CSV2XML: File Convertor

Goal

In this assignment, you are asked to develop a command line tool to convert CSV to XML format. All coding must be in C programming language.

This assignment expects to help you to practice basic file operations and understand details of file formats, as well as practicing C programming language.

Implementation Details & Requirements

- CSV stands for "comma separated value", which is a data file format allowing data to be saved in a tabular format where each column is separated with a comma. CSV files generally have "csv" extension. CSV files can be used with most any spreadsheet program, such as Microsoft Excel or Google Spreadsheets. In CSVs, the separator may also be different characters, rather than comma. In this assignment, we assume that the following characters are used as separator character:
  - comma (,)
  - tab
  - semicolon (;)

- CSV2XML converter tool takes the name of the CSV input file assuming that is encoded in UTF-8. You know that CSV flies are text file where different end of line character may be used for different operating systems.
  - In Windows system, CR+LF (carriage return and line feed) characters
  - In Linux system, LF (line feed) character
  - In MacOS classic system, CR (carriage return) character

- CSV2XML tool must take the following command line arguments:
  - `-separator`
    defines separator between each datum (1=comma, 2=tab, 3=semicolon)
  - `-opsys`
    defines the end of line character format (1=windows, 2=linux, 3=macos)
  - `-h`
    print information to screen about how other arguments can be used.

- Usage of CSV2XML file must be as follows:

`CSV2XML <inputfile> <outputfile> [-separator <P1>][-opsys <P2>][-h]`

- The first argument, <input file> refers the source filename to be used for the conversion and the second one, <outputfile>, refer the target XML filename. You should take the input CSV filename as root node of the created XML.
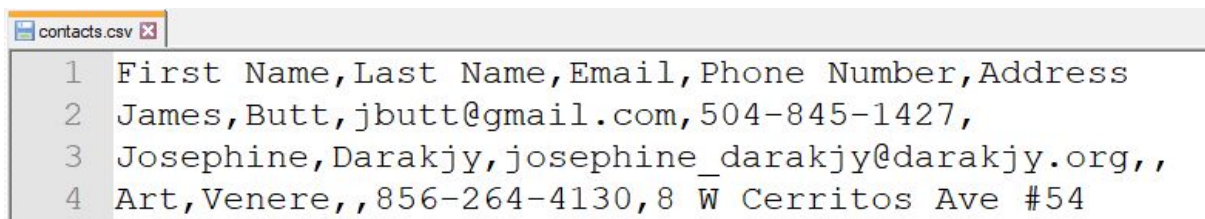
  P1 and P2 values can have the following values:

  For P1 may be 1=comma, 2=tab or 3=semicolon, and P2 may be 1=windows, 2=linux or 3=macos

- The sample command line usage converting from CSV to XML as follows:

```
CVS2XML Contacts.csv Contacts.xml -separator 1 -opsys 1
```

  For the following input file of "Contacts.csv"

```
contacts.csv
1  First Name,Last Name,Email,Phone Number,Address
2  James,Butt,jbutt@gmail.com,504-845-1427,
3  Josephine,Darakjy,josephine_darakjy@darakjy.org,,
4  Art,Venere,,856-264-4130,8 W Cerritos Ave #54
```

  CVS2XML will produce an XML file looks like the following:

```
<contacts>
      <row id="1">
            <first_name>James</first_name>
            <last_name>Butt</last_name>
            <email>jbutt@gmail.com</email>
            <phone_number>504-845-1427</phone_number>
            <address/>
      </row>
      ...
</contacts>
```

- Please pay attention that the root element of output XML file is the name of output file. Furthermore, the row number is added as "id" attribute of the respective "row". Besides, first row of the input file includes the column header, where each of them is taken as an element name of "row". You should take care of the values of columns.

- We give the sample CSV to test your program. But don't forget, your program will support any value of arguments.