Project Title: Generalized Language Abstraction and Specification System (GLASS)

Team Members:
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Faculty Advisor/Client:
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Current Milestone Progress Matrix:

Task	Completion %	Tommy	Xander	Todo
Parser generator intermediary checkpoint	100%	80%	20%	
Investigate other parser generators	70%	35%	35%	Keep investigating
Solidify syntax specification format “version one”	50%	25%	25%	Ideas in place, need to make grammar
Implement, test, and demo XML output	100%	10%	90%	

Task Discussion:

Parser generator intermediary checkpoint

- Parser generator now functional
- Parses using the LR(1) parsing algorithm
- Maintained high modularity within code
- Generates and “pretty prints” parse table to standard output
- Currently builds parse table from hard-coded grammars, reading in grammars is currently work in progress
- The resulting parser can parse properly the specified input grammar.

Investigate other parser generators

- Bison, tree-sitter, lemon, and ANTLR were investigated
- A list of pros and cons for each tool was compiled, which is to be used as reference for designing input for our tool
- Continued research is required, but also desired. Group members have realized that investigation into other tools is very enlightening for understanding the “flow” other tools have, but also the “bumpy” parts they have as well.

Solidify syntax specification format “version one”

- As stated above, from the research we have done we have compiled a list of ideas for things we wish to include in our input, and how it should be structured. The main thing not yet completed is the actual definition and implementation of the grammar to be used to parse the syntax specification input.

Implement, test, and demo XML output

- XML output was quickly and easily implemented.
- Work has continued into investigating XML manipulation and the abilities and limitations of available XML tools.

Team Member Contributions:

Tommy Galletta:
- Researched and implemented LR(1) parsing algorithm
- Implemented pretty printing of parse table
- Implemented pretty printing of parse tree
- Investigated ANTLR
- Investigated bison
- Documented pros and cons of investigated tools

Alexander Lockard:
- Tested and debugged parser generator
- Implemented XML output
- Spearheaded continued research of XML tools
- Investigated tree-sitter
- Investigated lemon
- Documented pros and cons of investigated tools

Milestone Three Plan:

Task	Tommy	Xander
Syntax specification file reading	Implement “version one” syntax specification reading	Test syntax specification reading
Basic macro interpretation / XML manipulation	Test and debug macro interpreter	Implement basic macro interpreter
Continued research of parser generators	Investigate 1-2 parser generator tools	Investigate 1-2 parser generator tools
Begin documentation	Documentation for parser generator system	Documentation for XML macro system

Discussion of Planned Tasks:

Syntax specification file reading

- By the end of Milestone 3, we hope to have most of our main "pipeline" in place for our tool, so that future milestones can be focused on each of us and communicating with the user more effectively.
- Based on a specification we decide, a user should be able to define a grammar and have that grammar be read in for parsing by the parser generator.
- Once a parse table is built from the user's grammar, the user should be able to input an input file and have it be parsed by the tool.

Basic macro interpretation / XML manipulation

- As mentioned in the points above, our goal for this milestone is to complete the functionality of the main pipeline. While technically the macro system is a separate application, we consider it a crucial part of our pipeline, and want to have it in a functional state by the end of Milestone 3 as well.
- A user should be able to input a macro file along with the XML generated from the parser generator tool. The macro file will be interpreted and the specified operations will be performed on the XML file.

Continued research of parser generators

- We feel that in order to ensure the best user experience, we should continue to investigate parser generator tools and take note of their pros and cons. This is lower priority compared to implementing features, but still valuable.

Begin documentation

- As mentioned in the original project plan, we want to have openly available documentation for our tool that has tutorial-like sections that guide new users through using our tool. The beginnings of this documentation will be completed by the end of Milestone 3.

Client Feedback on Current Milestone:

- See Faculty Advisor Feedback below

Milestone One Faculty Advisor/Client Meeting Dates:

- February 21st
- February 28th
- March 13th

Faculty Advisor Feedback:

Parser generator intermediary checkpoint

- Advisor is very pleased with the current state of the parser generator
- Advisor thinks the parse table and parse tree outputs useful
- Advisor hopes to see conflict resolution be added.

Investigate other parser generators

- Advisor thinks that investigation of other tools is very important to the goal of the project. He recommends that we continue investigating (as we plan to do).

Implement, test, and demo XML output

- Advisor is fine with the current state of the XML output
- Advisor does not see XML as the best form of output, but also understands we need *some* medium of representation

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Faculty Advisor Signature: _____ Date: _____

Evaluation by Faculty Advisor

Please detach and return this page to Dr. Chan (HC 209) or email the scores to pkc@cs.fit.edu

TG = Tommy Galletta
AL = Alexander Lockard

TG	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10
AL	0	1	2	3	4	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10

Faculty Advisor Signature: _____ Date: _____