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| **Ex. No. 10** | **Code Generation** | | |
| Date of Exercise | \_\_\_\_\_\_\_\_\_\_\_\_\_ | Date of Output Verification | \_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Question**

Write a program to generate assembly code for the given three address code statements.

**Program**

import java.io.\*;

//@author William Scott

public class CompilerLabExp10CodeGeneration {

//UR12CS135 - P.William Scott - Exp 10 - Code Generation

public static BufferedReader br, brip;

public static String line, lhs = "-", rhs1, rhs2;

public static int eq, sym, i = 1;

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

System.out.println("\nUR12CS135 - Code Generation");

br = new BufferedReader(new FileReader("..\\Exp 10 - Code Generation Input File.txt"));

brip = new BufferedReader(new FileReader("..\\Exp 10 - Code Generation Input File.txt"));

System.out.println("\n------Input------");

while ((line = brip.readLine()) != null) {

System.out.println(line);

}

System.out.println("\n------Output-----");

while ((line = br.readLine()) != null) {

eq = line.indexOf("=");

if (line.contains("+")) {

sym = line.indexOf("+");

}

if (line.contains("-")) {

sym = line.indexOf("-");

}

rhs1 = line.substring(eq + 1, sym);

rhs2 = line.substring(sym + 1, line.length() - 1);

if (line.contains(lhs)) {

System.out.println("mov " + rhs2 + ", R" + i);

if (line.contains("+")) {

System.out.println("add R1, R" + i);

} else if (line.contains("-")) {

System.out.println("sub R1, R" + i);

} else if (line.contains("\*")) {

System.out.println("mul R1, R" + i);

} else if (line.contains("/")) {

System.out.println("div R1, R" + i);

}

i++;

} else {

System.out.println("mov " + rhs1 + ", R" + i++);

System.out.println("mov " + rhs2 + ", R" + i++);

if (line.contains("+")) {

System.out.println("add R" + (i - 2) + ", R" + (i - 1));

} else if (line.contains("-")) {

System.out.println("sub R" + i++ + ", R" + i++);

} else if (line.contains("\*")) {

System.out.println("mul R" + i++ + ", R" + i++);

} else if (line.contains("/")) {

System.out.println("div R" + i++ + ", R" + i++);

}

}

lhs = line.substring(0, eq);

}

}

}

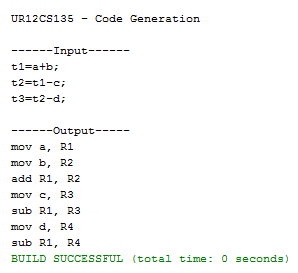
**Input**

t1=a+b;

t2=t1-c;

t3=t2-d;

**Output**



**Result**

Implementation of Code Generation is successfully done.

[Signature of the Staff In-charge]

Name of the Staff In – charge: Mr. Jeban Chandir Moses

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_