SymbolTable — Based on a hash table
Methods: — insert(self, name) — inserts the symbol with the given name in the table and returns the position (or returns the position if it already exists)
        — get(self, name) — gets the index of the symbol in the symbol table, or None if it doesn't exist

HashTable — Implemented using open addressing
Methods: — _init_(self, initial_size, load_factor) — creates a new HashTable. Default size is 10 and default load factor is 0.7
        — resize(self, new_size) — resizes the hash table
        — hash_function(self, key, size) — hash function based on the actual hash table size
        — put — inserts a key-value pair in the hash table and automatically doubles the size should it be the case (using the resize method)
        — get — gets the value of a key from the hash table

PIF — for the PIF, I use a pairs array, where a pair is of the form (token, pos) where token is the token itself or the code 'id' if it's an identifier or the code 'constant' if it's a constant, and pos is the position in the symbol table or -1 for tokens that are not identifiers or constants
Methods — add(token, position)

Scanner — class which handles the scanning of a code file
Methods — Scanner(program_file_name, token_file_name) — constructor
        — scan —> method which scans the program file and returns the pif, the constants symbol table and the identifiers symbol table

For the scanner, I used the following regular expressions:
string constants: ^[a-zA-Z0-9_ ?\-:*^+=.!]*$ —> will match any string which contains small or capital letters or digits, or the special characters ?, :, *, ^, +, =, space, _, ., ! and - (which had to be escaped) in any order and any number of times

char constants: ^[a-zA-Z0-9_ ?\-:*^+=.!]$ —> same as string constant, but there can only be one character

int constants: ^(0|[-]?[1-9][0-9]*)$ —> any digit from 1 to 9 which can be optionally preceded by a "-" and followed by other digits from 0 to 9 (any number of them)

identifiers: ^[a-zA-Z]([a-zA-Z]|[0-9])*$ —> any string that starts with a letter and is followed by any number of letters or digits