

LaTeXPy

Jared Amaral, Maverick Wadman, Alex Haberman

Introduction

LaTeXPy is a project that was created to use Latex as a high-level mathematical calculator that can be used by people who know or are learning basic LaTeX

This project was originally created by Dr. Jipsen and was expanded last semester to include integration, derivation, summation and limit capabilities

This semester, Dr. Jipsen's goal for our group was to be able to parse pseudocode written in Latex and produce the equivalent Python code with the ability to execute it

Design, Specification, Implementation

- Our program is written in python
- Takes input written in latex and uses the [algpseudocodex](#) package as the typeset
- Input is tokenized and referenced in a symbol table that is translated into its python equivalent through various functions depending on the symbol
 - example: input: $\$a \text{ gets } 1\$$ output: `a = 1`
- We are still only able to parse line by line currently
- So far we are able to translate
 - if-else statements
 - for loops
 - while loops

Demo

Planning

- Continue working on a solution to parse pseudocode with one continuous pass instead of line by line
- Find a way to properly output the input pseudocode
- continue to add more pseudocode capabilities
 - Functions
 - All types of for loops(iterator-based & range-based)
 - comments
- be able to handle more complex pseudocode
- turn LatexPy into a vscode extension
- Fix the bug where a \State doesn't get parsed if there are '\$' as input

Contributions

Jared

- Allowed the parser to take in a full expression of pseudocode without needing '\$' enclosed on each line
- Implemented functions

Maverick:

- Implemented If-Else Statements, Slides and error fixing

Alex:

- Implemented while loops, Slides and error fixing

Use of AI

To figure out Dr. Jipsen's code

- It kinda worked