

How to convert a CSV file to XML with Python

Converting a CSV file to XML is a common task when working with structured data in Python. CSV files (Comma-Separated Values) are widely used to store tabular data, while XML (eXtensible Markup Language) is extensively used to represent hierarchical and structured data in a format readable by both humans and machines. In this article, we will see how to perform this conversion using Python.

Python offers the `csv` library to read CSV files. Let's assume we have a CSV file called `data.csv` with the following content:

```
Name,Surname,Age
Mario,Rossi,30
Luigi,Bianchi,25
Anna,Verdi,22
```

Now let's create the main code:

```
import csv
import xml.etree.ElementTree as ET

def csv_to_xml(csv_file, xml_file):
    # Read the CSV file
    with open(csv_file, mode='r', newline='',
              encoding='utf-8') as file:
        csv_reader = csv.DictReader(file)
```

```

# Create the XML root
root = ET.Element("Data")

# Iterate through the CSV rows and create XML
nodes
for row in csv_reader:
    record = ET.SubElement(root, "Record")
    for key, value in row.items():
        element = ET.SubElement(record, key)
        element.text = value

# Write the XML to file
tree = ET.ElementTree(root)
with open(xml_file, mode='wb') as xml_output:
    tree.write(xml_output, encoding='utf-8',
xml_declaration=True)

# Run the function
csv_to_xml("data.csv", "data.xml")

```

Here's how the data.xml file looks:

```

<?xml version='1.0' encoding='utf-8'?>
<Data>
  <Record>
    <Name>Mario</Name>
    <Surname>Rossi</Surname>
    <Age>30</Age>
  </Record>
  <Record>
    <Name>Luigi</Name>

```

```
        <Surname>Bianchi</Surname>
        <Age>25</Age>
    </Record>
    <Record>
        <Name>Anna</Name>
        <Surname>Verdi</Surname>
        <Age>22</Age>
    </Record>
</Data>
```

Conclusion

Converting CSV to XML in Python is a relatively straightforward process thanks to Python's standard libraries. With the provided code, you can easily transform tabular data into custom XML structures to suit your needs.