

# TACI (Simple Three-Address Code Interpreter)

## Principles of Programming Languages

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# Main Supported Instructions

- MOV (Move a value (integer/string) to a variable)
- ADD (Add two values (integers) and store it to a variable)
- SUB (Subtract two values (integers) and store it to a variable)
- MUL (Multiply two values (integers) and store it to a variable)
- DIV (Divide two values (integers) and store it to a variable)

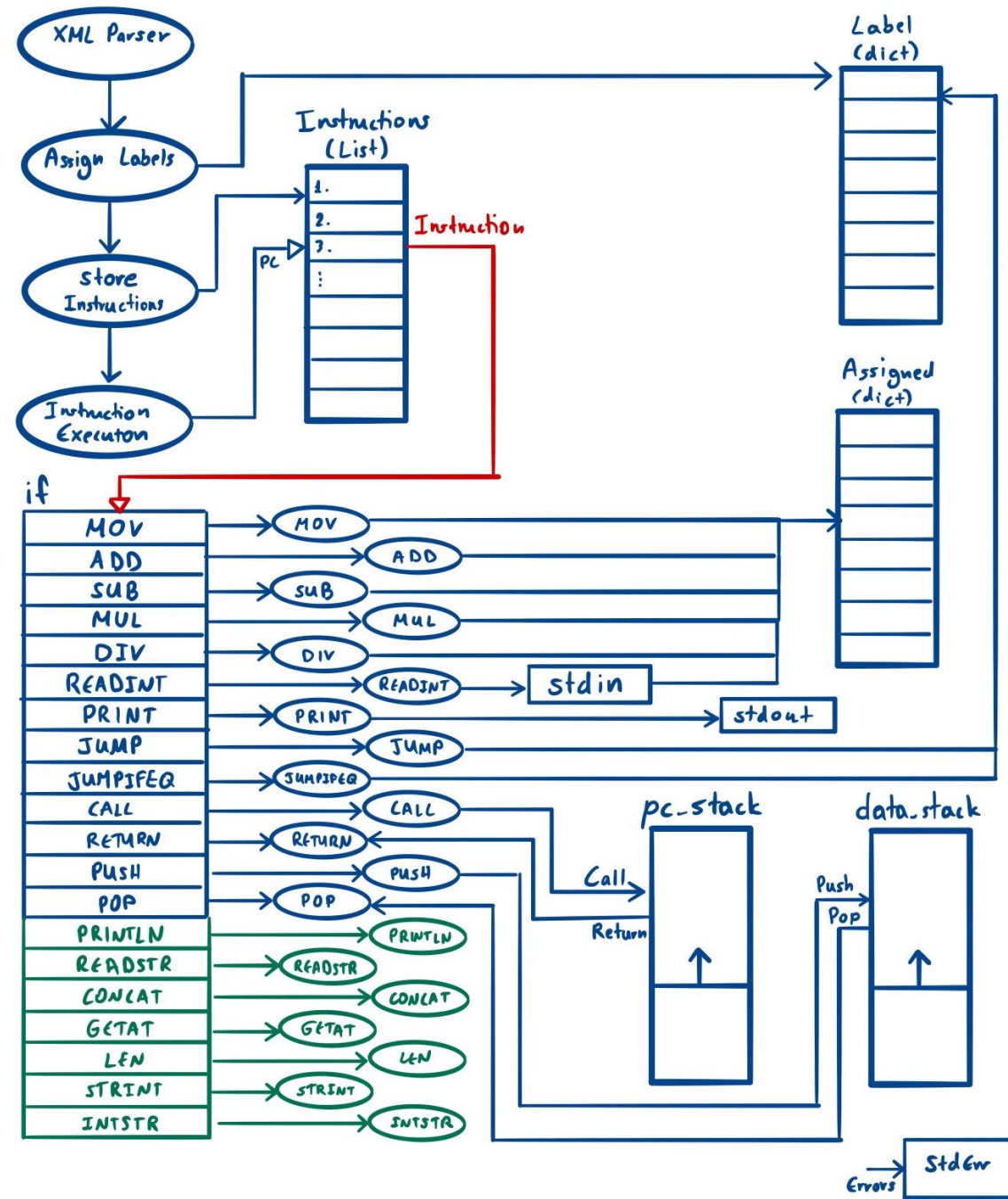
# Main Supported Instructions

- READINT (Read an integer from standard input and store it to a variable)
- PRINT (Print a variable (integer/string) to the standard output)
- LABEL (Labels)
- JUMP (Jump to a label)
- JUMPIFEQ (Jump to a label if the two values are equal (string/integer))
- CALL (Save the program counter and jump to the label)
- RETURN (Load the last saved program counter and jump to it)
- PUSH (Push a value to the data stack)
- POP (Pop a value to the data stack and store it to a variable)

# Extra Supported Instructions

- READSTR (Read a string from standard input and store it to a variable)
  - CONCAT (Concatenation of two strings and store it to a variable)
  - GETAT (Assign one character to a string and store it to a variable)
  - LEN (Get the length of a string and store it to a variable)
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- STRINT (Convert a string to integer and store it to a variable)
  - INTSTR (Convert an integer to string and store it to a variable)

# Schema



# Error Handling

- 3 Parsing Error during the parsing of XML, invalid XML input, file cannot be opened.
- 5 Semantic Error during the semantic checks (e.g. a label occurs several times).
- 10 Run-time Error: Jump to a non-existing label or call to non-existing function.
- 11 Run-time Error: Read access to non-defined or non-initialized variable.
- 12 Run-time Error: Division by zero using DIV instruction.
- 13 Run-time Error: READINT get invalid value (not an integer).
- 14 Run-time Error: Operands of incompatible type.
- 15 Run-time Error: Pop from the empty (data/call) stack is forbidden.
- 20 Other run-time errors.
- 99 Internal errors.

# Thank you!

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