6. LEX Program

Aim: Design LEX program to count no of words lines and characters of given input

Problem Statement:-
Write a program using Lex specifications to implement lexical analysis Phase of compiler to count no of words, lines and characters of given input file
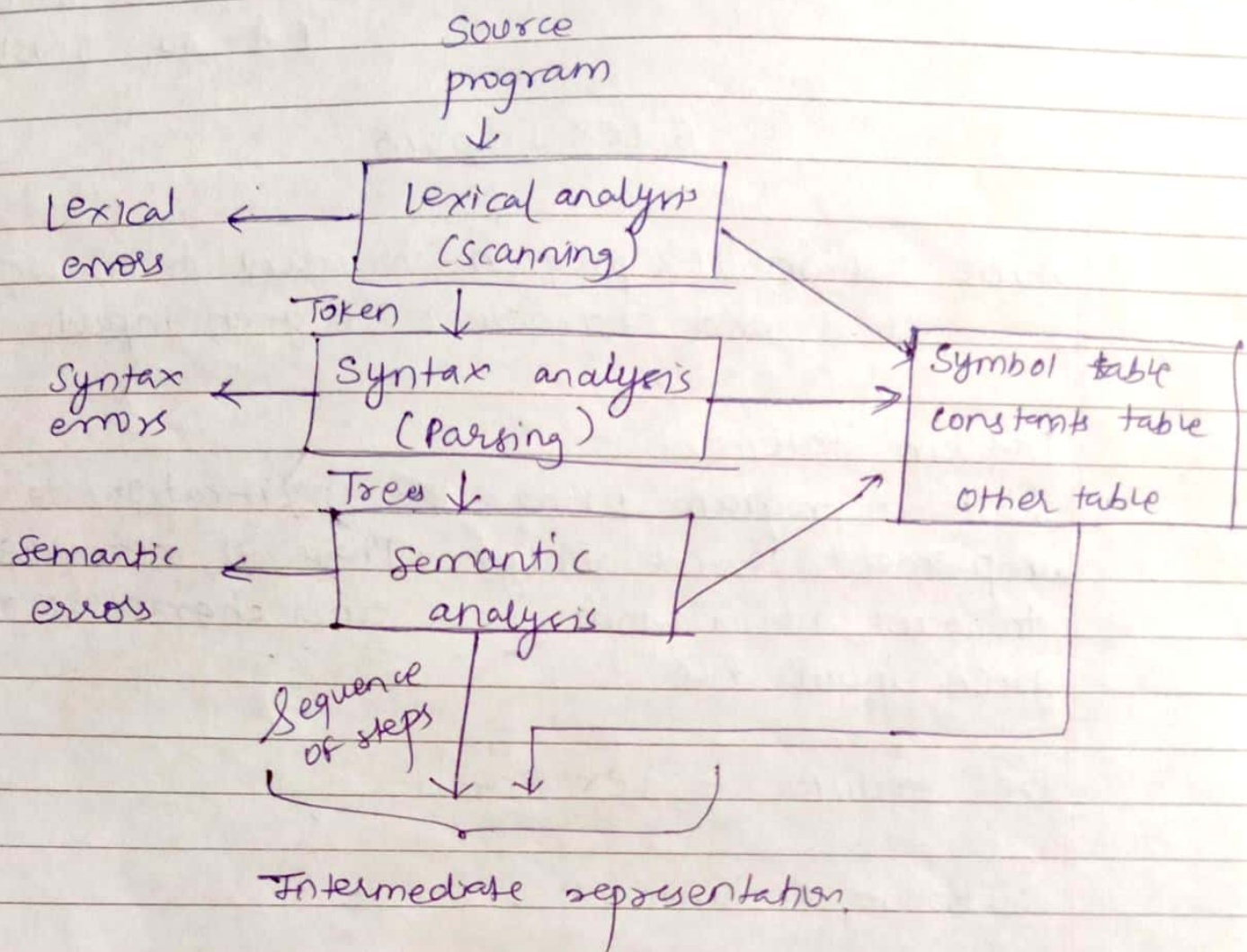
Pre-requistes :- LEX Basics

Software Requirements :-

S.No	Facilities req	Quantity
1	System	1
2	O/S	Ubuntu Kylin
3	S/W name	LEX tool (flex)

Objectives :-
1) To understand LEX concepts
2) To implement LEX program for no's of count
3) To study about Lex & JAVA
4) To know important about lexical analyzer.

Source
program
↓

```
           ┌────────────────────┐
Lexical  ← │  Lexical analysis  │
errors     │    (scanning)      │─────────┐
           └────────────────────┘         │
           Token ↓                        │
           ┌────────────────────┐         ↓
Syntax   ← │  Syntax analysis   │    ┌──────────────────┐
errors     │    (Parsing)       │───→│  Symbol table    │
           └────────────────────┘    │  Constants table │
           Tree ↓                    │                  │
           ┌────────────────────┐    │   Other table    │
Semantic ← │  Semantic          │───→└──────────────────┘
errors     │  analysis          │
           └────────────────────┘
                 Sequence
                 of steps
                    ↓   ↓
```

Intermediate representation.

Conclusion :-

Thus, we have studied lexical analyzer &
implemented an applic⁰ for lexical analyze
to count total no of words, chard and line etc.

Assignment No. 06 [LEX Program]

Problem Satement: Write a program using Lex specifications to implement lexical analysis Phase of compiler to count no. of words, lines and characters of given Input file.

1. Code b3.l:

```
%{
int no_line=0; int
no_space=0; int
no_char=0; int
no_words=0;
#include<string.h>
%}

%%
([ a-zA-Z])+ {no_words++; no_char+=strlen(yytext); }
[ " "] {no_space++; }
[ "\n"] {no_line++; }
. ;

%%


int yywrap(){

}

int main(int argc,char* argv[]){
yyin=fopen("test.txt","r");
    yylex();
    printf("Total Spaces %d\n",no_space);
printf("Total Words %d\n",no_words);
printf("Total Line %d\n",no_line);
no_char+=no_space;
    printf("Total Char %d\n",no_char);
    fclose(yyin);
}
```

2. text.txt File:
// Content of text.txt File

The earliest foundations of what would become computer science predate the invention of the modern digital computer. Machines for calculating fixed numerical tasks such as the abacus have existed since antiquity, aiding in computations such as multiplication and division. Algorithms for

performing computations have existed since antiquity, even before the development of sophisticated computing equipment.

Computer science, the study of computers and computing, including their theoretical and algorithmic foundations, hardware and software, and their uses for processing information. The discipline of computer science includes the study of algorithms and data structures, computer and network design, modeling data and information processes, and artificial intelligence. Computer science draws some of its foundations from mathematics and engineering and therefore incorporates techniques from areas such as queueing theory, probability and statistics, and electronic circuit design. Computer science also makes heavy use of hypothesis testing and experimentation during the conceptualization, design, measurement, and refinement of new algorithms, information structures, and computer architectures.

OUTPUT:

Pritam-spos@Pritam-HP:~/SPOSL/LexProgram$ lex b3.l

Pritam-spos@Pritam-HP:~/SPOSL/LexProgram$ gcc lex.yy.c

Pritam-spos@Pritam-HP:~/SPOSL/LexProgram$ ./a.out test.txt

Total Spaces 155

Total Words 157

Total Line 3

Total Char 1180