NatLang Language Design

Here’s a **language design summary** includes description covers **syntax, structure, supported features, and operator rules**.
NatLang is a beginner-friendly, English-inspired programming language designed to make logical thinking and programming approachable through natural-language-like syntax. It supports variables, expressions, control flow, and output using intuitive keywords.

Program Structure

A complete NatLang program begins with:Hi!
And ends with: Bye!
In between, the program consists of **statements**, each separated by a “.” and optionally followed by a newline (\n).

Supported Statement Types

1. Variable Declarations

```
LetsSay x is 10.
LetsSay msg is "Hello!".
LetsSay a is true.
```

2. Aliases

```
LetsSay alias isAlso original.
```

This creates a reference to the value of another variable.

3. Assignment

```
x is x plus 1.
msg is "Updated!".
```

4. Output

```
Show x.
Show "Done!".
```

5. If-Else Conditionals

```
When x IsGreaterThan 5
Then
Show "Big".
Otherwise
Show "Small".
ThenStop
```

6. Ternary Conditional (Single-line)

```
When x IsEqualTo 10 Then Show "Yes". Otherwise Show "No". ThenStop.
```

7. For Loops

```
ForAll item in numbers:
Show item.
StopNow
```

8. Until Loops

```
Until x IsEqualTo 10:
x is x plus 1.
NowStop
```

Expressions

Expressions support:

- Constants: number, string, boolean
- Variables
- Arithmetic and logic operations
- Parentheses for grouping

Examples:

```
x plus y.
(2 plus 3) times 4.
a AsWellAs b.
```

Arithmetic Operators (with Precedence)

Operator	Symbol	Precedence
Parentheses	(...)	Highest
Multiplicative	times, dividedBy	High
Additive	plus, minus	Medium
Logical	AsWellAs, EitherOr	Low

Comparison Operators

Used in When or Until conditions:

- IsEqualTo
- IsNotEqualTo
- IsGreaterThan
- IsLessThan
- IsAtLeast
- IsAtMost
- IsNot

Values

- **Number**: 5, 3.14
- **String**: "Hello!" (must be in double quotes)
- **Boolean**: true, false
- **List** (optional): [1, 2, 3] (if supported by evaluator)

Special Tokens

Token	Meaning
Hi!	Program start
Bye!	Program end
.	Statement terminator
\n	Newline (optional)