https://github.com/danharangus/FLCD

The Grammar class represents a context-free grammar (CFG) and provides methods for handling and analyzing grammatical structures.

Attributes:

- __nonterminals (list): List of nonterminal symbols in the grammar.
- __terminals (list): List of terminal symbols in the grammar.
- __startSymbol (str): The start symbol of the grammar.
- __productions (dict): Dictionary representing production rules of the grammar.

Methods:

- getNonterminals(): Returns the list of nonterminal symbols.
- getTerminals(): Returns the list of terminal symbols.
- getStartSymbol(): Returns the start symbol.
- getProductions(): Returns the dictionary of production rules. The production rules are stored as a dictionary where the lhs is the key and the rhs is a list of lists.

- readFromFile(filename): Reads a CFG from a file and initializes the grammar attributes.
- print_nonterminals(): Prints the nonterminals of the grammar.
- print_terminals(): Prints the terminals of the grammar.
- print_productions(): Prints all production rules of the grammar.
- print_production(lhs): Prints production rules for a specific nonterminal.
- checkCFG(): Checks if the grammar is a valid CFG.

Usage:

- Create an instance of the Grammar class.
- Use readFromFile() to read a CFG from a file.
- Utilize various print methods to display grammar components.
- Check if the grammar is a valid CFG using checkCFG().