**CS 4308 – Concepts of Programming Languages**

**Course Project Deliverables**

The CS 4308 project consists of the development of a complete language processor (**interpreter**) for a **subset** of the SCL language using any of the following programming languages: **Ada, Basic, Java, Python, C++ or C#**. Then, you can select an implementation language for the interpreter. It doesn’t have to use SCL Language. Furthermore, you can search on the web for general grammar on each language, then decide on a subset.

The language processor will process an SCL program. All tokens in this language are separated by white spaces. The parsing algorithm should detect any syntactical error. Each error discovered should cause an appropriate error message to be printed. Run-time errors should also be detected with appropriate error messages being printed.

You are required to apply a complete software development process. In your implementation, the source code (of the scanner, parser, and complete interpreter):

* The source code must be well-structured and be easy to understand, comments should help in clarifying your implementation.
* Do not 'hard-code' input data in your source programs, use appropriate input statements. Otherwise, it beats the purpose of software development.

In your submission, do not include compiled files and/or IDE project files.

Your complete submission must include: a well written report (see ‘submission report.pdf’), the subset of the SCL grammar used (in BNF or EBNF notation), source code files of the implementation, input SCL program file used to test your project. Submit all your files in a single archive.

Your report must document the work done. Include explanation of how to run your program, the input and the output produced when running your program.

**Deliverables (*see course Modules schedule for due dates*):**

1. **Module\_3 – 1st Deliverable**

Develop a complete scanner for the subset of the SCL language (*is an experimental system programming language that can be used as:* [*http://ksuweb.kennesaw.edu/~jgarrido/sysplm/*](http://ksuweb.kennesaw.edu/~jgarrido/sysplm/)). The scanner implementation must include an array of the keywords used in the subset of SCL or other selected programming Language, an array (or list) of the identifiers, and other tokens (such as operators, constants, and/or special characters.)

Define the grammar of a subset of SCL. You must submit a short report describing the work performed. You must also include the grammar of the subset of SCL, source code files of the scanner program, the input and output files. The report must show the execution of this scanner program by using appropriate input files, the program must show a list of the tokens scanned.

1. **Module\_5 – 2nd Deliverable**

Develop a complete parser for the subset of the SCL language. This parser program must execute with the scanner. The report must show the execution of this parser program by using one or more relevant input files, the program must show the corresponding statements recognized. The report must describe the work performed. Include the parser source program, input and output files.

3. **Module\_7 – 3rd Deliverable**

Develop a complete interpreter or a translator to intermediate code and an abstract machine. that includes the scanner, parser, and executer. The report must show the execution of this interpreter program by using one or more input files, the program must show the results of executing every statement recognized by the parser. Write a report describing the work performed. Include the source code of the program, input and output files.

**Deliverable:**

1. Please provide a report *(refer to report format/guidelines)*
2. Please submit ONE submission per team for each Deliverable.
3. Please make sure to have all the team members Full name in each submission.
4. Please submit all the necessary documents and source codes within a Compressed .Zip file on or before due date via d2l Assignment drobox.