

# **BCSE307P – Compiler Design Lab**

**Winter Semester 2023-24**

## **Assessment 11**

**Final Code Generation**

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Slot: L7 + L8

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### Input:

t=a+b

x=t

### Task:

#### Implementation of Code Generator

### Code:

```
#include <stdio.h>

#include <string.h>

void main() {

    char icode[10][30], str[20], opr[10];

    int i=0;

    printf("Enter the set of intermediate code (terminated by\nexit:)\n");

    do {

        scanf("%s", icode[i]);

    }

    while (strcmp(icode[i++], "exit") != 0);

    printf("\n Target code generation:");

    printf("\n*****");

    i=0;

    do {

        strcpy(str, icode[i]);

        switch(str[3]) {

            case '+':

                strcpy(opr, "ADD ");
```

```

        break;

    case '-':

        strcpy(opr, "SUB ");

        break;

    case '*':

        strcpy(opr, "MUL ");

        break;

    case '/':

        strcpy(opr, "DIV ");

        break;

    }

    printf("\n\tMOV %c, R%d", str[2], i);

    printf("\n\t%s%c, R%d", opr, str[4], i);

    printf("\n\tMOV R%d, %c", i, str[0]);

}

while (strcmp(icode[i++], "exit") != 0);

printf("\n");

}

```

### Output:

```
parallels@ubuntu-linux-22-04-desktop: ~/21BLC1607
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$ gedit lab11.c
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$ gcc lab11.c
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$ ./a.out
Enter the set of intermediate code (terminated by exit:)
t=a+b
x=c+t
exit

Target code generation:
*****
      MOV a, R0
      ADD b, R0
      MOV R0, t
      MOV c, R1
      ADD t, R1
      MOV R1, x
      MOV i, R2
      ADD , R2
      MOV R2, e
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$
```

### Result:

Thus, the experiment has been successfully executed and verified.