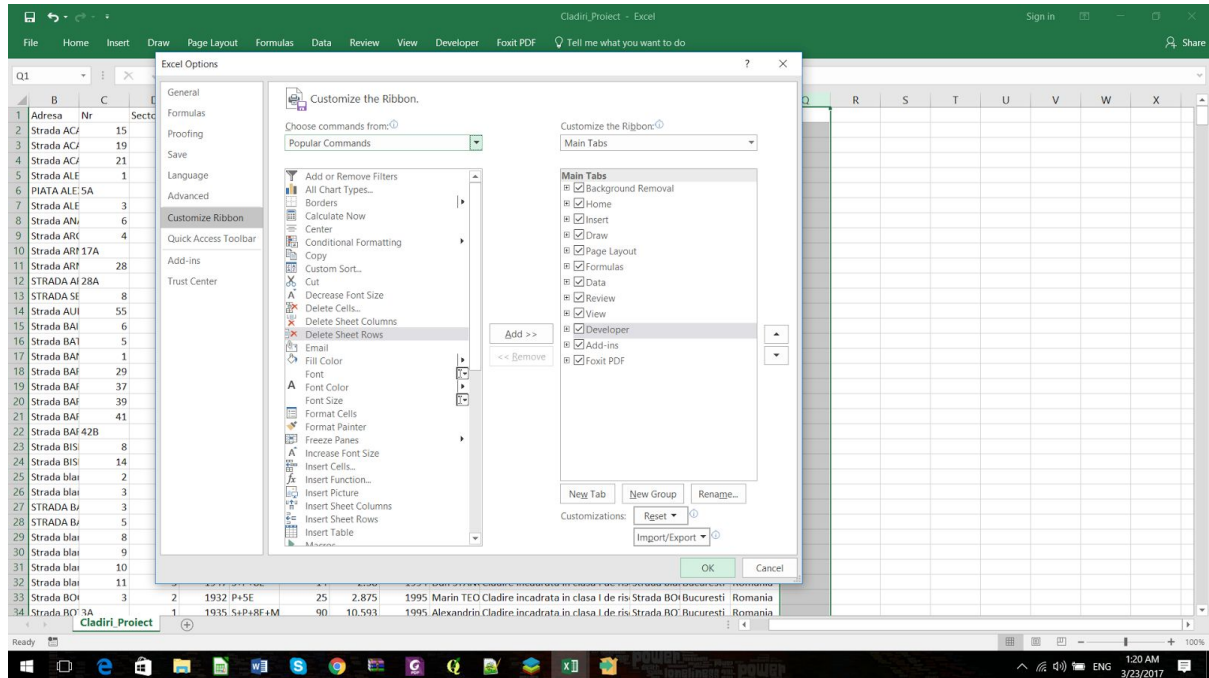
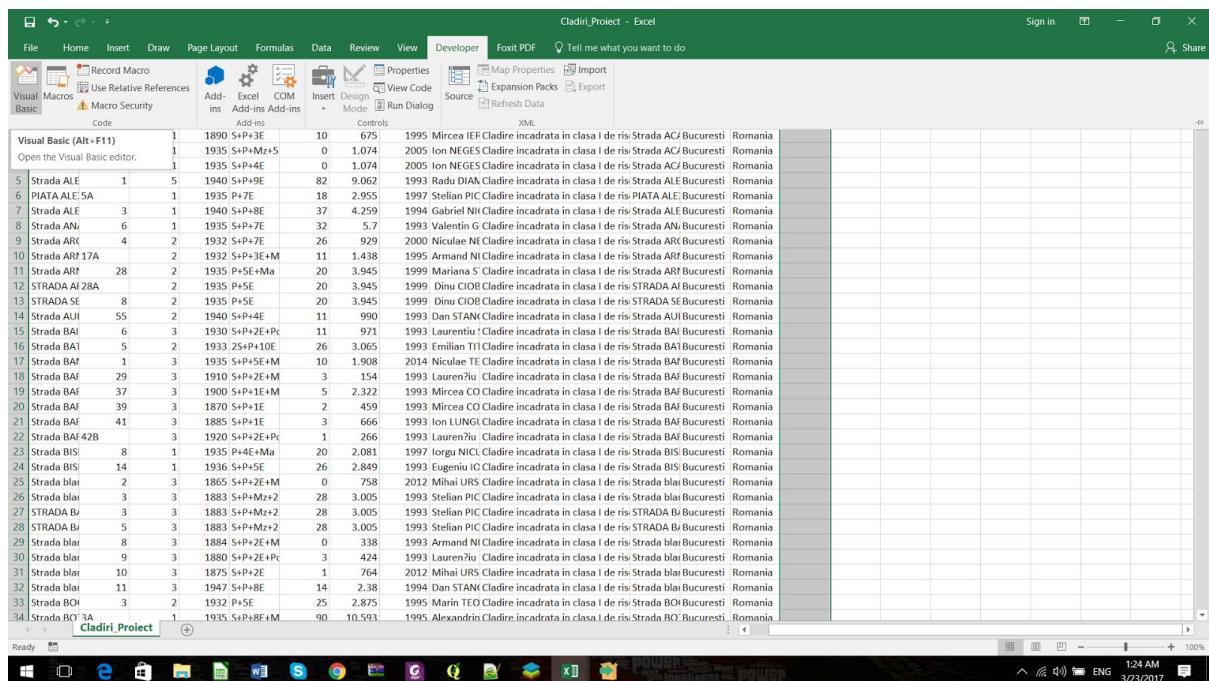


