

# Alpha: Progress Report

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## Vision

Our vision of unifying content and styling natively has not changed with this sprint. Our goal is to develop a fully fleshed out language for the web which brings together CSS and HTML and absolves javascript of the responsibility of having to do everything. We also aim to improve styling in the web by integrating constraints with our language. We envision the project to consist of two main parts:

1. Designing and Parsing the Language
2. Creating a Dummy Browser to Display the Result of the Language

## Progress

We have made significant progress on designing and parsing the language this sprint. We laid out the specification for the language, and finished implementing key components of the parser.

In order to implement the parser, we used a parser generator library, rust-peg. The natural language specification of the language was transformed into an intermediary grammar, parsing expression grammar(PEG), and then fed into the parser generator. With the parser from the generator, we can then feed our language into it to generate the appropriate data for the browser to paint with.

Because of the syntactical and semantic differences between the styling portion and the markup portion of our language, we built two parsers to handle them. The parsers also output different data structures. In our demo, we are inputting two realistic examples, one for the styling portion and one for the markup portion, and printing out the output of the parsers. This demonstrates the efficacy of our parsers and shows that we will be able to take the next step of transforming parser output to information the browser can use to paint with.

## Activity

### Andrei

1. Designed the core features of the language
2. Wrote the parsers
3. Wrote the blog post

### Mike

1. Provided feedback on the core features of the language
2. Wrote the Progress Report
3. Wrote test cases for the parsers and fixed any issues identified from testing

## Productivity

We have been very productive this sprint and accomplished the two main tasks of designing core features of the language and writing the parser. We established a strong base for the next phase of the project. In our charter, we were more ambitious about what we could accomplish this sprint, but after starting, we realized having a strong design and being able to parse the language was more than enough work and would take a lot longer than anticipated.

## Grade

We believe we achieved our goals for this sprint and achieved an excellent scope grade. The bulk of our work this phase was doing research on packages and language ideas so that we had a solid plan in place for what features we wanted to implement and how to implement them. We spent the rest of our time working on the parser—translating our language to PEG, translating the PEG to input for the parser, and testing our parser thoroughly. This is comparable in scope to any of the programming projects we had to do in class.

## Goals

### Satisfactory

1. Combining the two parsers so that we can process a complete program
2. Implement bundle parsing in the styling portion of the language

## **Good**

1. Have an end-to-end implementation with a dummy browser which can receive our language as input and output a web page with basic formatting
2. Users will be able to use pre-implemented tags in the code to structure data

## **Excellent**

1. Users will be able to create custom tags
2. Users will be able to use functions and variables in the styling portion of the language to structure and style data