



RESEARCH REPORT ON JSON, XML, PROTOBUF

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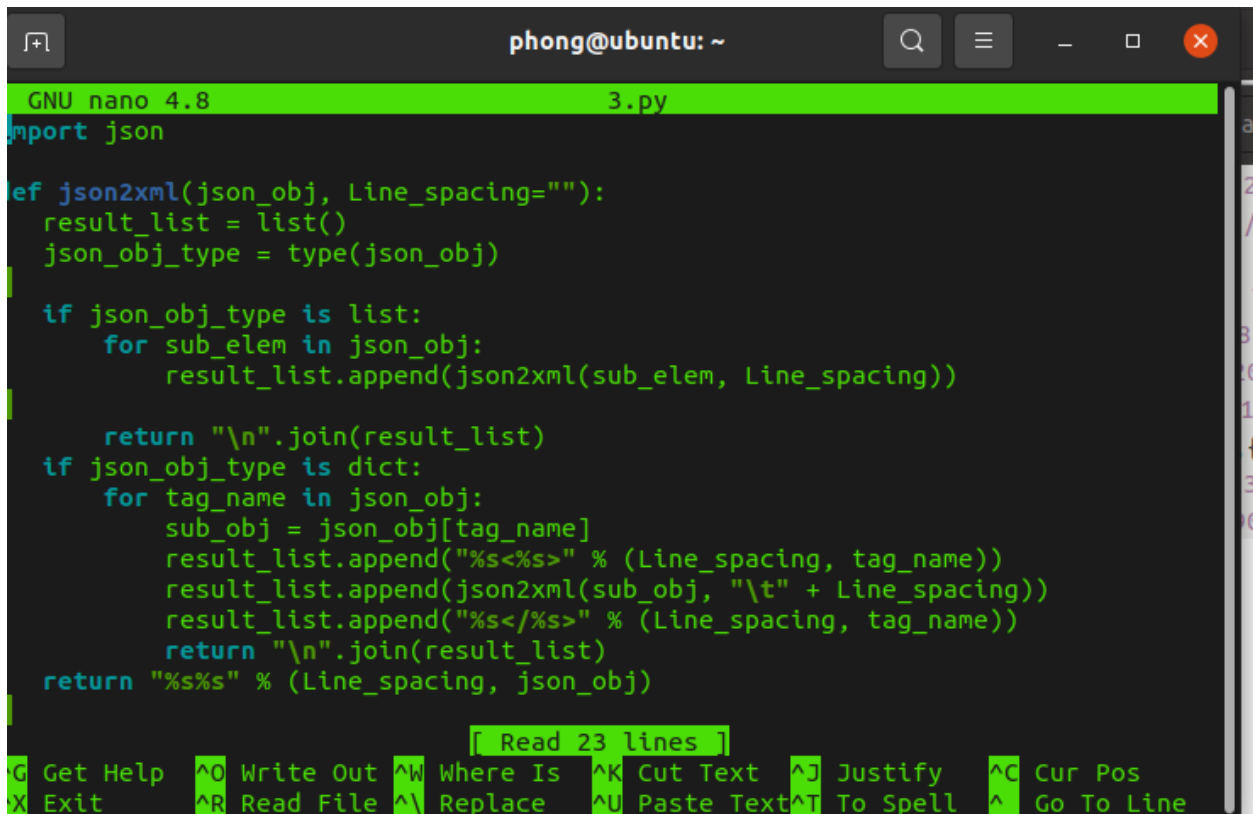
I. Convert JSON to XML.

Step 1: Have a Json file. (DSLj.json)



```
1 [{"1951200042":1951200013,"Lê Trần Phong":"Phạm Quang Duy","Nam":"Nam","21/01/2001":36928},-
{"1951200042":1951200031,"Lê Trần Phong":"Trần Minh Hùng","Nam":"Nam","21/01/2001":36961},-
{"1951200042":1951200024,"Lê Trần Phong":"Nguyễn Nhật Hải
Hưng","Nam":"Nam","21/01/2001":"22/11/2001"},{"1951200042":1951200019,"Lê Trần Phong":"Nguyễn
Đặng Khoa","Nam":"Nam","21/01/2001":"28/12/2001"},{"1951200042":1951200018,"Lê Trần Phong":"Trần
Thị Ngọc Quỳnh ","Nam":"Nữ","21/01/2001":"19/11/2001"},{"1951200042":1951200011,"Lê Trần
Phong":"Trần Nguyễn Quốc Thịnh","Nam":"Nam","21/01/2001":"28/07/2001"},{"1951200042":
1951200020,"Lê Trần Phong":"Lê Thị Thương","Nam":"Nữ","21/01/2001":37022},{"1951200042":
1951200003,"Lê Trần Phong":"Trương Bảo Tín ","Nam":"Nam","21/01/2001":37135},{"1951200042":
1951200009,"Lê Trần Phong":"Nguyễn Văn Thúc","Nam":"Nam","21/01/2001":36904}]
```

