[SP-19 Design and Develop a Programming Language]

Date: 2/3/2023

Overview:

The main feature of our language that will have the highest importance will be the ability to attach predicates to certain data types imposed at compile time to be used safely with no runtime cost. Additionally, the API won't allow the user to abuse calling methods that would have to deal with the issue regarding unsafe operations and method calls. We would also have to define the basic syntax, semantics, and grammar by defining it and use helpful, unambiguous programming vocabulary to make it easier for parsing the sequence of lexemes to occur.

Project Team

Roles	Name	Major responsibilities	Contact (Email and/or Phone)
Project owner/ Advisor	Sharon Perry	Facilitate project progress; advise on project planning and management.	Sperry46 in D2L !!
Team leader	Nicholas Luchuk	Lead Developer: Team Lead: Responsible for corresponding with the advisor on required implementations.	nluchuk@students.kennesaw.edu
Team member(s)	Manjote Singh	Lead Document Writer Assistant Developer Responsible for looking over documentation and requirements.	msingh14@students.kennesaw.edu

Nicholas Luchuk

Manjote Singh

Project website

https://pint-plang.github.io/

Final Deliverables - Specific To Your Project

As mentioned back in the D1 submission, the final deliverables for this particular topic will be:

1. A compiler
2. A standard library
3. Basic language and standard library documentation
4. VSCode plugin (optional)
5. Additional source code files or programming constructs as deemed necessary by the lead developer.

Milestone Events

For the milestone events, the group submissions will be listed as a milestone and individual submissions are considered. Old documents or assignments that have been turned in already will not be considered to be a milestone event, as it has already happened and was completed. Additional milestone events will be goals pertaining to what the expected product will look like, ideally some of the tentative events will be done in time for the prototype presentation.

Project Plan (Group)

due by - By 2/3/2023

- Following the template, the project plan will be the preliminary setup on how the project is expected to behave as the semester progresses. The overview is concise with its details, the website will be more presentable as more of the project is worked on, and each section will contain the necessary

Milestone 1 - Prototype Presentation

due by - By 3/17/2023

- Potential Prototype could be a “display” of our syntax or displaying a code review so that the class can give feedback to fix up or enhance the final result.

Peer Review (Individual)

due by - By 3/17/2023

- Evaluate the other group presentations that have been presented during the week of prototype presentations and provide positive feedback on projects that can be spruced up.

C - Day Application

due by - By 4/7/2023

- With all the preliminary work of providing the necessary documentation and completion of the product, it will display the project's abstract, how it implements the features the team defined for it, and how it is inspired by the constructs of other languages.

Website for CS Dept.

due by - By 4/7/2023

- The initial website will contain some setup, but as the semester continues everything necessary will be added. Will have links for the writeups that have been turned in and will contain the demo video showing off the language.

Video Demo

due by - By 4/7/2023

- Same due date as the website.

Final Project Package/ Report

due by - 4/27/2023

- The final writeup of the project will outline the criteria for langauge evaluation as well as providing a more technical description of the project's scope and get into

the technical details and features the language contains as well as any additional comments or outcomes need to be addressed.

C- Day Submissions (Bonus)

due by - 4/27/2023

Weekly Activity Report (WAR) 1-6

due by - 2/3/2023, 2/10/2023, 2/17/2023, 2/24/2023, 3/3/2023, 3/10/2023, 3/17/2023 respectively.

- The WAR is considered to be an individual Assignment and each person will write down details on: what has been done, what will be complete in the current week, and what will be done in the following weeks.

Addiontal Milestone Events (Tentative)

- Language and Library Design
- Compiler Implementation
- Library Implementation

Additional Milestone Events (stretch goals)

- VSCode plugin (stretch
- Implement OOP principles (stretch)

Meeting Schedule Date/Time

Ideally, the two milestone event meetings should be scheduled sometime in the first and second thirds of the semester, as they pertain to the phase 1 components of our project. Weekly meetings will go over the work that needs to be completed/finished by the end of that particular week and will occur every Monday, Wednesday, and some Fridays. The meetings will occur either through Discord voice call or meeting with each other on campus.

Collaboration and Communication Plan

The main method of communication with each other will use tools such as Discord to allow the team members to attend a voice call and discuss the next set of items that are to be done by the following deadlines. Additionally, Github will host the repositories and allow for easy implementation of a Version Control System if the language is updated to address some issues or implement our phase 2 components. Google drive will host the word documentations and excel sheet for easy collaboration between the team. Ideally, it would be possible to commit around 6-12 man hours per week if the needed items do not take too much time. Weekly progress of our project will be reported to the owner during the class times or dates where the group would need to talk outside of class.

Project Schedule and Task Planning

					Milestone #1			*Milestone #2*				*Milestone #3*					*C-Day*		
Deliverable	**Tasks**	**Complete %**	**Current Status Memo**	**Assigned To**	**01/16**	**01/23**	**01/30**	**02/06**	**02/13**	**02/20**	**02/27**	**03/06**	**03/13**	**03/20**	**03/27**	**04/03**	**04/10**	**04/17**	**04/24**
Requirements	Project Selection	100%	Complete	Full Team		7													
Project design	Define tech required	100%	Complete	Full Team		0													
	Syntax design	0%		Full Team				7	2	5	5								
	Semantics design	0%		Full Team				7	2	5	5								
	Library API design	0%		Full Team						5	5	5							
	Develop working prototype	0%		Full Team					6										
	Test prototype	0%		Full Team					1										
Development	Implement compiler	0%		Full Team								9	8	6					
	Implement library	0%		Full Team									6	5	7				
	Document language	0%		Full Team										2	3	7			
	Document library	0%		Full Team										2	3	7			
	Test compiler and library	0%		Full Team								1	1	1	1				
Final report	Presentation preparation	0%		Full Team													2		
	Website preparation	0%		Full Team													1		
	Poster preparation	0%		Full Team														2	2
	Final report submission to D2L and project owner	0%		Full Team														3	3
			Total work hours	**149**	**0**	**7**	**0**	**14**	**11**	**15**	**15**	**15**	**15**	**16**	**14**	**14**	**3**	**5**	**5**

Legend	
Estimated	
Delayed	
Actual	
Number	Work: man hours

Version Control Plan

To maintain a version control plan, a Github account devoted to hosting the repository for our work and code in creating a programming language is maintained and accessible by everybody in the group. As more updates are needed to be implemented, they can be pushed onto the repository so that it would be easy to track changes by date whenever they happen.

Signed by:

*Sharon Perry*_____ *2/3/2023*____

Project Owner Date