.5%         10.15%
        Kentucky         6%         6%
        Louisiana         5%         12%         7.0% (max)
        Maine         5.5%         5.5%                  8%
        Maryland         6%         6%
        Massachusetts         6.25%         6.25%                 7% (max)                        >
        Michigan         6%         6%
        Minnesota         6.875%         7.875%                 10.775% (max)
        Mississippi         7%         7.25%
        Missouri         4.225%         10.85%         1.225%
        Montana         0%         0%
        Nebraska         5.5%         7.5%                 9.5%
        (Omaha)
```

```
Nevada        6.85%        8.25%
New Hampshire        0%        0%                9%
New Jersey        6.625%        12.875%
New Mexico        5.125%        8.688%
New York        4%        8.875%                                        > $110
North Carolina        4.75%        7.50%        2%        8.50% (max)
North Dakota [43]        5%        8%
Ohio[44]        5.75%        8%                Dine-in
Oklahoma        4.5%        11%
Oregon        0%        0%
Pennsylvania        6%        8%
Puerto Rico        10.5%        11.5%        1%
Rhode Island        7%        7%                8%
South Carolina        6%        9%                10.5%
South Dakota        4%        6%
Tennessee        7%        9.75%        4%+
Texas        6.25%        8.25%
Utah        5.95%        8.35%        3%
Vermont        6%        7%                9%+                        > $110
Virginia        5.3%        6%        2.5%        5.3%+
Washington        6.5%        10.4%                10% (max)
West Virginia        6%        7%
Wisconsin        5%        6.75%
Wyoming        4%        6%"""
splitRawTaxes = rawTaxes.split('\n')
```

Out[4]:
```
['Alabama\t4%\t13.5%\t\t\t\t\t\t\t',
 'Alaska\t0%\t7%\t\t\t\t\t\t\t',
 'Arizona\t5.6%\t10.725%\t\t\t\t\t\t\t',
 'Arkansas\t6.5%\t11.625%\t1.5%+\t\t\t\t\t\t',
 'California\t7.25%\t10.25%\t\t\t\t\t\t\t',
 'Colorado\t2.9%\t10%\t\t\t\t\t\t\t',
 'Connecticut\t6.35%\t6.35%\t\t\t\t\t\t\t1%',
 'Delaware\t0%\t0%\t\t\t\t\t\t\t',
 'District of Columbia\t5.75%\t5.75%\t\t10%\t\t\t\t\t',
 'Florida\t6%\t7.5%\t\t9% (max)\t\t\t\t\t',
 'Georgia\t4%\t8%\t4% (max)[40]\t\t\t\t\t\t',
 'Guam\t4%\t4%\t\t\t\t\t\t\t',
 'Hawaii\t4.166%\t4.712%\t\t\t\t\t\t\t',
 'Idaho\t6%\t8.5%\t\t\t[41]\t\t\t\t',
 'Illinois\t6.25%\t10.25%\t1%+\t8.25%+\t1%+\t1%+\t\t\t',
 'Indiana\t7%\t7%\t\t9% (max)\t\t\t\t\t',
 'Iowa[42]\t6%\t7%\t\t\t\t\t\t\t\t',
 'Kansas\t6.5%\t10.15%\t\t\t\t\t\t\t',
 'Kentucky\t6%\t6%\t\t\t\t\t\t\t',
 'Louisiana\t5%\t12%\t7.0% (max)\t\t\t\t\t\t',
 'Maine\t5.5%\t5.5%\t\t8%\t\t\t\t\t',
 'Maryland\t6%\t6%\t\t\t\t\t\t\t',
```

```
'Massachusetts\t6.25%\t6.25%\t\t7% (max)\t\t\t> $175\t',
'Michigan\t6%\t6%\t\t\t\t\t\t\t',
'Minnesota\t6.875%\t7.875%\t\t10.775% (max)\t\t\t\t',
'Mississippi\t7%\t7.25%\t\t\t\t\t\t\t',
'Missouri\t4.225%\t10.85%\t1.225%\t\t\t\t\t\t',
'Montana\t0%\t0%\t\t\t\t\t\t\t',
'Nebraska\t5.5%\t7.5%\t\t9.5% ',
'(Omaha)\t\t\t\t',
'Nevada\t6.85%\t8.25%\t\t\t\t\t\t\t',
'New Hampshire\t0%\t0%\t\t9%\t\t\t\t',
'New Jersey\t6.625%\t12.875%\t\t\t\t\t\t\t',
'New Mexico\t5.125%\t8.688%\t\t\t\t\t\t\t',
'New York\t4%\t8.875%\t\t\t\t\t> $110\t',
'North Carolina\t4.75%\t7.50%\t2%\t8.50% (max)\t\t\t\t',
'North Dakota [43]\t5%\t8%\t\t\t\t\t\t\t',
'Ohio[44]\t5.75%\t8%\t\tDine-in\t\t\t\t',
'Oklahoma\t4.5%\t11%\t\t\t\t\t\t\t',
'Oregon\t0%\t0%\t\t\t\t\t\t\t',
'Pennsylvania\t6%\t8%\t\t\t\t\t\t\t',
'Puerto Rico\t10.5%\t11.5%\t1%\t\t\t\t',
'Rhode Island\t7%\t7%\t\t8%\t\t\t\t',
'South Carolina\t6%\t9%\t\t10.5%\t\t\t\t',
'South Dakota\t4%\t6%\t\t\t\t\t\t\t',
'Tennessee\t7%\t9.75%\t4%+\t\t\t\t\t\t',
'Texas\t6.25%\t8.25%\t\t\t\t\t\t\t',
'Utah\t5.95%\t8.35%\t3%\t\t\t\t\t\t',
'Vermont\t6%\t7%\t\t9%+\t\t\t> $110\t',
'Virginia\t5.3%\t6%\t2.5%\t5.3%+\t\t\t\t\t',
'Washington\t6.5%\t10.4%\t\t10% (max)\t\t\t\t',
'West Virginia\t6%\t7%\t\t\t\t\t\t\t',
'Wisconsin\t5%\t6.75%\t\t\t\t\t\t\t',
'Wyoming\t4%\t6%']
```

Now we have to 'clean' the data