Step 2. Open python. Insert code: Use module json2xml



```
GNU nano 4.8 3.py
import json

def json2xml(json_obj, Line_spacing=""):
    result_list = list()
    json_obj_type = type(json_obj)

    if json_obj_type is list:
        for sub_elem in json_obj:
            result_list.append(json2xml(sub_elem, Line_spacing))

        return "\n".join(result_list)
    if json_obj_type is dict:
        for tag_name in json_obj:
            sub_obj = json_obj[tag_name]
            result_list.append("%s<%s>" % (Line_spacing, tag_name))
            result_list.append(json2xml(sub_obj, "\t" + Line_spacing))
            result_list.append("%s</%s>" % (Line_spacing, tag_name))
        return "\n".join(result_list)
    return "%s%s" % (Line_spacing, json_obj)

[ Read 23 lines ]
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos
^X Exit      ^R Read File  ^\ Replace   ^U Paste Text ^T To Spell  ^_ Go To Line
```

3. Output:

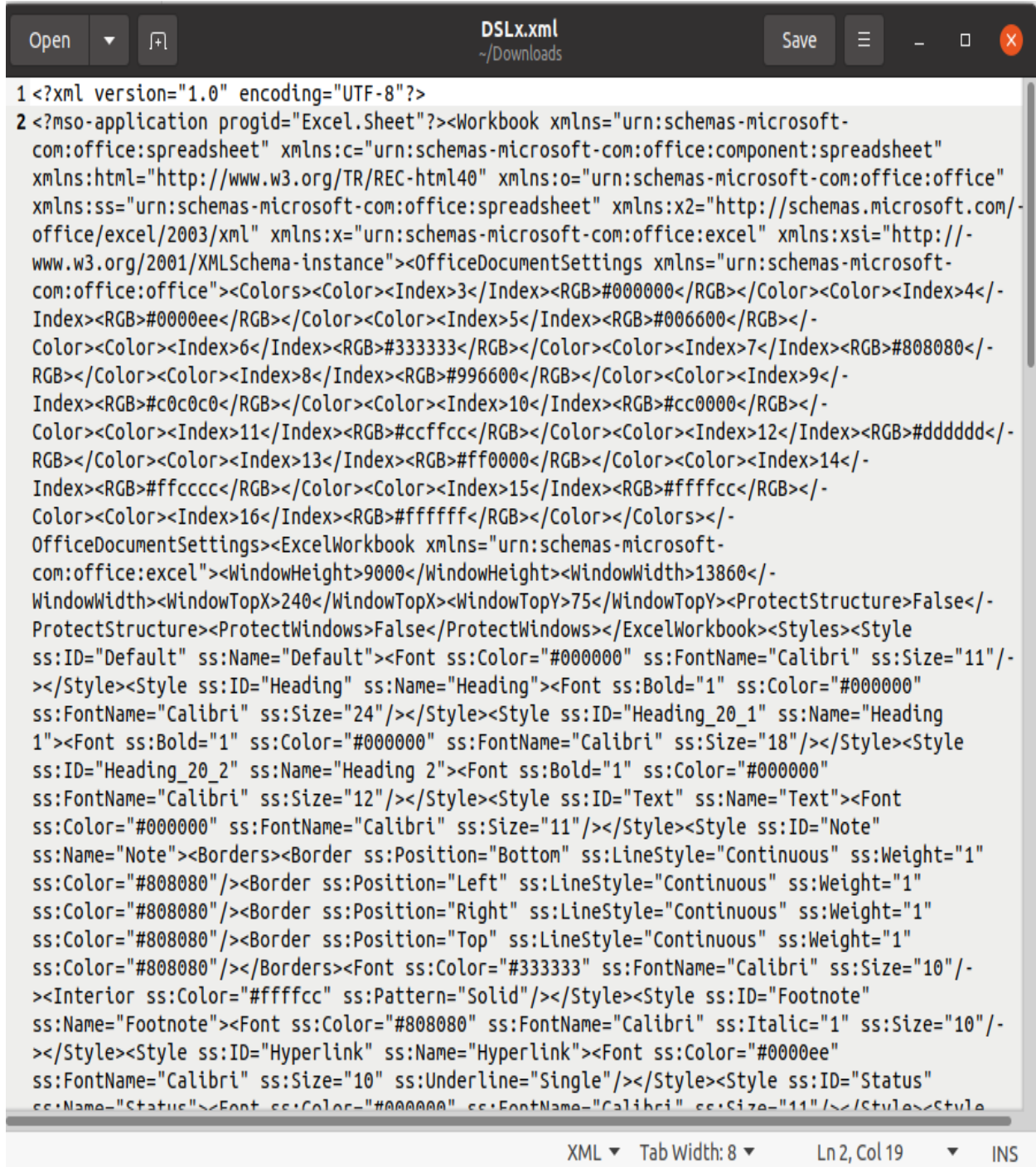
```
<1951200042>
    1951200013
</1951200042>
<1951200042>
    1951200031
</1951200042>
<1951200042>
    1951200024
</1951200042>
<1951200042>
    1951200019
</1951200042>
<1951200042>
    1951200018
</1951200042>
<1951200042>
    1951200011
</1951200042>
<1951200042>
    1951200020
</1951200042>
<1951200042>
    1951200003
```