1. Open Excel;
2. Add developer tool in your excel interface:

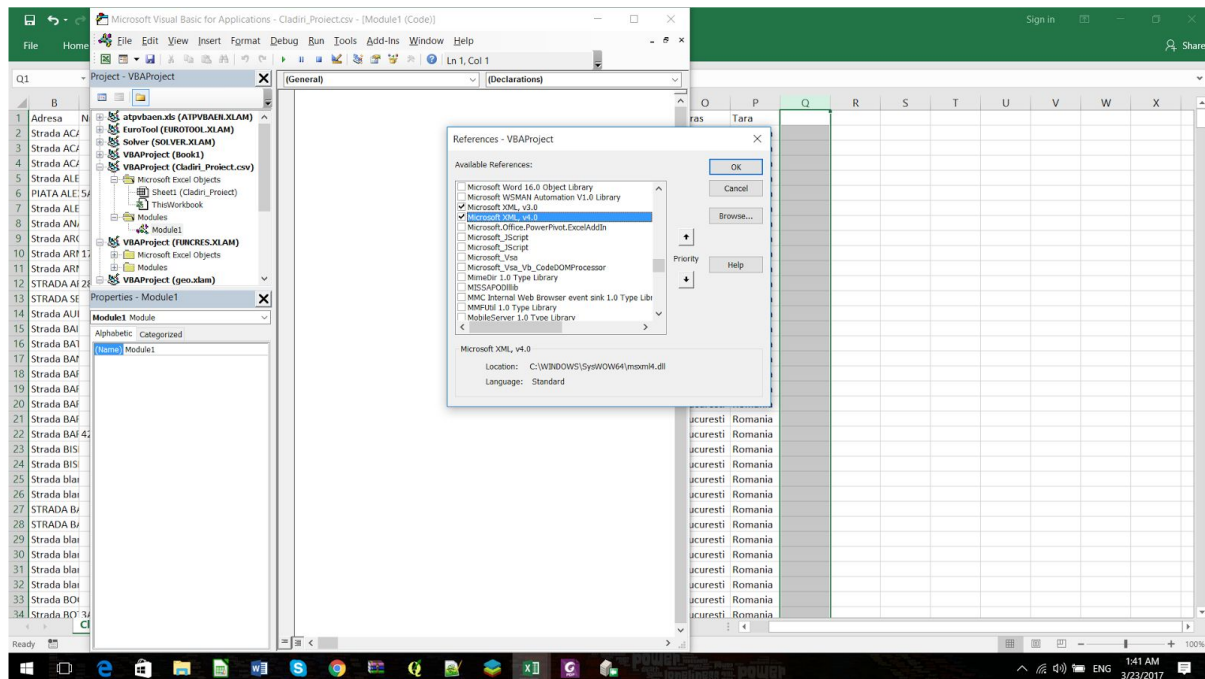
Go to File -> Options -> Customize Ribbon -> Choose Developer Tool from the left box and click add -> It will appear in the left box -> Check the Developer Tool from the right box -> OK



