

**Programming Language Concepts**

**Language Manual**

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Second, you will be required to submit a 3 page report on your language in pdf format that explains the main language features, its syntax, including any scoping and lexical rules as well as additional features such as syntax sugar for programmer convenience, type checking, informative error messages, etc. In addition, the report should explain the execution model for the interpreter, e.g. what the states of the runtime are comprised of and how they are transformed during execution. This report, together with the five programs will be evaluated qualitatively and your marks will be awarded for the elegance and flexibility of your solution and the clarity of the report

Old report feedback:

Conciseness: Programs appear generally quite concise, but use of imperative style looping inflates them a little

Writing Clarity: A lack of example programs in hurts the clarity here. The manual mostly is just a list of language features, and doesn't explain some features (like { } blocks)

Additional Features: Basic error messages and comments are the only additional features. The "syntax highlighting" in the manual is actually just parser error messages.

**Language Philosophy**

**How to get started**

**Syntax**

**Statements:**

**If:**

**While:**

**Int operations:**

**Boolean operations:**

**Variable operations:**

**Stream operations:**

**Inputs to a program:**

**Additional Features**

**Length:**

**Error Messages:**

**Syntax Highlighting:**

**Commenting:**

**Stream Access:**

**Type Systems:**

**Misc:**

**Appendices:**

**Appendix 1: Programs**

1.1

Problem 1: - Double Speed Shuffle

1.2

Problem 2: - Shuffling and Arithmetic

1.3

Problem 3: - Skip and Prefix

1.4

Problem 4: - More Stream Arithmetic and Local Reverse

1.5

Problem 5: - Accumulator

1.6

Problem 6: - Two-Three Shuffle

1.7

Problem 7: - Skip Two then Three

1.8

Problem 8: - Checksum Differences

1.9

Problem 9: - Counter Padding

1.10

Problem 10: - Fibonacci Sequences

**Appendix 2: Error Messages**

**Appendix 3: Commenting**

**Appendix 4: Misc**