Notion:

- Use module *json2xml*

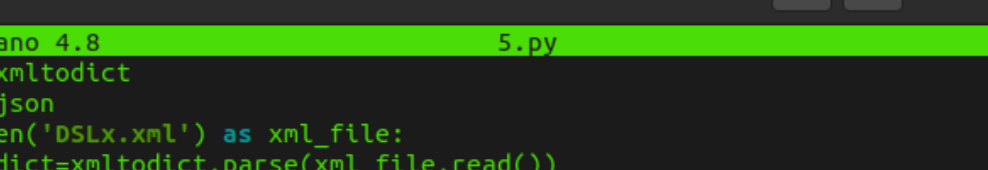
II. Convert XML to JSON:

Step 1: Have a xml file. (DSLx.xml)



```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <?mso-application progid="Excel.Sheet"?><Workbook xmlns="urn:schemas-microsoft-
  com:office:spreadsheet" xmlns:c="urn:schemas-microsoft-com:office:component:spreadsheet"
  xmlns:html="http://www.w3.org/TR/REC-html40" xmlns:o="urn:schemas-microsoft-com:office:office"
  xmlns:ss="urn:schemas-microsoft-com:office:spreadsheet" xmlns:x2="http://schemas.microsoft.com/
  office/excel/2003/xml" xmlns:x="urn:schemas-microsoft-com:office:excel" xmlns:xsi="http://
  www.w3.org/2001/XMLSchema-instance"><OfficeDocumentSettings xmlns="urn:schemas-microsoft-
  com:office:office"><Colors><Color><Index>3</Index><RGB>#000000</RGB></Color><Color><Index>4</
  Index><RGB>#0000ee</RGB></Color><Color><Index>5</Index><RGB>#006600</RGB></
  Color><Color><Index>6</Index><RGB>#333333</RGB></Color><Color><Index>7</Index><RGB>#808080</
  RGB></Color><Color><Index>8</Index><RGB>#996600</RGB></Color><Color><Index>9</
  Index><RGB>#c0c0c0</RGB></Color><Color><Index>10</Index><RGB>#cc0000</RGB></
  Color><Color><Index>11</Index><RGB>#ccffcc</RGB></Color><Color><Index>12</Index><RGB>#dddddd</
  RGB></Color><Color><Index>13</Index><RGB>#ff0000</RGB></Color><Color><Index>14</
  Index><RGB>#ffcccc</RGB></Color><Color><Index>15</Index><RGB>#ffffcc</RGB></
  Color><Color><Index>16</Index><RGB>#ffffff</RGB></Color></Colors></
  OfficeDocumentSettings><ExcelWorkbook xmlns="urn:schemas-microsoft-
  com:office:excel"><WindowHeight>9000</WindowHeight><WindowWidth>13860</
  WindowWidth><WindowTopX>240</WindowTopX><WindowTopY>75</WindowTopY><ProtectStructure>False</
  ProtectStructure><ProtectWindows>False</ProtectWindows></ExcelWorkbook><Styles><Style
  ss:ID="Default" ss:Name="Default"><Font ss:Color="#000000" ss:FontName="Calibri" ss:Size="11"/
  ></Style><Style ss:ID="Heading" ss:Name="Heading"><Font ss:Bold="1" ss:Color="#000000"
  ss:FontName="Calibri" ss:Size="24"/></Style><Style ss:ID="Heading_20_1" ss:Name="Heading
  1"><Font ss:Bold="1" ss:Color="#000000" ss:FontName="Calibri" ss:Size="18"/></Style><Style
  ss:ID="Heading_20_2" ss:Name="Heading 2"><Font ss:Bold="1" ss:Color="#000000"
  ss:FontName="Calibri" ss:Size="12"/></Style><Style ss:ID="Text" ss:Name="Text"><Font
  ss:Color="#000000" ss:FontName="Calibri" ss:Size="11"/></Style><Style ss:ID="Note"
  ss:Name="Note"><Borders><Border ss:Position="Bottom" ss:LineStyle="Continuous" ss:Weight="1"
  ss:Color="#808080"/><Border ss:Position="Left" ss:LineStyle="Continuous" ss:Weight="1"
  ss:Color="#808080"/><Border ss:Position="Right" ss:LineStyle="Continuous" ss:Weight="1"
  ss:Color="#808080"/><Border ss:Position="Top" ss:LineStyle="Continuous" ss:Weight="1"
  ss:Color="#808080"/></Borders><Font ss:Color="#333333" ss:FontName="Calibri" ss:Size="10"/
  ><Interior ss:Color="#ffffcc" ss:Pattern="Solid"/></Style><Style ss:ID="Footnote"
  ss:Name="Footnote"><Font ss:Color="#808080" ss:FontName="Calibri" ss:Italic="1" ss:Size="10"/
  ></Style><Style ss:ID="Hyperlink" ss:Name="Hyperlink"><Font ss:Color="#0000ee"
  ss:FontName="Calibri" ss:Size="10" ss:Underline="Single"/></Style><Style ss:ID="Status"
  ss:Name="Status"><Font ss:Color="#000000" ss:FontName="Calibri" ss:Size="11"/></Style></Style>
```