3. Open your data containing addresses
4. Open Developer Tool -> Visual Basic from the left



- Go to Tools-> References-> Find and select from the list the following: Microsoft XML, v3.0-> Ok:



- Creating a function that provides the latitude of a specific address:

- On the left side, right click on the project you are working on-> Insert-> Module
- Insert the following code in the module:

```
Function geoy(address As String) As String
```

```
    Dim strAddress As String
```

```
    Dim strQuery As String
```

```
    Dim strLatitude As String
```

```
strAddress = URLEncode(address)
```

```
'Assemble the query string
```

```
strQuery = "http://maps.googleapis.com/maps/api/geocode/xml?"
```

```
strQuery = strQuery & "address=" & strAddress
```

```
strQuery = strQuery & "&sensor=false"
```

```
'define XML and HTTP components
```

```
Dim googleResult As Object
```

```
Set googleResult = CreateObject("MSXML2.DOMDocument.6.0")
```

```
Dim googleService As Object
```

```
Set googleService = CreateObject("MSXML2.XMLHTTP.6.0")
```

```
Dim oNodes As MSXML2.IXMLDOMNodeList
```

```

Dim oNode As MSXML2.IXMLDOMNode
'create HTTP request to query URL - make sure to have
'that last "False" there for synchronous operation
googleService.Open "GET", strQuery, False
googleService.send
googleResult.LoadXML (googleService.responseText)
Set oNodes = googleResult.getElementsByTagName("geometry")
If oNodes.Length = 1 Then
    For Each oNode In oNodes
        strLatitude = oNode.ChildNodes(0).ChildNodes(0).Text
        geoy = strLatitude
    Next oNode
Else
    geoy = "Not Found (try again, you may have done too many too fast)"
End If
End Function

```

```

Public Function URLEncode(StringVal As String, Optional SpaceAsPlus As Boolean = False)
As String
    Dim StringLen As Long: StringLen = Len(StringVal)
    If StringLen > 0 Then
        ReDim result(StringLen) As String
        Dim i As Long, CharCode As Integer
        Dim Char As String, Space As String
        If SpaceAsPlus Then Space = "+" Else Space = "%20"
        For i = 1 To StringLen
            Char = Mid$(StringVal, i, 1)
            CharCode = Asc(Char)
            Select Case CharCode
                Case 97 To 122, 65 To 90, 48 To 57, 45, 46, 95, 126
                    result(i) = Char
                Case 32
                    result(i) = Space
                Case 0 To 15
                    result(i) = "%0" & Hex(CharCode)
                Case Else
                    result(i) = "%" & Hex(CharCode)
            End Select
        Next i
        URLEncode = Join(result, "")
    End If
End Function

```

- Save the file as Excel Add-In -> Save it in the default folder (AppData/Roaming/Microsoft/AddIns)-> Click Save

- Go to File-> Options-> Add Ins-> Manage Excel Add-ins -> Go -> Browse -> Open the Add In you created-> Click Open-> Check the add-in you created-> Ok
- Check if the function is working:

Click on an empty cell and write down the following: “=the name of the function(click on the address cell or write down the address whose latitude you want to get) and press enter

Example 1: =geoy(N2) -> See below

Example 2: =geoy(“Strada Mihail Moxa nr 12 Bucuresti Romania”)

In the following example we geocode the N2 cell which contains the following address name: Strada Academiei 15:

