



AIN SHAMS UNIVERSITY FACULTY OF ENGINEERING

Tiny Scanner

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TINY Language Scanner

Overview:

A lexical analyzer (scanner) for the TINY programming language that tokenizes source code and outputs a list of tokens with their types.

This project implements a scanner that reads TINY language source code and breaks it down into tokens. Each token is identified by its value and type, which is the first phase of a typical compiler pipeline.

Test case(1):

Input:

```
Tiny_Scanner > ≡ input.txt
1  x := 5;
2  if x < 10 then
3  |   write x
4  end;
5  repeat
6  |   x := x + 1
7  until x = 10
8  |
```

Output:

```
Tiny_Scanner > ≡ output.txt
1  x , Identifier
2  := , assign
3  5 , number
4  ; , SEMICOLON
5  if , IF
6  x , Identifier
7  < , LESSTHAN
8  10 , number
9  then , THEN
10 write , WRITE
11 x , Identifier
12 end , END
13 ; , SEMICOLON
14 repeat , REPEAT
15 x , Identifier
16 := , assign
17 x , Identifier
18 + , PLUS
19 1 , number
20 until , UNTIL
21 x , Identifier
22 = , EQUAL
23 10 , number
24
```

Test case(2):

Input:

```
1  { Math operations }
2  x := 10;
3  y := 20;
4  sum := x + y;
5  diff := y - x;
6  prod := x * y;
7  quot := y / x;
8  write sum;
9  write diff;
10 write prod;
11 write quot
12
```

Output:

```
Tiny_Scanner > ≡ output.txt
1  x , Identifier
2  := , assign
3  10 , number
4  ; , SEMICOLON
5  y , Identifier
6  := , assign
7  20 , number
8  ; , SEMICOLON
9  sum , Identifier
10 := , assign
11 x , Identifier
12 + , PLUS
13 y , Identifier
14 ; , SEMICOLON
15 diff , Identifier
16 := , assign
17 y , Identifier
18 - , MINUS
19 x , Identifier
20 ; , SEMICOLON
21 prod , Identifier
22 := , assign
23 x , Identifier
24 * , MULT
25 y , Identifier
26 ; , SEMICOLON
27 quot , Identifier
28 := , assign
29 y , Identifier
30 / , DIV
31 x , Identifier
32 ; , SEMICOLON
33 write , WRITE
34 sum , Identifier
35 ; , SEMICOLON
36 write , WRITE
37 diff , Identifier
38 ; , SEMICOLON
39 write , WRITE
40 prod , Identifier
41 ; , SEMICOLON
42 write , WRITE
43 quot , Identifier
44
```

Github Repo:

<https://github.com/Hazem-A0/Tiny-Language-Scanner>