

.l File

```
%{
#include "y.tab.h"
%}

delim [ \t\n]
ws {delim}+
letter [a-zA-Z]
digit [0-9]
Id {letter}({letter}|{digit}|(\_))*
Number {digit}+(\.{digit}+)?(E[+-]?{digit}+)?
anychar ({letter}|{digit}|[ !@#$%^&*()_.,?:])*
condop (<=)|(>=)|(==)|(!=)|("&&"|("||"))

%%

{delim}
if return IF;
else return ELSE;
while return WHILE;
do return DO;
{Number} return NUM;
{Id} return ID;
{condop} return CONDOP;
. return yytext[0];
%%

int yywrap()
{
return 1;
}
```

.y file

```
%{
void yyerror(char *s);
#include<stdio.h>
#include<stdlib.h>
extern FILE *yyin;
extern int yylineno;
validflag = 0;
extern int yylex();
extern int yywrap();
}
```

```
extern int yyparse();
%}
```

```
%token IF ELSE WHILE DO NUM ID
%right '='
%left CONDOP '+' '-' '*' '/'
```

```
%%
```

```
S :S1 {printf("Valid Compound Statement\n");};
S1 :WHILE '(' condition ')' S1
   |IF '(' condition ')' S1 ELSE S1
   |IF '(' condition ')' S1
   |DO '{ S1 }' WHILE '(' condition ')";'
   |'{ S1 }'
   |S1 S1
   |ST
   ;
```

```
ST :ST ';'
   |ST ';' S1
   |ASSIGN
   ;
ASSIGN :ID '=' EXPR
       ;
EXPR :EXPR '+' EXPR
     |EXPR '-' EXPR
     |EXPR '*' EXPR
     |EXPR '/' EXPR
     |EXPR CONDOP EXPR
     |EXPR '<' EXPR
     |EXPR '>' EXPR
     |ID
     |NUM
     ;
condition :EXPR CONDOP EXPR
          |EXPR '<' EXPR
          |EXPR '>' EXPR
          |ID
          |NUM
          ;
```

```
%%
int main()
```

```

{
    yyin = fopen("As_7_Sample.txt","r");
    yyparse();
}

void yyerror (char *s) {
    fprintf(stderr, "%d] %s\n", yylineno,s);
}

```

Output :

The screenshot shows the initial setup in VS Code and the first steps of compilation in iTerm. In VS Code, the file `As_7_Sample.txt` contains the following code:

```

1  if(a<=10)
2  {
3      a = b;
4  }

```

In the iTerm window, the following commands are executed:

```

(base) digvijay@Digvijays-MacBook-Air LCA 07 % flex SSC_As_7.l
(base) digvijay@Digvijays-MacBook-Air LCA 07 % yacc -d SSC_As_7.y
conflicts: 72 shift/reduce
(base) digvijay@Digvijays-MacBook-Air LCA 07 % gcc lex.yy.c y.tab.c -o as7
SSC_As_7.y:7:1: warning: type specifier missing, defaults to 'int' [-Wimplicit-i
nt]
validflag = 0;
^
1 warning generated.
(base) digvijay@Digvijays-MacBook-Air LCA 07 % ./as7
Valid Compound Statement
(base) digvijay@Digvijays-MacBook-Air LCA 07 % _

```

The screenshot shows the continuation of the compilation process. In VS Code, the file `As_7_Sample.txt` contains the following code:

```

1  if(a<=10)
2  {
3      a = b;
4  }
5
6  while(a<=b)
7  {
8      if(a==b && a>2)
9      {
10         b = c + 1;
11     }
12
13     do
14     {
15         b = c;
16     }while(b);
17
18
19 }

```

In the iTerm window, the following commands are executed:

```

SSC_As_7.y:7:1: warning: type specifier missing, defaults to 'int'
[-Wimplicit-int]
validflag = 0;
^
1 warning generated.
(base) digvijay@Digvijays-MacBook-Air LCA 07 % ./as7
Valid Compound Statement
(base) digvijay@Digvijays-MacBook-Air LCA 07 %

```