Nr. Crt	Adresa	Nr.	Sector	An constru	Regim inal	Nr. apart.	Arie desfas	An experti	Expert ate	Clase risc seismic	Adresa completa	Oras	Tara
1	Strada ACI	15	1	1890	S+P+3E	10	675	1995	Mircea IEF	Cladire incadrata in clasa I de risc	Strada ACADEMIEI 15	Bucuresti	Romania
2	Strada ACI	19	1	1935	S+P+Mz+5	0	1.074	2005	Ion NEGES	Cladire incadrata in clasa I de risc	Strada ACADEMIEI 19	Bucuresti	Romania
3	Strada ACI	21	1	1935	S+P+4E	0	1.074	2005	Ion NEGES	Cladire incadrata in clasa I de risc	Strada ACADEMIEI 21	Bucuresti	Romania
4	Strada ALE	1	5	1940	S+P+9E	82	9.062	1993	Radu DIAI	Cladire incadrata in clasa I de risc	Strada ALEXANDRU BELDIMAN 1	Bucuresti	Romania
5	PIATA ALEI SA	1	1	1935	P+7E	18	2.955	1997	Stelian PIC	Cladire incadrata in clasa I de risc	PIATA ALEXANDRU LAHOVARU SA	Bucuresti	Romania
6	Strada ALE	3	1	1940	S+P+8E	37	4.259	1994	Gabriel NII	Cladire incadrata in clasa I de risc	Strada ALEXANDRU XENOPOL 3	Bucuresti	Romania
7	Strada ANU	6	1	1935	S+P+7E	32	5.7	1993	Valentin G	Cladire incadrata in clasa I de risc	Strada ANASTASIE SIMU 6	Bucuresti	Romania
8	Strada ARC	4	2	1932	S+P+7E	26	929	2000	Niculae NI	Cladire incadrata in clasa I de risc	Strada ARCULUI 4	Bucuresti	Romania
9	Strada ARF 17A	2	2	1932	S+P+3E+M	11	1.438	1995	Armand NI	Cladire incadrata in clasa I de risc	Strada ARMENIASCA 17A	Bucuresti	Romania
10	Strada ARF	28	2	1935	P+5E+Ma	20	3.945	1999	Mariana S	Cladire incadrata in clasa I de risc	Strada ARMENIASCA 28	Bucuresti	Romania
11	STRADA AI 28A	2	2	1935	P+5E	20	3.945	1999	Dinu CIOB	Cladire incadrata in clasa I de risc	STRADA ARMENIASCA 28A	Bucuresti	Romania
12	STRADA SE	8	2	1935	P+5E	20	3.945	1999	Dinu CIOB	Cladire incadrata in clasa I de risc	STRADA SEMILUNEI 8	Bucuresti	Romania
13	STRADA AUI	55	2	1940	S+P+4E	11	990	1993	Dan STANI	Cladire incadrata in clasa I de risc	Strada AUREL VLAICU 55	Bucuresti	Romania
14	Strada BAI	6	3	1930	S+P+2E+Pc	11	971	1993	Laurentiu I	Cladire incadrata in clasa I de risc	Strada BAIA DE FIER 6	Bucuresti	Romania
15	Strada BAI	5	2	1933	2S+P+10E	26	3.065	1993	Emilian TII	Cladire incadrata in clasa I de risc	Strada BATISTEI 5	Bucuresti	Romania
16	Strada BAI	1	3	1935	S+P+5E+M	10	1.908	2014	Niculae TE	Cladire incadrata in clasa I de risc	Strada BANIEI 1	Bucuresti	Romania
17	Strada BAI	29	3	1910	S+P+2E+M	3	154	1993	Laurentiu	Cladire incadrata in clasa I de risc	Strada BARATIEI 29	Bucuresti	Romania
18	Strada BAI	37	3	1900	S+P+1E+M	5	2.322	1993	Mircea CO	Cladire incadrata in clasa I de risc	Strada BARATIEI 37	Bucuresti	Romania
19	Strada BAI	39	3	1870	S+P+1E	2	459	1993	Mircea CO	Cladire incadrata in clasa I de risc	Strada BARATIEI 39	Bucuresti	Romania
20	Strada BAI	41	3	1885	S+P+1E	3	666	1993	Ion LUNGI	Cladire incadrata in clasa I de risc	Strada BARATIEI 41	Bucuresti	Romania
21	Strada BAI 42B	3	3	1920	S+P+2E+Pc	1	266	1993	Laurentiu	Cladire incadrata in clasa I de risc	Strada BARATIEI 42B	Bucuresti	Romania
22	Strada BIS	8	1	1935	P+4E+Ma	20	2.081	1997	Iorgu NICI	Cladire incadrata in clasa I de risc	Strada BISERICA AMZEI 8	Bucuresti	Romania
23	Strada BIS	14	1	1936	S+P+5E	26	2.849	1993	Eugeniu IG	Cladire incadrata in clasa I de risc	Strada BISERICA ENEI 14	Bucuresti	Romania
24	Strada blai	2	3	1865	S+P+2E+M	0	758	2012	Mihai URS	Cladire incadrata in clasa I de risc	Strada blanari 2	Bucuresti	Romania
25	Strada blai	3	3	1883	S+P+Mz+2	28	3.005	1993	Stelian PIC	Cladire incadrata in clasa I de risc	Strada blanari 3	Bucuresti	Romania
26	STRADA BU	3	3	1883	S+P+Mz+2	28	3.005	1993	Stelian PIC	Cladire incadrata in clasa I de risc	STRADA BACANI 3	Bucuresti	Romania
27	STRADA BU	5	3	1883	S+P+Mz+2	28	3.005	1993	Stelian PIC	Cladire incadrata in clasa I de risc	STRADA BACANI 5	Bucuresti	Romania
28	Strada blai	8	3	1884	S+P+2E+M	0	338	1993	Armand NI	Cladire incadrata in clasa I de risc	Strada blanari 8	Bucuresti	Romania
29	Strada blai	9	3	1880	S+P+2E+Pc	3	424	1993	Laurentiu	Cladire incadrata in clasa I de risc	Strada blanari 9	Bucuresti	Romania
30	Strada blai	10	3	1875	S+P+2E	1	764	2012	Mihai URS	Cladire incadrata in clasa I de risc	Strada blanari 10	Bucuresti	Romania
31	Strada blai	11	3	1947	S+P+8E	14	2.38	1994	Dan STANI	Cladire incadrata in clasa I de risc	Strada blanari 11	Bucuresti	Romania
32	Strada BOI	3	2	1932	P+5E	25	2.875	1995	Marin TEO	Cladire incadrata in clasa I de risc	Strada BOCSA 3	Bucuresti	Romania
33	Strada BOI 3A	1	1	1935	S+P+8E+M	90	10.593	1995	Alexandru	Cladire incadrata in clasa I de risc	Strada ROTARIU 3A	Bucuresti	Romania

