**Exp 10:**

**Write a C program to simulate code generation.**

#include <stdio.h>

#include <string.h>

#include <stdlib.h>

void generateAssembly(char \*result, char \*arg1, char \*opcode, char \*arg2)

{

if (strcmp(opcode, "+") == 0)

{

printf("MOV R0, %s\n", arg1);

printf("ADD R0, %s\n", arg2);

printf("MOV %s, R0\n", result);

}

else if (strcmp(opcode, "-") == 0)

{

printf("MOV R0, %s\n", arg1);

printf("SUB R0, %s\n", arg2);

printf("MOV %s, R0\n", result);

}

else if (strcmp(opcode, "\*") == 0)

{

printf("MOV R0, %s\n", arg1);

printf("MUL R0, %s\n", arg2);

printf("MOV %s, R0\n", result);

}

else if (strcmp(opcode, "/") == 0)

{

printf("MOV R0, %s\n", arg1);

printf("DIV R0, %s\n", arg2);

printf("MOV %s, R0\n", result);

}

else if (strcmp(opcode, "=") == 0)

{

printf("MOV %s, %s\n", result, arg1);

}

else {

printf("Error: Unsupported operation '%s'\n", opcode);

}

}

int main() {

char input[50], result[10], arg1[10], opcode[10], arg2[10];

printf("Enter intermediate code (e.g., t1 = a + b ):\n");

while (fgets(input, sizeof(input), stdin))

{

input[strcspn(input, "\n")] = 0;

int count = sscanf(input, "%s = %s %s %s", result, arg1, opcode, arg2);

if (count == 4) {

generateAssembly(result, arg1, opcode, arg2);

} else if (count == 2) {

strcpy(opcode, "=");

generateAssembly(result, arg1, opcode, "");

} else {

printf("Error: Invalid input format\n");

}

}

return 0;

}

**Output:**

