COEN 244 (Winter 2018) - Assignment 5: IO

Deadline: April 13, Friday, 23:55

Type: Group Assignment (Groups of 2 students max)
Note: The assignment must be submitted on Moodle.
Submission format: Create only ONE zip file (.gz, .tar, .zip are acceptable. **.rar file is NOT acceptable**) that contains all the header files, cpp files and test files. The name of the file must follow the template below:

[student_id_of_member1]_[student_id_of_member2]_A5.zip or
[student_id_of_member1]_[student_id_of_member2]_A5.tar or
[student_id_of_member1]_[student_id_of_member2]_A5.gz

JSON is a lightweight data exchange format. It is easy to read and write by human beings; and processed by any programming languages. The syntax of JSON is described in various references, one is from https://www.json.org.

A sample json file is provided as attachment in the specification. The requirement of this assignment is to write a program that opens a json file with the same schema as the sample file provided (but with more items). The json file path is given as an argument to the command line. The program retrieves the data in the json file and forms the data in a table. An example is shown below.

id	type	name	batter	topping
0001	donut	Cake	Regular	None
0001	donut	Cake	Regular	Glazed
0001	donut	Cake	Regular	Sugar
0001	donut	Cake	Regular	Powdered Sugar
0001	donut	Cake	Regular	Chocolate with Sprinkles
0001	donut	Cake	Regular	Chocolate
0001	donut	Cake	Regular	Maple
0001	donut	Cake	Chocolate	None
0001	donut	Cake	Chocolate	Glazed
0001	donut	Cake	Chocolate	Sugar
0001	donut	Cake	Chocolate	Powdered Sugar
0001	donut	Cake	Chocolate	Chocolate with Sprinkles
0001	donut	Cake	Chocolate	Chocolate
0001	donut	Cake	Chocolate	Maple
0001	donut	Cake	Blueberry	None
0001	donut	Cake	Blueberry	Glazed
0001	donut	Cake	Blueberry	Sugar
0001	donut	Cake	Blueberry	Powdered Sugar

0001	donut	Cake	Blueberry	Chocolate with Sprinkles
0001	donut	Cake	Blueberry	Chocolate
0001	donut	Cake	Blueberry	Maple
0001	donut	Cake	Devil's Food	None
0001	donut	Cake	Devil's Food	Glazed
0001	donut	Cake	Devil's Food	Sugar
0001	donut	Cake	Devil's Food	Powdered Sugar
0001	donut	Cake	Devil's Food	Chocolate with Sprinkles
0001	donut	Cake	Devil's Food	Chocolate
0001	donut	Cake	Devil's Food	Maple
0002	donut	Raised	Regular	None
0002	donut	Raised	Regular	Glazed
0002	donut	Raised	Regular	Sugar
0002	donut	Raised	Regular	Chocolate
0002	donut	Raised	Regular	Maple
0003	donut	Old Fashioned	Regular	None
0003	donut	Old Fashioned	Regular	Glazed
0003	donut	Old Fashioned	Regular	Chocolate
0003	donut	Old Fashioned	Regular	Maple
0003	donut	Old Fashioned	Chocolate	None
0003	donut	Old Fashioned	Chocolate	Glazed
0003	donut	Old Fashioned	Chocolate	Chocolate
0003	donut	Old Fashioned	Chocolate	Maple
0004	bar	Bar	Regular	Chocolate
0004	bar	Bar	Regular	Maple
0005	twist	Twist	Regular	Glazed
0005	twist	Twist	Regular	Sugar
0006	filled	Filled	Regular	Glazed
0006	filled	Filled	Regular	Powdered Sugar
0006	filled	Filled	Regular	Chocolate
0006	filled	Filled	Regular	Maple

The table is sorted according to the column name given as an option to the command line. The sorted table is then written to a file given as an argument to the command line.

As an illustrating example, suppose A5.o (or A5.exe) is the executable binary code of your solution, and the path to sample. json is under current directory, and the sort is by id, then the execution of your program is

Usage: [path to your program] [option notation] [field to be sorted] [input file path] [outputfile path]

\usr\coen244\app\A5.o –s id \usr\coen244\app\sample.json \usr\coen244\app\result\sortbyid.table

Tips: The main function should have arguments:
int main(int argc, char * argv[]) { ...}

Assignment Marking Scheme:

- Program correctness (75%)
  - Open file, read file data, form the table of data, write to file (50%)
  - Sorting (15%)
  - Command process (10%)
- Program output format, clarity, completeness, and accuracy (10%)
- Program indentation and readability (5%)
- Choice of significant names for identifiers (5%)
- Comments - description of variables and constants (5%)