## 7. Creating a function that provides the longitude of a specific address:

- On the left side, right click on the project you are working on-> Insert-> Module
- Insert the following code in the module:

Function geox(address As String) As String

Dim strAddress As String

Dim strQuery As String

Dim strLongitude As String

strAddress = URLEncode(address)

'Assemble the query string

strQuery = "http://maps.googleapis.com/maps/api/geocode/xml?"

strQuery = strQuery & "address=" & strAddress

strQuery = strQuery & "&sensor=false"

```

'define XML and HTTP components
Dim googleResult As Object
Set googleResult = CreateObject("MSXML2.DOMDocument.6.0")

Dim googleService As Object
Set googleService = CreateObject("MSXML2.XMLHTTP.6.0")

Dim oNodes As MSXML2.IXMLDOMNodeList
Dim oNode As MSXML2.IXMLDOMNode
'create HTTP request to query URL - make sure to have
'that last "False" there for synchronous operation
googleService.Open "GET", strQuery, False
googleService.send
googleResult.LoadXML (googleService.responseText)
Set oNodes = googleResult.getElementsByTagName("geometry")
If oNodes.Length = 1 Then
    For Each oNode In oNodes

        strLongitude = oNode.ChildNodes(0).ChildNodes(1).Text
        geox = strLongitude
    Next oNode
Else
    geox = "Not Found (try again, you may have done too many too fast)"
End If
End Function

Public Function URLEncode(StringVal As String, Optional SpaceAsPlus As Boolean = False)
As String
    Dim StringLen As Long: StringLen = Len(StringVal)
    If StringLen > 0 Then
        ReDim result(StringLen) As String
        Dim i As Long, CharCode As Integer
        Dim Char As String, Space As String
        If SpaceAsPlus Then Space = "+" Else Space = "%20"
        For i = 1 To StringLen
            Char = Mid$(StringVal, i, 1)
            CharCode = Asc(Char)
            Select Case CharCode
                Case 97 To 122, 65 To 90, 48 To 57, 45, 46, 95, 126
                    result(i) = Char
                Case 32
                    result(i) = Space
                Case 0 To 15
                    result(i) = "%0" & Hex(CharCode)
                Case Else
                    result(i) = "%" & Hex(CharCode)
            End Select
        Next i
    End If
End Function

