Documentation for your code:

Module: Main

The main module of the program. It contains the entry point for the program.

Functions:

1. `read\_source\_code(input\_file)`: Read the source code from an input file.

2. `write\_to\_output\_files(fip\_file, symbol\_table\_file, fip\_table, symbol\_table)`: Write the FIP (Program Internal Form) table and the symbol table to output files.

Module: Scanner

The scanner module handles lexical analysis of the source code.

Regular Expressions:

- `reserved\_word\_pattern`: A regular expression for reserved words.

- `operator\_pattern`: A regular expression for operators.

- `separator\_pattern`: A regular expression for separators.

- `identifier\_pattern`: A regular expression for identifiers.

- `digit\_pattern`: A regular expression for digits.

- `char\_literal\_pattern`: A regular expression for character literals.

- `string\_literal\_pattern`: A regular expression for string literals.

Global Variables:

- `symbol\_table`: An instance of the `SymbolTable` class for managing the symbol table.

- `fip\_table`: A list to store the Program Internal Form table.

- `current\_position`: A variable to keep track of the current position in the symbol table.

Functions:

1. `add\_token\_to\_fip(token, symbol\_table)`: Add a token to the Program Internal Form (FIP).

2. `lexical\_analysis(source\_code, symbol\_table)`: Perform lexical analysis on the source code and populate the FIP table and symbol table.

3. `write\_to\_output\_files(fip\_file, symbol\_table\_file, fip\_table, symbol\_table)`: Write the FIP table and symbol table to output files.

Module: SymbolTable

The `SymbolTable` module is responsible for managing the symbol table.

Classes:

1. `SymbolTable`: A class for managing the symbol table.

Class `SymbolTable`:

- `\_\_init\_\_(self, size=100)`: Initialize the symbol table with an optional size parameter.

- `add(self, key, value=None)`: Add an entry to the symbol table.

- `has(self, key)`: Check if a symbol is present in the symbol table.

- `get\_position(self, key)`: Get the position of a symbol in the symbol table.

- `\_\_str\_\_(self)`: Return a string representation of the symbol table.