

BCSE307P – Compiler Design Lab

Winter Semester 2023-24

Assessment 8

Evaluating postfix notation in ICG

Name: Sujay Ghosh

Reg. No: 21BLC1607

Slot: L7 + L8

Faculty: Dr. Rathna

Task:

Implementation of Postfix Notation

Code:

```
#include <stdio.h>

int stack[20];

int top = -1;

void push(int x) {
    stack[++top] = x;
}

int pop() {
    return stack[top--];
}

int main() {
    char exp[20];
    char *e;
    int n1, n2, n3, num;

    printf("Enter expression: ");
    scanf("%s", exp);
    e = exp;

    while (*e != '\0') {
```

```

    if (isdigit(*e)) {

        num = *e - 48;

        push(num);

    }

    else {

        n1 = pop();

        n2 = pop();

        switch (*e) {

            case '+':

                n3 = n1 + n2;

                break;

            case '-':

                n3 = n2 - n1;

                break;

            case '*':

                n3 = n1 * n2;

                break;

            case '/':

                n3 = n2 / n1;

                break;

        }

        push(n3);

    }

    e++;

}

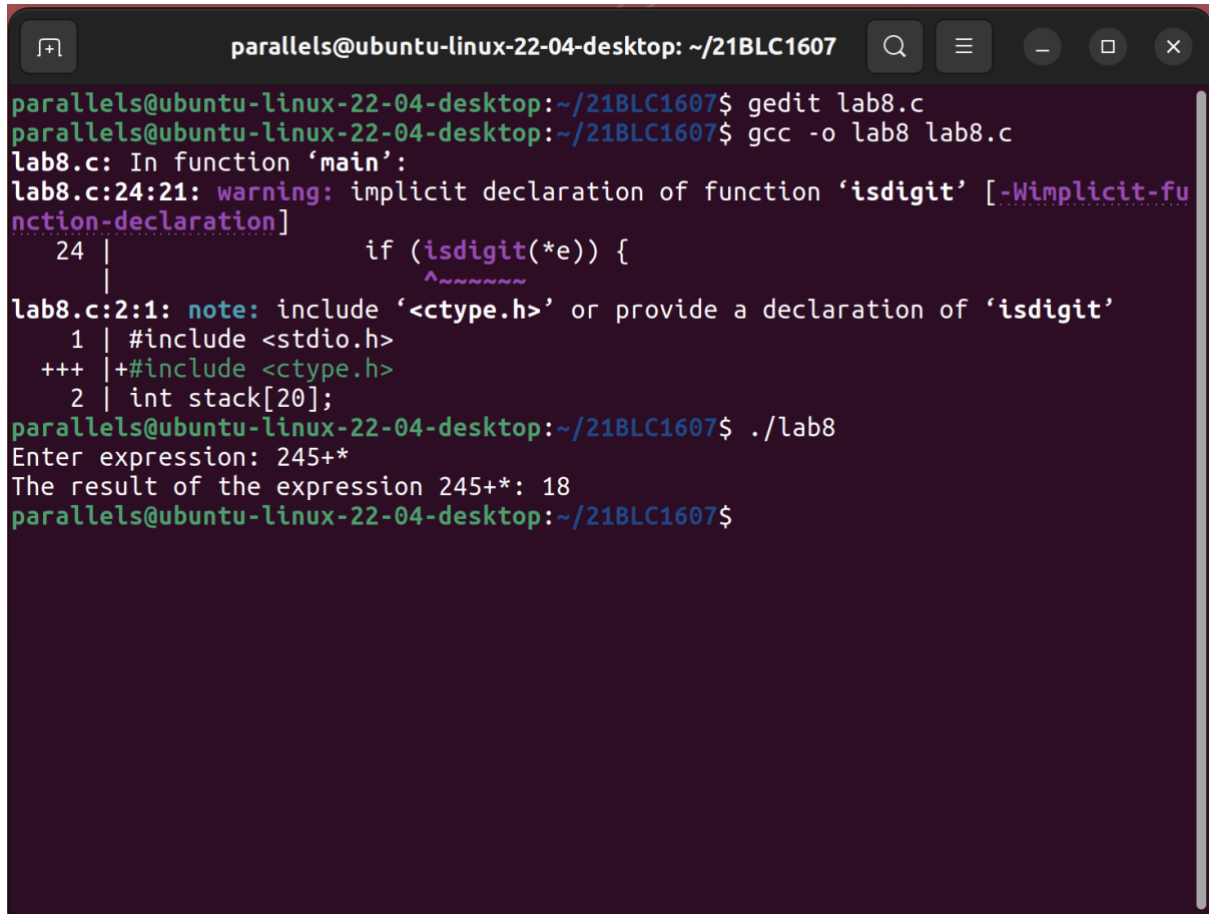
printf("The result of the expression %s: %d\n", exp, pop());

```

```
    return 0;

}
```

Output:



```
parallels@ubuntu-linux-22-04-desktop: ~/21BLC1607
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$ gedit lab8.c
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$ gcc -o lab8 lab8.c
lab8.c: In function 'main':
lab8.c:24:21: warning: implicit declaration of function 'isdigit' [-Wimplicit-fu
nction-declaration]
   24 |         if (isdigit(*e)) {
      |                     ^~~~~~
lab8.c:2:1: note: include '<ctype.h>' or provide a declaration of 'isdigit'
   1 | #include <stdio.h>
+++ |+#include <ctype.h>
   2 | int stack[20];
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$ ./lab8
Enter expression: 245+*
The result of the expression 245+*: 18
parallels@ubuntu-linux-22-04-desktop:~/21BLC1607$
```

Result:

Thus, the experiment has been successfully executed and verified.