```



Next i

URLEncode = Join(result, "")

End If

End Function

- Save the file as Excel Add-In -> Save it in the default folder (AppData/Roaming/Microsoft/AddIns)-> Click Save
- Go to File-> Options-> Add Ins-> Manage Excel Add-ins -> Go -> Browse -> Open the Add In you created-> Click Open-> Check the add-in you created-> Ok
- Check if the function is working:

Click on an empty cell and write down the following: “=the name of the function(click on the address cell or write down the address whose longitude you want to get) and press enter

Example 1: =geox(N2) -> See below

Example 2: =geox(“Strada Mihail Moxa nr 12 Bucuresti Romania”)

In the following example we get the longitude for N2 cell which contains the following address name: Strada Academiei 15:

Nr. Crt	Adresa	Nr	Sector	An constru	Regim inal	Nr. apart.	Arie desfa	An experti	Expert ate	Clase risc seismic	Adresa completa	Oras	Tara
1	Strada ACI	15	1	1890	S+P+3E	10	6.75	1995	Mircea IEF	Cladire incadrata in clasa I de risc	Strada ACADEMIEI 15	Bucuresti	Romania
2	Strada ACI	19	1	1935	S+P+Mz+5	0	1.074	2005	Ion NEGES	Cladire incadrata in clasa I de risc	Strada ACADEMIEI 19	Bucuresti	Romania
3	Strada ACI	21	1	1935	S+P+4E	0	1.074	2005	Ion NEGES	Cladire incadrata in clasa I de risc	Strada ACADEMIEI 21	Bucuresti	Romania
4	Strada ALE	1	5	1940	S+P+9E	82	9.062	1993	Radu DIAN	Cladire incadrata in clasa I de risc	Strada ALEXANDRU BELDIMAN 1	Bucuresti	Romania
5	PIATA ALE 5A	3	1	1935	P+7E	18	2.955	1997	Stelian PIC	Cladire incadrata in clasa I de risc	PIATA ALEXANDRU LAHOVARI 5A	Bucuresti	Romania
6	Strada ALE	3	1	1940	S+P+8E	37	4.259	1994	Gabriel NI	Cladire incadrata in clasa I de risc	Strada ALEXANDRU XENOPOL 3	Bucuresti	Romania
7	Strada AN	6	1	1935	S+P+7E	32	5.7	1993	Valentin G	Cladire incadrata in clasa I de risc	Strada ANASTASIE SIMU 6	Bucuresti	Romania
8	Strada ARC	4	2	1932	S+P+7E	26	9.29	2000	Niculae NI	Cladire incadrata in clasa I de risc	Strada ARCULUI 4	Bucuresti	Romania
9	Strada AR17A	2	2	1932	S+P+3E+M	11	1.438	1995	Armand NI	Cladire incadrata in clasa I de risc	Strada ARMENEASCA 17A	Bucuresti	Romania
10	Strada AR1	28	2	1935	P+5E+Ma	20	3.945	1999	Mariana S	Cladire incadrata in clasa I de risc	Strada ARMENEASCA 28	Bucuresti	Romania
11	STRADA AI 28A	2	2	1935	P+5E	20	3.945	1999	Dinu CIOB	Cladire incadrata in clasa I de risc	STRADA ARMENEASCA 28A	Bucuresti	Romania
12	STRADA SE	8	2	1935	P+5E	20	3.945	1999	Dinu CIOB	Cladire incadrata in clasa I de risc	STRADA SEMILUNEI 8	Bucuresti	Romania
13	STRADA AIJ	55	2	1940	S+P+4E	11	990	1993	Dan STANI	Cladire incadrata in clasa I de risc	Strada AUREL VLAICU 55	Bucuresti	Romania
14	Strada BAI	6	3	1930	S+P+2E+Pc	11	971	1993	Laurentiu I	Cladire incadrata in clasa I de risc	Strada BAIA DE FIER 6	Bucuresti	Romania
