

EXPERIMENT-19

AIM:

Write a C program to compute LEADING() – operator precedence parser for the given grammar

PROGRAM:

The screenshot shows the Dev-C++ IDE interface. The project file 'EXP_2.cpp' is open. The code implements a function 'findLeading' to calculate the leading set for a grammar rule, and a main function to read grammar rules from the user. The code uses arrays 'grammar' and 'leading' to store characters and their leading sets respectively. The compiler log at the bottom shows a successful compilation with no errors or warnings.

```
#include <stdio.h>
#include <iostream.h>
char grammar[10][10];
char leading[10][10];
int n;
void findLeading(char nonTerminal, int index) {
    for (int i = 0; i < n; i++) {
        if (grammar[i][0] == nonTerminal) {
            if (grammar[i][2] >= 'a' && grammar[i][2] <= 'z') {
                leading[index][strlen(leading[index])] = grammar[i][2];
            }
            else if (grammar[i][2] == '(' || grammar[i][2] == '+' || grammar[i][2] == '*') {
                leading[index][strlen(leading[index])] = grammar[i][2];
            }
            else {
                findLeading(grammar[i][2], index);
            }
        }
    }
}
int main() {
    printf("Enter number of grammar rules: ");
    scanf("%d", &n);
}
```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Haritha\OneDrive\Documents\EXP_2.exe
- Output Size: 130.3583984375 KiB
- Compilation Time: 0.59s

OUTPUT:

The terminal window displays the execution of the program. It asks for the number of grammar rules (3), then prompts for the rules. The user enters three rules: E->T+F, T->F, and F->E. The program then calculates the LEADING() sets for each non-terminal. The output shows that LEADING(E) is the empty set {}, LEADING(T) is the empty set {}, and LEADING(F) is the empty set {}.

```
Enter number of grammar rules: 3
Enter grammar rules (Format: A->B):
E->T+F
T->F
F->E

LEADING() for given grammar:
LEADING(E) = { }
LEADING(T) = { }
LEADING(F) = { }

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Process exited after 41.78 seconds with return value 0
Press any key to continue . . .
```