
Phantom

Team: SER502-Phantom-Team16

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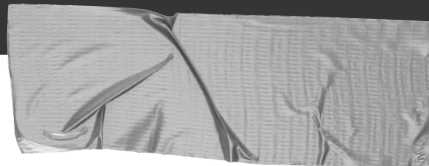
Introduction

Project Overview

As part of learning the capabilities of prolog and it's various use cases we were tasked with creating a new programming language. One that functioned as we thought fit.

We created Phantom!

A simple easy to use programming language that most can understand and most would find familiar.



1. Target Audience

The language is a simple one, so our target audience is beginners who want to get started with programming, but find it daunting and out of reach.

Our language is **Simple** and the rules are few in number

Milestone 1: Research and Concept Design

To create something novel and useful, one must often times start at understanding what already exists. So we looked through various languages and the purposes they served. We chose to make Prolog our base language, and build upon it the language of our liking.

Phantom in the Works

We sat down and discussed on the functions it would have and purpose it would serve.

Phantom would be a loosely typed language aimed at beginners just dipping their toes into the world of programming.

Why is this Project Important?

Programming Language is abstraction

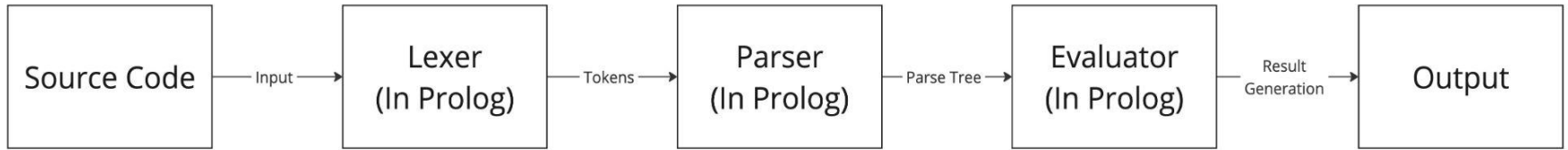
But the abstraction is a choice

The project gave us the opportunity to understand what makes a programming language work as it does, how the clock ticks on the inside.

Although our language is far from those that make the world turn today, it is still important in showing us that the abstraction is optional and that we can choose to modify and re-write the language we use on a daily basis.

What is in Scope?

Lexer, Parser, Evaluator



Variable Declaration

Constant Declaration

```
const var1 = 1
```

Variable Declaration

```
var2 = 0
```


Arithmetic Expression

Supports operations:

- Addition: $A+B$
- Subtraction: $1 - 2$
- Multiplication: $A * 5$
- Division: $4 / 2$
- Brackets: $(A + B) * 4$
- Assignment: $i = i + 1$

Boolean Expression

Supports:

- Equal: $A == B$
- Greater: $1 < 2$
- Greater Than: $A * 5 \leq 10$
- Lesser: $0 > B$
- Lesser Than: $(A + B) - C > 5$
- Not: $i = \text{not } A == B$
- And: $A == 1 \text{ and } B == 2$
- Or: $A + B == 1 \text{ or } A - B == 2$

Print Statement

- `print(<variable name>);`
- E.g. `print(a);`

– Conditional Statement: if else

```
if(<condition>){  
    <command>  
}else{  
    <command>  
}
```

E.g. if(a>b){
 print(a);
 }else{
 print(b);
 }

– Conditional Statement: ternary operator

`(<condition>)?<command>:<command>;`

E.g. `(sum==15)?y=1;;y=2;`

– Iterative Statement: while loop

```
while(<condition>){  
    <commands>  
}
```

E.g.

```
while(i<=5) {  
    i = i + 1;  
}
```

– Iterative Statement: do while loop

```
do{  
    command;  
}while(<condition>);
```

E.g.

```
do{  
    max = max*2;  
}while(max<100);
```

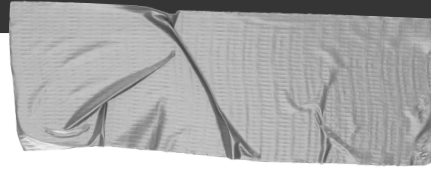
– Iterative Statement: for loop

```
for(<initiation>;<condition>;<update>){  
    <commands>  
}
```

E.g.

```
for(i=0;i<=5;i=i+1){  
    sum = sum + i;  
    print(sum);  
}
```

Demo of Phantom!



Thank You!