15	Strada BAI	5	2	1933	2S+P+10E	26	3.065	1993	Emilian TI	Cladire incadrata in clasa I de risc	Strada BATISTEI 5	Bucuresti	Romania
16	Strada BAI	1	3	1935	S+P+5E+M	10	1.908	2014	Niculae TE	Cladire incadrata in clasa I de risc	Strada BANIEI 1	Bucuresti	Romania
17	Strada BAI	29	3	1910	S+P+2E+M	3	154	1993	Laurentiu	Cladire incadrata in clasa I de risc	Strada BARATIEI 29	Bucuresti	Romania
18	Strada BAI	37	3	1900	S+P+1E+M	5	2.322	1993	Mircea CO	Cladire incadrata in clasa I de risc	Strada BARATIEI 37	Bucuresti	Romania
19	Strada BAI	39	3	1870	S+P+1E	2	459	1993	Mircea CO	Cladire incadrata in clasa I de risc	Strada BARATIEI 39	Bucuresti	Romania
20	Strada BAI	41	3	1885	S+P+1E	3	666	1993	Ion LUNGI	Cladire incadrata in clasa I de risc	Strada BARATIEI 41	Bucuresti	Romania
21	Strada BAI 42B	3	3	1920	S+P+2E+Pc	1	266	1993	Laurentiu	Cladire incadrata in clasa I de risc	Strada BARATIEI 42B	Bucuresti	Romania
22	Strada BIS	8	1	1935	P+4E+Ma	20	2.081	1997	Iorgu NICI	Cladire incadrata in clasa I de risc	Strada BISERICA AMZEI 8	Bucuresti	Romania
23	Strada BIS	14	1	1936	S+P+5E	26	2.849	1993	Eugeniu IO	Cladire incadrata in clasa I de risc	Strada BISERICA ENEI 14	Bucuresti	Romania
24	Strada blai	2	3	1865	S+P+2E+M	0	758	2012	Mihai URS	Cladire incadrata in clasa I de risc	Strada blanari 2	Bucuresti	Romania
25	Strada blai	3	3	1883	S+P+Mz+2	28	3.005	1993	Stelian PIC	Cladire incadrata in clasa I de risc	Strada blanari 3	Bucuresti	Romania
26	STRADA Bu	3	3	1883	S+P+Mz+2	28	3.005	1993	Stelian PIC	Cladire incadrata in clasa I de risc	STRADA BACANI 3	Bucuresti	Romania
27	STRADA Bu	5	3	1884	S+P+Mz+2	28	3.005	1993	Stelian PIC	Cladire incadrata in clasa I de risc	STRADA BACANI 5	Bucuresti	Romania
28	Strada blai	8	3	1884	S+P+2E+M	0	338	1993	Armand NI	Cladire incadrata in clasa I de risc	Strada blanari 8	Bucuresti	Romania
29	Strada blai	9	3	1880	S+P+2E+Pc	3	424	1993	Laurentiu	Cladire incadrata in clasa I de risc	Strada blanari 9	Bucuresti	Romania
30	Strada blai	10	3	1875	S+P+2E	1	764	2012	Mihai URS	Cladire incadrata in clasa I de risc	Strada blanari 10	Bucuresti	Romania
31	Strada blai	11	3	1947	S+P+8E	14	2.38	1994	Dan STANI	Cladire incadrata in clasa I de risc	Strada blanari 11	Bucuresti	Romania
32	Strada BOI	3	2	1932	P+5E	25	2.875	1995	Marin TEO	Cladire incadrata in clasa I de risc	Strada BOCSA 3	Bucuresti	Romania
33	Strada BO1 3A	1	1	1935	S+P+8E+M	90	10.593	1995	Alexandrin	Cladire incadrata in clasa I de risc	Strada BOTFANU 3A	Bucuresti	Romania

8. Use your new created function whenever you need to geocode something.

The source code for this code was taken from here:

<http://www.myengineeringworld.net/2014/06/geocoding-using-vba-google-api.html>