**Session 1: Scanning and Filtering a Source Program**

1. **OBJECTIVES**

To develop a program which can filter comments and white space characters from a source program

1. **Demonstration of Useful Resources**

Extracting the sequence of occurrences of a specified character from a source program

**Sample Input: datafile1.c**

**datafile1.c**

#include <stdio.h>

int main(void)

{

FILE \*p1,\*p2; char c;

p1 = fopen("datafile1.c", "r");

p2 = fopen("parentheses.txt","w");

if(!p1) printf("\nFile can't be opened!");

else {

while((c = fgetc(p1)) != EOF) {

if ((c == '(') || (c == ')'))

fputc(c, p2); } }

fclose(p1);

fclose(p2);

p2 = fopen("parentheses.txt","r");

while((c=fgetc(p2))!=EOF)

printf("%c",c);

fclose(p2);

return 0;

}

**Output of the program:** ()()()()()((()))((()()))()()()()((()))()()

1. **Lab Exercise**
   1. Write a program to print the header files used in a source program.

**Sample Input:** *input.c*

#include <stdio.h>

int main()

{

// printf() displays the string inside quotation

printf("Hello, World!");

return 0;

}

**Sample Output:** *stdio.h*

* 1. Write a program to add line numbers to a source program.

**Sample Input:** *input.c*

**Sample Output:**

1: #include <stdio.h>

2: int main()

3: {

4: // printf() displays the string inside quotation

5: printf("Hello, World!");

6: return 0;

7: }

1. **Assignment #1:**

A C source program with single and multiple line comments is given. As the first step toward compilation you need to remove the comments and white space (extra spaces, tabs and newline characters). Develop a program that takes as input file the given source program and produces a filtered file as stated above. The program must also display both the files.

**Sample Input:** *input1.c*

#include<stdio.h>

int main(void)

{

// Single Line Comment

printf ("Hello");

/\* Multi

Line

Comment

\*/

printf("World");

return 0;

}

**Sample Output:** *output.txt*

#include<stdio.h> int main(void) { printf ("Hello"); printf("World"); return 0; }