CS335 Milestone3

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1 Tools and Utilities Used

The environment should have flex and bison installed.
The system should also have g++ compiler installed.
in Linux, it can be installed from the command:

`$sudo apt install flex`

in Linux, it can be installed from the command:

`$sudo apt install bison`

2 Compilation and Execution

First, go to the src directory.
Enter "make" on the command line to make the executable

To generate the 3ac file, the symbol table csv files and `x_86` code, and to run
the `x_86` code,
execute the command "`./run.sh <inputfile>` "

3 Output

The symbol tables have been dumped using the following convention:

- For Global Symbol Table: `Global.csv`

- For Functions: `<Function_Name>.csv`

- For Class: `<Class_Name>.csv`

- For Methods in Class: `<Class_Name>.<Method_Name>.csv`

The 3ac code is generated and dumped in the file `<inputfile>.3ac`
The `x_86` code is generated and dumped in the file `<inputfile>.s`

4   Different Features Implemented

Our Compiler supports the following language features of Python:

- Primitive data types (e.g., int, str, and bool)

- 1D list

- Basic operators:
  - Arithmetic operators: $+, -, *, /, //, \%, **$
  - Relational operators: $==, !=, >, <, >=, <=$
  - Logical operators: `and, or, not`
  - Bitwise operators: $\&, |, \hat{}, \sim, <<, >>$
  - Assignment operators: $=, +=, -=, *=, /=, \% =, ** =, \& =, | =, \hat{} =, <<=, >>=$

- Control flow via if-elif-else, for, while, break and continue
  - Supports iterating over ranges specified using the range() function

- Recursion

- Library function print() for only printing the primitive Python types, one at a time

- Classes and objects, including multilevel inheritance and constructors

- Methods and method calls

- Static polymorphism in methods

`We have implemented all the required features of language python`

5   Modifications to 3AC from Milestone 2

- Size of all data types (int, str, bool etc.) is fixed to 8.

- Stored the size of the array in the 0th element the array, so that the len function can be used.

- Added support for type checking during list declaration and array indexing.

6   Contribution

- Bhavaj `33%`

- Devansh `34%`

- Nitesh `33%`