Assignment 1: Write a program to create a symbol table using \*.c input file

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Code:

import java.io.\*;

import java.util.\*;

public class SymbolTable {

public static void main(String[] args) throws IOException {

FileReader file = new FileReader("input.c");

HashMap<String, List<Object>> ST = new HashMap<String, List<Object>>();

List<Object> LiteralList = new ArrayList<Object>();

List<Object> SizeList = new ArrayList<Object>();

List<Object> AddressList = new ArrayList<Object>();

Scanner sc = new Scanner(file);

int address = 0;

String stringnext = "";

// read from FileReader till the end of file

// Filling the Symbol Table

while (sc.hasNext()) {

String string = sc.next();

stringnext = sc.next();

if (string.equals("int")) {

stringnext = stringnext.substring(0, stringnext.length() - 1);// have to reassign as strings are

// immutable.

// It changes the string size.

for (String c : stringnext.split(",")) // extracting individual variables of the data type

{

LiteralList.add(c);

SizeList.add("2");

AddressList.add(address);

address += 2;

}

}

if (string.equals("float")) {

stringnext = stringnext.substring(0, stringnext.length() - 1);// have to reassign as strings are

// immutable.

// It changes the string size.

for (String c : stringnext.split(",")) // extracting individual variables of the data type

{

LiteralList.add(c);

SizeList.add("2");

AddressList.add(address);

address += 4;

}

}

if (string.equals("char")) {

for (String c : stringnext.split(";")) {

// stringnext=stringnext.substring(0,stringnext.length()-1);

LiteralList.add(c);

SizeList.add("2");

AddressList.add(address);

address += 1;

}

}

if (string.endsWith(":")) {

LiteralList.add(string.substring(0, string.length() - 1));

}

}

// Printing the Symbol Table

ST.put("Literal", LiteralList);

ST.put("Size", SizeList);

ST.put("Address", AddressList);

Iterator<String> itr1 = ST.keySet().iterator();

while (itr1.hasNext()) {

System.out.print(itr1.next() + "\t\t");

}

Iterator<Object> itr2 = LiteralList.iterator();

Iterator<Object> itr3 = SizeList.iterator();

Iterator<Object> itr4 = AddressList.iterator();

System.out.println();

while (itr2.hasNext() && itr3.hasNext() && itr4.hasNext()) {

System.out.println(itr2.next() + "\t\t" + itr3.next() + "\t\t" + itr4.next());

}

while (itr2.hasNext()) {

System.out.println(itr2.next());

}

sc.close();

}

}

Output:

