

Symbol Table

To construct the symbol table, an entry needs to be added to the data structure each time a variable or a function is declared.

The table should have an entry for every scope in the program. Each entry contains the following attributes.

- Name
- Relative address in memory
- Size in bytes
- Address of the outer scope

For each of the scopes, a scope table needs to be constructed. Each entry contains the following attributes.

- Name
- Type (Function or Variable)
- Variable type
- Variable size
- Relative address in memory
- Return type

An acceptable representation for the sample file “symbolTable.txt” is given below.

Name	Address	Size	Outer scope address
program	0	14	-
main	14	0	program
main_if1	14	4	main
main_if1_if1	18	4	main_if1
main_if1_while1	22	1	main_if1
add	23	8	program

Name	Type	Variable type	Variable size	Address	Return type
str	Variable	string	6	0	-
number	Variable	real	8	6	-
main	Function	-	-	14	static void
add	Function	-	-		static int

program

Name	Type	Variable type	Variable size	Address	Return type
num1	Variable	int	4	14	-

main_if1

Name	Type	Variable type	Variable size	Address	Return type
num2	Variable	int	4	18	-

main_if1_if1

Name	Type	Variable type	Variable size	Address	Return type
boolean	Variable	bool	1	22	-

main_if1_while1

Name	Type	Variable type	Variable size	Address	Return type
a	Variable	int	4	23	-
b	Variable	int	4	27	-

add