**Compilers & Languages**

**Compiler Implementation**

Project - Final Report

**Team 4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
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**1. Project Overview**

Our project is implementing a compiler for a language closely resembling C++ using Lex and Yacc, aiming to tokenize source code, construct an abstract syntax tree, perform semantic analysis, generate intermediate representation code.

**2. Tools & Technologies**

Lexical Analysis : Flex

Parsing : Bison

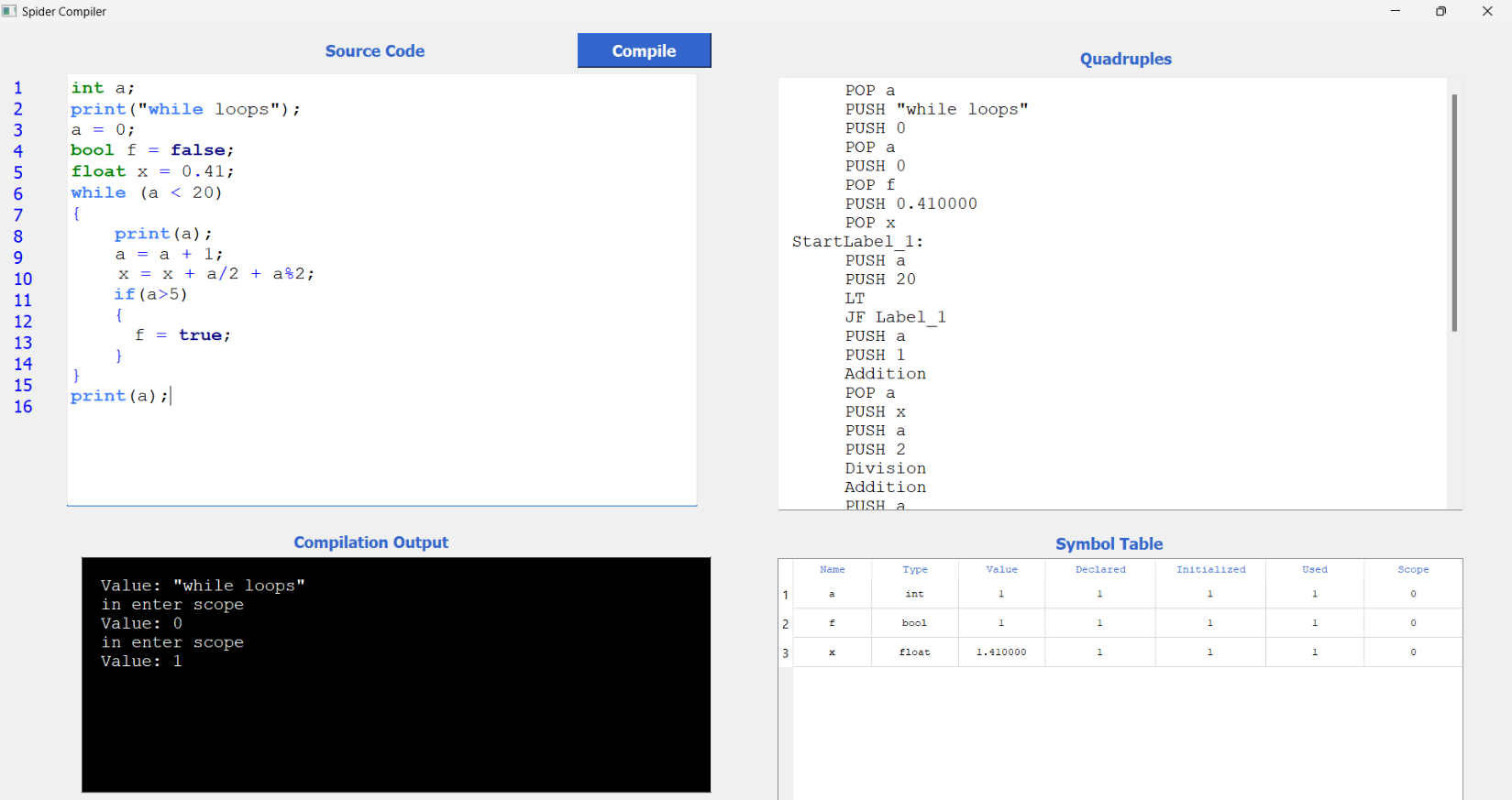
GUI : Python (PyQt5 library)

**3. List of tokens and a description of each**

|  |  |
| --- | --- |
| Tokens | Description |
| INTEGER\_DATA\_TYPE FLOAT\_DATA\_TYPE BOOL\_DATA\_TYPE STRING\_DATA\_TYPE VOID\_DATA\_TYPE |  |
| IDENTIFIER |  |
| IF ELSE ELSE\_IF |  |
| FOR WHILE REPEAT UNTIL |  |
| ENUM |  |
|  |  |

**4. List of quadruples and a description of each**

|  |  |
| --- | --- |
| Quadruple | Description |
| PROC |  |
| ENDPROC |  |
| CALL |  |
| RET |  |
| PUSH |  |
| POP |  |
| JMP EndLabel\_LABLE |  |
| JF EndLabel\_LABLE |  |
| Label\_LABLE |  |
| StartLabel\_LABLE |  |
| ENUM |  |
| ENDENUM |  |
|  |  |

**5. GUI**

**5. Workload Distribution**

|  |  |
| --- | --- |
| **Name** | **Workload** |
| Peter Atef | Lexer |
| Mark Yasser | Parser – phase 1 (Grammar) |
| Karim Mahmoud | Parser – phase 2 (Symbol table, Quadruples, Error Handling) |
| Bemoi Erian | GUI |