Step 2: Open Python and insert code:



```
phong@ubuntu: ~  
GNU nano 4.8 5.py  
import xmltodict  
import json  
with open('DSLx.xml') as xml_file:  
    my_dict=xmltodict.parse(xml_file.read())  
xml_file.close()  
json_data=json.dumps(my_dict)  
print(json_data)
```

Output:

```
[{"Index": 8, "RGB": "#996600"}, {"Index": 9, "RGB": "#c0c0c0"}, {"Index": 10, "RGB": "#cc0000"}, {"Index": 11, "RGB": "#ccccff"}, {"Index": 12, "RGB": "#ffffff"}, {"Index": 13, "RGB": "#ff0000"}, {"Index": 14, "RGB": "#ffffcc"}, {"Index": 15, "RGB": "#ffffff"}], [{"ExcelWorkbook": [{"@xmlns:urn:schemas-microsoft-com:office:excel": "http://schemas.microsoft.com/office/excel/schemas/excel", "WindowHeight": 9000, "WindowWidth": 13860, "WindowTopX": 240, "WindowTopY": 75, "ProtectStructure": "False", "ProtectWindows": "False", "Styles": [{"Style": [{"@ss:ID": "Default", "@ss:Name": "Default", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 11}], [{"@ss:ID": "Heading_1", "@ss:Name": "Heading 1", "Font": [{"@ss:Bold": true, "@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 18}], [{"@ss:ID": "Heading_2", "@ss:Name": "Heading 2", "Font": [{"@ss:Bold": true, "@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 12}], [{"@ss:ID": "Text", "@ss:Name": "Text", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 11}], [{"@ss:ID": "Note_Borders", "@ss:Name": "Note Borders", "Borders": [{"Border": [{"@ss:Position": "Bottom", "@ss:LineStyle": "Continuous", "@ss:Weight": 1}, {"@ss:Position": "Left", "@ss:LineStyle": "Continuous", "@ss:Weight": 1}, {"@ss:Position": "Right", "@ss:LineStyle": "Continuous", "@ss:Weight": 1}, {"@ss:Position": "Top", "@ss:LineStyle": "Continuous", "@ss:Weight": 1}], [{"@ss:Color": "#000000", "@ss:Pattern": "Solid"}], [{"@ss:ID": "Footnote", "@ss:Name": "Footnote", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "HyperLink", "@ss:Name": "HyperLink", "Font": [{"@ss:Color": "#0000ee", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Status", "@ss:Name": "Status", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 11}], [{"@ss:ID": "Good", "@ss:Name": "Good", "Font": [{"@ss:Color": "#006600", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Neutral", "@ss:Name": "Neutral", "Font": [{"@ss:Color": "#996600", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Bad", "@ss:Name": "Bad", "Font": [{"@ss:Color": "#cc0000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Warning", "@ss:Name": "Warning", "Font": [{"@ss:Color": "#cc0000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Error", "@ss:Name": "Error", "Font": [{"@ss:Color": "#cc0000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Accent", "@ss:Name": "Accent", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Accent_1", "@ss:Name": "Accent 1", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Accent_2", "@ss:Name": "Accent 2", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Accent_3", "@ss:Name": "Accent 3", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align", "@ss:Name": "Align", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Center", "@ss:Name": "Align Center", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Left", "@ss:Name": "Align Left", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Right", "@ss:Name": "Align Right", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Top", "@ss:Name": "Align Top", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Bottom", "@ss:Name": "Align Bottom", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Middle", "@ss:Name": "Align Middle", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_Justify", "@ss:Name": "Align Justify", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}], [{"@ss:ID": "Align_FullJustify", "@ss:Name": "Align Full Justify", "Font": [{"@ss:Color": "#000000", "@ss:FontName": "Calibri", "@ss:Size": 10}]}]}]]}]
```

Notion:

Module: *xmldict*

