

Compilers Milestone 2: IR and Symbol Table

Aviraj Mishra 150170
Rohit Kumar Bose 150596
Sahil Bansal 150614

March 15, 2019

1 Symbol Table

Symbol Table has been implemented as a dictionary of dictionaries. The information contained in the declarations is stored in the symbol table. This information includes the types of variables and functions and the sizes and offsets of variables. Following functions are allowed in the class symbol table :

- insert : inserting a new entry in the symbol table
- update : update the value of an attribute of an entry of the symbol table
- getAttrVal : returns value of an attribute of an entry of the symbol table
- getAttrDict : returns the dictionary corresponding to an entry in the symbol table
- getWidth : returns the number of bytes consumed by the variable
- doesExist : returns whether an entry corresponding to a name is present in the symbol table or not
- spDeclare : for inserting entries corresponding to the parameters of functions and procedures in the symbol table for function/procedure and inserting entry corresponding to the function/procedure in the parent symbol table
- beginScope : initializes new symbol table thus new scope
- endScope : ends a scope thus returning the parent symbol table
- printTable : prints all the entries of the symbol table

2 Functionalities Handled

- Datatypes : int, float and strings within print statements have been handled
- Loops : While and for loops have been handled but they do not allow break and continue statements for now
- Arrays : multi-dimensional arrays have been handled but only static allocation is allowed for now
- Ranges : ranges of the form "simple_expression .. simple_expression" are allowed
- Objects : Basic records have been handled
- if-else has been handled
- lambda function : one line lambda function declaration containing simple expression has been handled
- boolean operations : AND and OR have been handled
- Functions and Procedures : declarations have been handled for now

3 Future Add-ons (if time permits):

- Switch-case to be handled
- Break and continue statements

4 Command for Running :

Go to ./src/ and run the following command :
python3 parser.py ../tests/input/fibonacci.adb