

Nex Programming Language

A powerful, interpreted programming language built with Python.

Team Members

Jomar Lazaro

Jarren Aceret

Derek Luis Lagadon

Gabriel Andrei Adajar

Introduction

Nex features:

- Clean syntax
- Dynamic typing
- Modular architecture

Getting Started

Prerequisites

- Python 3.x

Running the Shell

To start the interactive REPL:

```
python shell.py
```

Variables & Data Types

Nex supports dynamic typing. Use **VAR** to declare variables.

```
VAR age = 25  
VAR pi = 3.14  
VAR name = "Nex"  
VAR numbers = [1, 2, 3]
```

Arithmetic Operators

- $+$: Addition
- $-$: Subtraction
- $*$: Multiplication
- $/$: Division
- $^$: Power

Comparison & Logical Operators

Comparison	Logical
== Equal	AND Logical AND
!= Not Equal	OR Logical OR
< Less than	NOT Logical NOT
> Greater than	
<= Less or equal	
>= Greater or equal	

Control Flow: If-Elif-Else

```
VAR x = 10  
  
IF x > 5 THEN  
    PRINT("Greater than 5")  
ELIF x == 5 THEN  
    PRINT("Equal to 5")  
ELSE  
    PRINT("Less than 5")  
END
```


Loops

For Loops

```
FOR i = 0 TO 4 THEN  
    PRINT(i)  
END
```

While Loops

```
VAR i = 0  
WHILE i < 5 THEN  
    PRINT(i)  
    VAR i = i + 1  
END
```

Functions

Block Syntax

```
FUN add(a, b)  
    RETURN a + b  
END
```

Arrow Syntax

```
FUN multiply(a, b) -> a * b
```

Built-in Functions

- `PRINT(value)`
- `INPUT()`, `INPUT_INT()`
- `LEN(list)`, `APPEND(list, value)`, `POP(list, index)`
- `IS_NUM(value)`, `IS_STR(value)`, `IS_LIST(value)`
- `RUN(filename)`

Project Structure

The project is modularized for maintainability:

- **Core:** `nex.py`, `shell.py`
- **Parsing:** `lexer.py`, `parser.py`, `tokens.py`
- **Execution:** `interpreter.py`, `values.py`, `nodes.py`
- **Utils:** `errors.py`, `constants.py`

Project Highlights

- Demonstrates deep understanding of programming concepts
- Includes advanced features or optimizations

Conclusion

The **Nex** programming language project successfully demonstrates the implementation of a functional interpreter using Python.

Key Takeaways:

- Practical application of lexing, parsing, and interpreting.
- Understanding of language design principles.
- Creation of a modular and extensible codebase.

Thank You!

Start coding with **Nex** today.