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Aim : To implement Lexical Analyzer in LEX Tool for the input file.

Test file :

```c
#include <stdio.h>
#include <conio.h>

void main()
{
   // Declaration of variable
   int a, b = 1000, c, i = 10;
   char x, y;
   char a = 'x';
   float p = 10.2, q = 20.5;
   scanf("%d %d", &a, &b);
   /*
   Addition of Two number
   */
   c = a + b;
   printf("Sum:%d", c);

   // Comment1
   if (a > b)
   {
       printf("a is max");
   }
   else
   {
       printf("b is max");
```

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```
   }
   a = b++ + c++;
   a += b;
   b = c && a;

   // print 1 to 100

   for (i = 1; i < 100; i++)
   {
       printf("%d", i);
   }
}
```

Code :

```
%{
#include <stdio.h>
int valid=0;
%}

%%

[+-]?[0-9]+                { printf("Integer: %s\n", yytext);
valid++;}

[+-]?[0-9]*\.[0-9]+?           { printf("Float: %s\n", yytext);
valid++;}

[+-]?[0-9]*\.[0-9]+([eE][+-]?[0-9]+)?  { printf("Exponential:
```

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```
%s\n", yytext); valid++;}

int|char|float|void|main|if|else|for|else[ ]if|for|scanf|printf
{ printf("Keywords: %s\n", yytext); valid++;}

"/*"([^*]|\*+[^*/])*\*+"/"    {  }

"//".*                        {  }

[a-zA-Z_][a-zA-Z0-9_]*        { printf("Identifier: %s\n",
yytext); valid++;}

\"([^\\\"]|\\.)*\"            { printf("String: %s\n", yytext);
valid++;}

[\(\)\[\]\{\}\+\-\*\/\=\>\<\!\&\|\%\^\;\,\.\?]  {
printf("Operators/Brackets: %s\n", yytext); valid++;}

\+\+|\-\-|\+=|-=|\*=|\/=|%=|\&=|\|=|\^=|\!=|\==|<=|>=|\&&|\|\|
{ printf("Operators: %s\n", yytext); valid++; }


\#.*                          { printf("Header: %s\n", yytext);
valid++;}

\'([^\\\']|\\.)*\'            { printf("String: %s\n", yytext);
valid++;}

\n                            {  }
```

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```
[ \t]+                          {  }

.                               { printf("Unrecognized Character:
%s\n", yytext); }

%%

int yywrap() {
    return 1;
}

int main() {
    printf("\n");
    yyin = fopen("p5.c", "r");
    yylex();
    printf("Valid Tokens: %d\n", valid);
    return 0;
}
```

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Output :