Ahsanullah University Of Science And Technology

Course No: CSE 4130
Course Title: Formal Languages & Compilers Lab

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Assignment No: 01
Lab Group : B1

Question:

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.

Ans:

Code for : remove the comments and white space (extra spaces, tabs and newline characters).

```
/*
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For ASCII Value
REF : https://theasciicode.com.ar/ascii-
control-characters/horizontal-tab-ascii-code-9.html
*/
#include<stdio.h>
int main()
{
   FILE *p1, *p2;
   char c;

   p1 = fopen("FindHeaderFile.c","r");
   p2 = fopen("offline1.txt","w");

   if(!p1)
      printf("Empty !!\n");
   else
   {
      while((c = fgetc(p1)) != EOF)
      {
          if(c == '/')
         {
            // match (//) and remove single line comment
            if( (c = fgetc(p1)) == '/')
            {
               while((c = fgetc(p1)) != '\n'){}
```

```
                }
                // match (/*) and remove multiple line comment
                else if( c  == '*' )
                {
                    while((c = fgetc(p1)) != '/'){}
                }
            }
             //ascii code of  Space - 32 and horizontalTab = 9
            if( c !=32 && c != 9 && c!='\n' && c!='/')
            {
                 fputc(c,p2);
            }
        }
    }

    fclose(p1);
    fclose(p2);

    p2 = fopen("offline1.txt","r");

    while((c = fgetc(p2))!=EOF)
    {
        printf("%c",c);
    }

    fclose(p2);

    return 0;
}
```

Input File :

```
//Write code for find header file
#include<stdio.h>

int main()
{
   char arr[] = {'#','i','n','c','l','u','d','e'};

   FILE *p1, *p2;
   char c;




   p1 =    fopen("test.c","r");
   p2 = fopen("testHeaderFile.txt","w");
/*
   Natural language processing (NLP) is a
   subfield of linguistics, computer science, information engineering,
   and artificial intelligence concerned with the interactions between
   computers and human (natural) languages,
   in particular how to program computers to
   process and analyze large amounts of natural language data.

*/

   if(!p1)
      printf("Empty\n");
   else{
         int i = 0;
      while((c = fgetc(p1)) != EOF ){
          i++;
// match (#include)
         if(c == arr[i]){

         }
//find header file
         else if(c == '<'){
            while((c = fgetc(p1))){
               if ( c == '>')
                  break;
               fputc(c,p2);
```

```
                //printf("%c",c);
                }
            }
        }
    }

    fclose(p1);
    fclose(p2);

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

    while((c = fgetc(p2))!= EOF){
        printf("%c",c);
    }
    fclose(p2);

    return 0 ;
}
```

Output:

```
#include<stdio.h>intmain(){chararr[]={'#','i','n','c','l','u','d','e'};FILE*p1,*p2;charc;p1=fopen("test.c","r");p2
=fopen("testHeaderFile.txt","w");if(!p1)printf("Empty\n");else{inti=0;while((c=fgetc(p1))!=EOF){i++;if(c
==arr[i]){}elseif(c=='<'){while((c=fgetc(p1))){if(c=='>')break;fputc(c,p2);}}}}fclose(p1);fclose(p2);p2=fo
pen("testHeaderFile.txt","r");while((c=fgetc(p2))!=EOF){printf("%c",c);}fclose(p2);return0;}
```