```
In [16]: stateTaxes = {}
         for rawData in splitRawTaxes:
             if len(rawData) < 2:
                 continue
             if 'Omaha' in rawData:
                 continue
             stateTaxes.update({rawData.split('\t')[0].lower():float(rawData.split('\t')[1][:-1]
         stateTaxes

Out[16]: {'alabama': 4.0,
          'alaska': 0.0,
          'arizona': 5.6,
          'arkansas': 6.5,
```

```
'california': 7.25,
'colorado': 2.9,
'connecticut': 6.35,
'delaware': 0.0,
'district of columbia': 5.75,
'florida': 6.0,
'georgia': 4.0,
'guam': 4.0,
'hawaii': 4.166,
'idaho': 6.0,
'illinois': 6.25,
'indiana': 7.0,
'iowa[42]': 6.0,
'kansas': 6.5,
'kentucky': 6.0,
'louisiana': 5.0,
'maine': 5.5,
'maryland': 6.0,
'massachusetts': 6.25,
'michigan': 6.0,
'minnesota': 6.875,
'mississippi': 7.0,
'missouri': 4.225,
'montana': 0.0,
'nebraska': 5.5,
'nevada': 6.85,
'new hampshire': 0.0,
'new jersey': 6.625,
'new mexico': 5.125,
'new york': 4.0,
'north carolina': 4.75,
'north dakota [43]': 5.0,
'ohio[44]': 5.75,
'oklahoma': 4.5,
'oregon': 0.0,
'pennsylvania': 6.0,
'puerto rico': 10.5,
'rhode island': 7.0,
'south carolina': 6.0,
'south dakota': 4.0,
'tennessee': 7.0,
'texas': 6.25,
'utah': 5.95,
'vermont': 6.0,
'virginia': 5.3,
'washington': 6.5,
'west virginia': 6.0,
'wisconsin': 5.0,
```

```
 'wyoming': 4.0}
```

After doing the 'cleaning',we have the data for the tax of each state

```
In [18]: people = 4
         bill = 30
         tax_state = 'virginia'
         tips = {'bad':0.1, 'average':0.15, 'good':0.2}
         tip = "the service is good"
```

Here, we have to find the final tip

Methode 1 : we use 'cut the sentence' methode

```
In [29]: finalTip = 'average'
         for word in tip.split():
             if word.lower() in tips.keys():
                 print('we found that the service it was', word,'. The value is:',tips[word])
                 finalTip = tips[word]
                 break
         print('Final Tip is ', finalTip)
```

```
we found that the service it was good . The value is: 0.2
Final Tip is  0.2
```

Methode 2: we loop the keys of the dictionnary

```
In [30]: finalTip = 'average'
         for word in tips.keys():
             if word in tip:
                 print('we found that the service was', word,'. The value is:',tips[word])
                 finalTip = tips[word]
                 break
         print('Final Tip is ', finalTip)
```

```
we found that the service was good . The value is: 0.2
Final Tip is  0.2
```

Next, we calculate the tip based on the percentage obtained

```
In [32]: try:
             tip_amount = finalTip * bill
         except KeyError:
             print('The tip is ill written.')
         print('The tip is','$',tip_amount)
```

```
The tip is $ 6.0
```

Then, we calculate the amount of tax

```
In [35]: tax_amount = stateTaxes[tax_state.lower()]/100 * bill
         print('The tax is',tax_amount,'$')
```

```
The tax is 1.5899999999999999 $
```

Lastly, we could find out the price per person

```
In [39]: total = bill + tip_amount + tax_amount
         print('The total cost for ',people,'people is: ',total,'$')
         print('For one person, the cost is: ',total / people,'$')
```

```
The total cost for  4 people is:  37.59 $
For one person, the cost is:  9.3975 $
```