

Design Document

1. Introduction

- The language is called SEA++
- The language's Paradigm:
 - Stack-based language
- The Language's Unique Features:
 - String operations
 - Static type system
 - Negation, Doubling

Design

- The language's Base Features:
 - Basic data types and operations will be implemented at the **core** level, because they are the foundation of our programming language.
 - Conditionals will be implemented at the **core** level due to the need for logic switching.
 - Recursion will be implemented at the **core** level due to the necessity of repetition in more abstract functions.
 - Stack manipulation operations will be implemented at the **core** level, because the operations will be defined as a part of a command
 - Procedures/functions with arguments will be implemented at the **core** level, because they will be a part of the basic command implementation.
 - Static type system will be implemented at the **core** level, because the type checking will be built with the basic data types.
 - Strings and operations will be implemented at the **syntactic sugar** level, because strings will be composed of the basic data type "char".
- The language's Safety Systems:
 - Static Type System, no type errors
 - Stack will not underflow/overflow

2. Implementation

- The language's semantic domains:
 - Integers, boolean values, arithmetic expressions, strings, functions.
- Unique Implementation Highlights:
 - String concatenation and reversal.
 - Data types will be checked statically.