Lab 3

Statement: Implement a scanner (lexical analyzer): Implement the scanning algorithm and use ST from lab 2 for the symbol table.

Documentation:

https://github.com/CopsiMan/FLCD

class Scanner:

- takes the tokens and the program and initializes the symbol table and the pif .

-function scan: takes the filename and reads its contents .

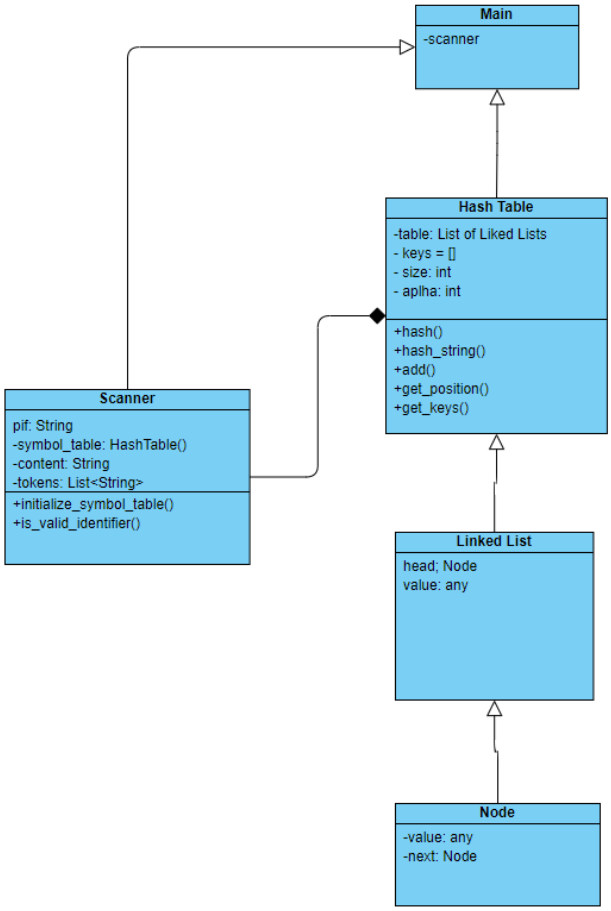
-function write_symbol_table: outputs the symbol table to ST.out .

-function initialize_symbol_table: takes the content of the read file and puts them in the symbol table.

-function is_valid_identifier: checks if a token, that is not a reserved word or special character, is a valid identifier.

-function find_error: if the fuction is_valid_identifier returns false, this will find the error in the source program to report to the user the line and the position of the error.

-fucntion write_pif: writes the pif to an external file



Testing:

Correct program :

```
main {
   int a, b, c, max;
   read(a);
   read(b);
   read(c);
   max = a;
   if (b >= max) {
      max = b;
   }
   if (c > max) {
      max = c;
   }
   write("maximum: ");
```

```
    write(max);
}
```

Output:

['Lexically correct']

Incorrect program:

```
main {
    int a, 1_b, c, _max;
    a = -12;
    read(a)
    read(2_b);
    read(c);
    max = a;
    if (b > max {
     max = b;
    }
    if (c > max) {
        max = c;
    }
    write("maximum: ");
    write(max);
}
```

Output:

['Lexical error at line 2 at position 11 : 1_b', 'Lexical error at line 2 at position 19 : _max', 'Lexical error at line 5 at position 9 : 2_b']