Compiler Design 19CSE401

Experiment 1c

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Aim:

Program to count the number of positive and negative integers and fractions present in a given input.

Procedure:

- Start Lex tool on your system.
- Write the Lex program (number_count.l):
- Include the required C headers.
- Declare counters for:
    - Positive Integers
    - Negative Integers
    - Positive Fractions
    - Negative Fractions
- Define regular expressions to match:
  Positive integers: +[0-9]+ or [1-9][0-9]*
  Negative integers: -[0-9]+

Positive fractions: +[0-9]+\.[0-9]+ or [0-9]+\.[0-9]+
Negative fractions: -[0-9]+\.[0-9]+

- Save the file as number_count.l.
- Compile the Lex program using terminal:
  lex number_count.l
  gcc lex.yy.c -o number_count -ll
- Prepare an input file (e.g., no_count.txt) with a mixture of:
  Positive and negative integers
  Positive and negative decimal numbers (fractions)
- Run the program by passing the input file:
  ./no_count
- Program reads and analyzes the input and displays:
  Number of positive integers
  Number of negative integers
  Number of positive fractions
  Number of negative fractions
- End.

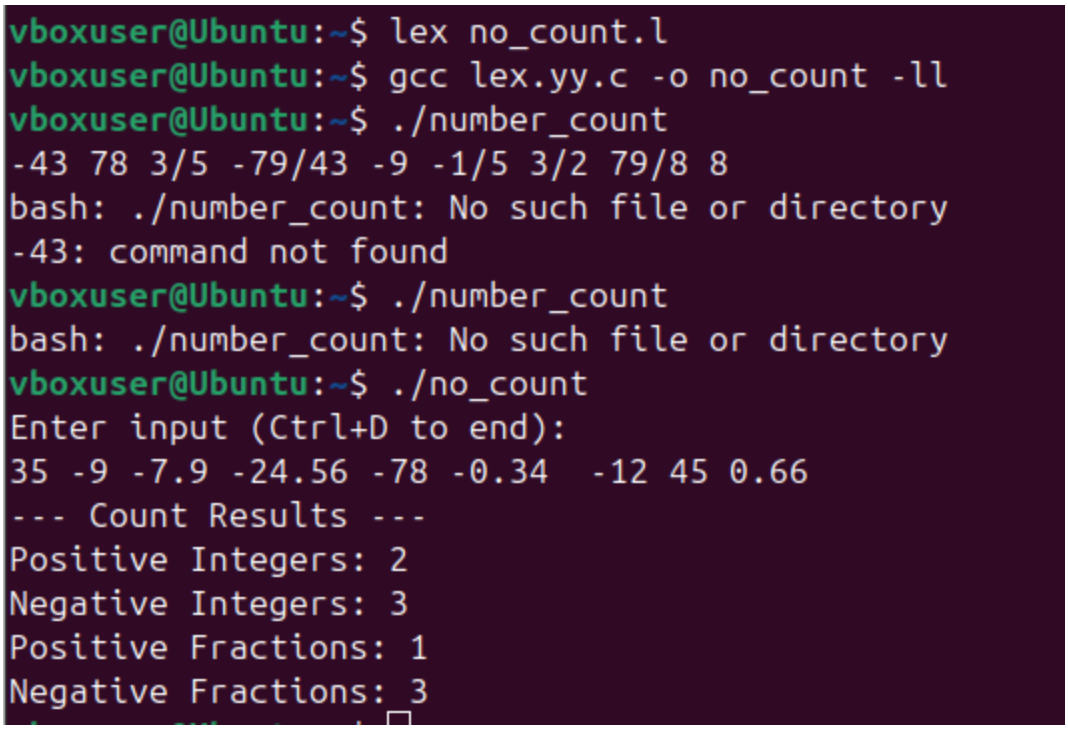
Program Code:

```
%{ #include <stdio.h>

int pos_int = 0;
```

```
int neg_int = 0;

int pos_frac = 0;

int neg_frac = 0;

%

}


%%

[+]?[0-9]+.[0-9]+ { pos_frac++; } // Positive fractions with optional '+' sign -[0-9]+.[0-9]+ { neg_frac++; } // Negative fractions

[+]?[1-9][0-9]* { pos_int++; } // Positive integers with optional '+' sign (no leading zero) -0|-[1-9][0-9]* { neg_int++; } // Negative integers

[ \t\n]+ { /* Skip whitespace */ } . { /* Skip other characters */ }

%%

int main() { printf("Enter input (Ctrl+D to end):\n"); yylex();
```

```
printf("\n--- Count Results ---\n");
printf("Positive Integers: %d\n", pos_int);
printf("Negative Integers: %d\n", neg_int);
printf("Positive Fractions: %d\n", pos_frac);
printf("Negative Fractions: %d\n", neg_frac);

return 0;


}

int yywrap() {

return 1;

}
```

Output:



Result:

We have successfully found out the number of positive and negative integers and fractions from a given input in lex program.