

Department of Computer Science and Engineering

Compiler Design Lab (CS 306L)

Week 2: Symbol Table Implementation

1. A symbol table is an important data structure created and maintained by compilers in order to store information about the occurrence of various identifiers such as variable names, function names, objects, classes, interfaces, etc. The symbol table is used by a compiler's analysis and synthesis parts. Symbol table can be implemented in one of the following ways:
 - Linear (sorted or unsorted) list
 - Binary Search Tree
 - Hash table
 - And other ways.

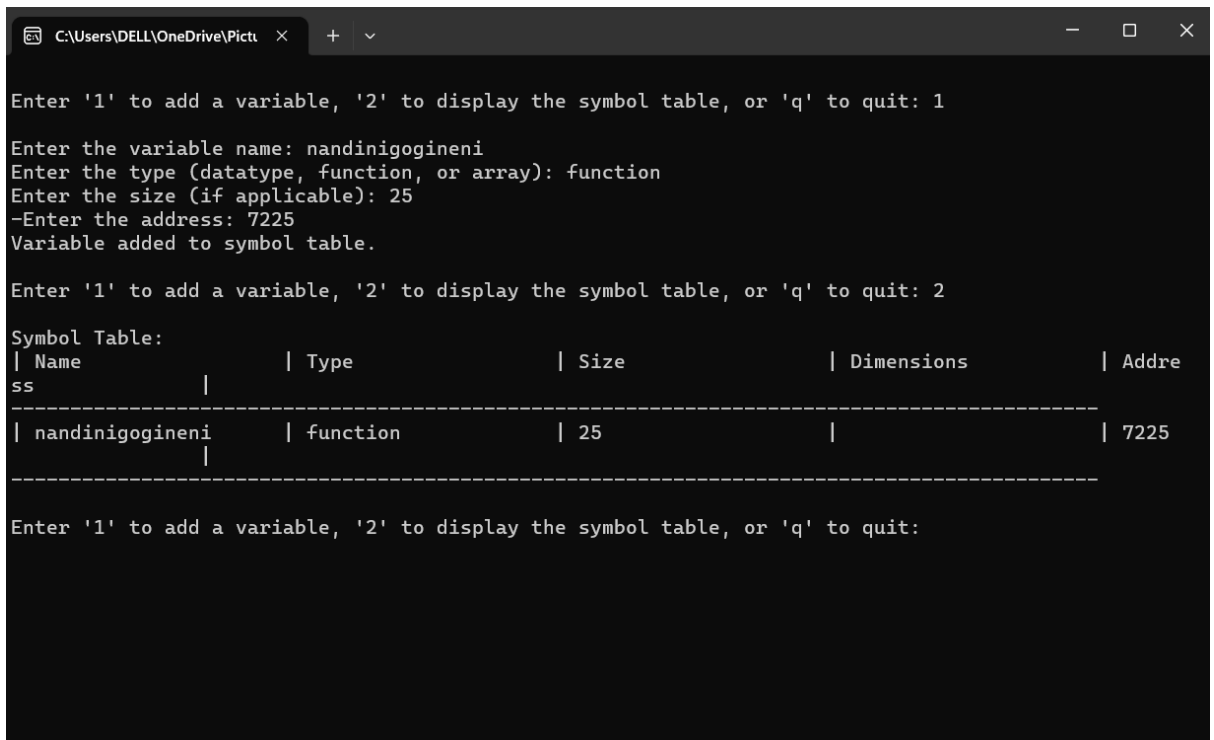
OUTPUT:

- Using Hash Table

```
C:\Users\DELL\OneDrive\Pictu  X + v
Enter '1' to add a variable, '2' to display the symbol table, or 'q' to quit: 1
Enter the variable name: Nandini
Enter the type (datatype, function, or array): string
Enter the size (if applicable): 25
Enter the address: 77522
Variable added to symbol table.
Enter '1' to add a variable, '2' to display the symbol table, or 'q' to quit: 2
Symbol Table:
| Name | Type | Size | Dimensions | Address |
-----|-----|-----|-----|-----|
| Nandini | string | 25 | - | 77522 |
-----|-----|-----|-----|-----|
Enter '1' to add a variable, '2' to display the symbol table, or 'q' to quit:
```

By Using Hash Table, we have implemented this code First we need to enter the variable name, datatype, size, and address. If it is the Function, we need to mention the dimension of the code.

- Using LinkedList



```
Enter '1' to add a variable, '2' to display the symbol table, or 'q' to quit: 1
Enter the variable name: nandinigogineni
Enter the type (datatype, function, or array): function
Enter the size (if applicable): 25
-Enter the address: 7225
Variable added to symbol table.

Enter '1' to add a variable, '2' to display the symbol table, or 'q' to quit: 2

Symbol Table:
| Name           | Type           | Size           | Dimensions           | Address           |
|-----|-----|-----|-----|-----|
| nandinigogineni | function       | 25             |                       | 7225              |

Enter '1' to add a variable, '2' to display the symbol table, or 'q' to quit:
```

Nandini Gogineni

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