Programming Language Documentation: Fourward

Introduction:

Fourward is a simple, beginner friendly programming language made to teach fundamental programming concepts. Its clean and minimal syntax reduces complexity, making it easy for new coders.

Language Syntax:

1. Statement Structure: Statements end with a semicolon (;).

2. Indentation: Not enforced needed except for readability.

3. Comments: Use # for single-line comments.

4. # This is a comment

5. let x = 5;

Reserved Keywords:

Fourward reserves the following words:

let, const, if, else, while, for, function, return, print, input, true, false, null

Data Types:

• int: Whole numbers (5, -3)

• float: Decimal numbers (3.14, -0.5)

• str: Strings enclosed in double quotes ("Hello")

• bool: Boolean values (true, false)

• null: Represents the absence of a value

Arithmetic Operators:

• Addition (+)

• Subtraction (-)

• Multiplication (\*)

• Division (/)

• Modulus (%)

Comparative Operators:

• Equal to (==)

• Not equal to (!=)

• Greater than (>)

• Less than (<)

• Greater than or equal to (>=)

• Less than or equal to (<=)

Control Flow Statements:

• Conditional Statements:

if (x > 10) {

print("x is large");

} else {

print("x is small");

}

• Loops:

While loop:

while (x < 10) {

print(x);

x = x + 1;

}

For loop:

for (let i = 0; i < 5; i++) {

print(i);

}

Functions:

Define functions using the function keyword. Functions may return values with the return statement. Example:

function add(a, b) {

return a + b;

}

Input and Output:

• print: Displays output to the console.

• input: Reads input from the user.

Token Identification:

Tokens are identified by scanning the input stream, noting their line number and column position. The symbol table records each token's type and location for reference during parsing and compilation.

Example Token Log:

Line 1, Col 1: let (keyword)

Line 1, Col 5: x (identifier)

Line 1, Col 7: = (operator)

Line 1, Col 9: 5 (integer)