## Lexical analyzer in Python (Final)

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FLCD Repository: <a href="https://github.com/adrian-popa/flcd">https://github.com/adrian-popa/flcd</a>

Implementation:

## **Defined classes:**

- 1. SymbolTable
- 2. ProgramInternalForm
- 3. HashTable
- 4. Constant
- 5. Identifier
- 6. Scanner

SymbolTable (symbol\_table.py)

The SymbolTable class inherits part of the HashTable class and therefore uses the defined doubly linked list and the hashing mechanism for storing the pairs of **{position, identifier}**.

ProgramInternalForm (program\_internal\_form.py)

To be completed..

HashTable (hash table.py)

The HashTable defines a doubly linked list and the hashing mechanism for storing a **{key, value}** pair on hashed positions, using the Python **hashlib** library, making sure that there are always unique entries.

## Class diagram:

|                          | HashTable   |
|--------------------------|---|
| Constant                 |   |
| key<br>value             | add(key)<br>contains(key)                               |
| get_key()<br>get_value() | get(key)<br>get_position(key)<br>items()<br>remove(key) |
|                          | remove(key)   |

| Identifier   |
|--|
| key<br>value   |
| get_key()<br>get_value()<br>set_key(key)<br>set_value(value) |

| ProgramInternalForm  |  |
|----------------------|--|
|                      |  |
| add(token, position) |  |

| get_operator_token(line, index) |
|---------------------------------|
| get_pif()                       |
| get_st()                        |
| get_string_token(line, index)   |
| is_operator_token(char)         |
| scan()                          |
| tolroniza(lina)                 |

Scanner

| SymbolTable  |
|--|
| table  |
| add(new_entry)<br>contains(key)<br>get(key)<br>get_position(key)<br>get_table()<br>print_symbol_table()<br>remove(key) |