Compiler Construction

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Practical-9

Objective

- To implement Assembly code generator.

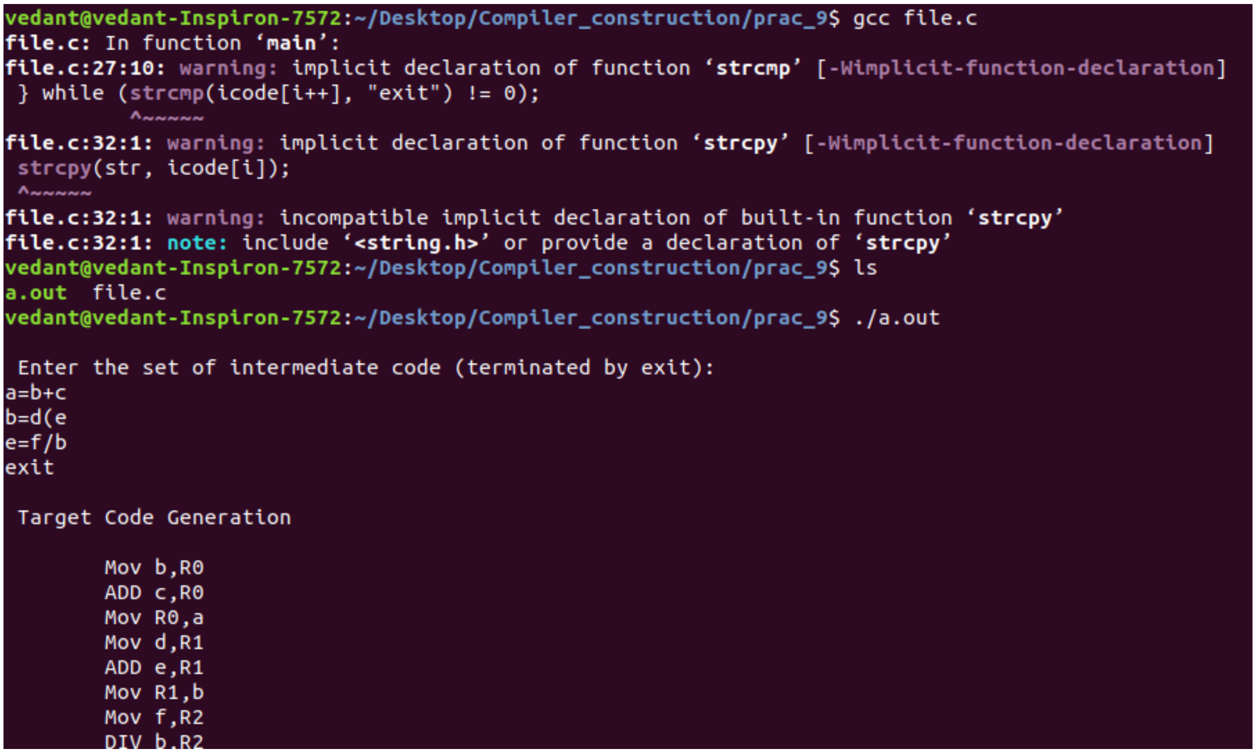
CODE

```
#include <stdio.h>
#include <termios.h>
#include <unistd.h>
#include <stdio.h>

/* reads from keypress, doesn't echo */
int getch(void)
{
    struct termios oldattr, newattr;
    int ch;
    tcgetattr( STDIN_FILENO, &oldattr );
    newattr = oldattr;
    newattr.c_lflag &= ~( ICANON | ECHO );
    tcsetattr( STDIN_FILENO, TCSANOW, &newattr );
    ch = getchar();
    tcsetattr( STDIN_FILENO, TCSANOW, &oldattr );
    return ch;
```

```
}

void main() {
char icode[10][30], str[20], opr[10];
int i = 0;
printf("\n Enter the set of intermediate code (terminated by exit):\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);
getch();
}
```

Output file:



```
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac_9$ gcc file.c
file.c: In function ‘main’:
file.c:27:10: warning: implicit declaration of function ‘strcmp’ [-Wimplicit-function-declaration]
 } while (strcmp(icode[i++], "exit") != 0);
          ^~~~~~
file.c:32:1: warning: implicit declaration of function ‘strcpy’ [-Wimplicit-function-declaration]
 strcpy(str, icode[i]);
 ^~~~~~
file.c:32:1: warning: incompatible implicit declaration of built-in function ‘strcpy’
file.c:32:1: note: include ‘<string.h>’ or provide a declaration of ‘strcpy’
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac_9$ ls
a.out  file.c
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac_9$ ./a.out

 Enter the set of intermediate code (terminated by exit):
a=b+c
b=d(e
e=f/b
exit

 Target Code Generation

        Mov b,R0
        ADD c,R0
        Mov R0,a
        Mov d,R1
        ADD e,R1
        Mov R1,b
        Mov f,R2
        DIV b,R2
```