Compiler Design Lab

Assignment 8

Name- Tirtharaj Sinha

Class roll no. 74

Section - 3i

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Enrolment no. 120190090011134

Stream – CSE

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Question 1: Write a C program which will read a C program, and will delete all the comments. After deleting all the comments it will write the program in a separate file.

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
FILE *source, *target;

void single_line()
{
   char ch = fgetc(source);
   while (ch != EOF)
   {
      if (ch == '\n')
      {
         return;
      }
      ch = fgetc(source);
   }
}

void multi_line()
{
   char ch = fgetc(source);
   while (ch != EOF)
   {
      if (ch == '*')
      {
         ch = fgetc(source);
         if (ch == '/')
```

```
            {
                return;
            }
        }
        ch = fgetc(source);
    }
}

int main()
{
    char sourcefilename[100] = "code.c";
    char targetfilename[100] = "newcode.c";

    // printf("Enter Source file name : ");
    // scanf("%s", sourcefilename);
    // printf("Enter target file name : ");
    // scanf("%s", targetfilename);

    source = fopen(sourcefilename, "r");
    target = fopen(targetfilename, "w");

    char ch = fgetc(source);
    while (ch != EOF)

    {
        if (ch == '/')
        {
            char temp = ch;
            ch = fgetc(source);
            if (ch == '/')
```

```
            {
                single_line();
            }
            else if (ch == '*')
            {
                multi_line();
            }
            else
            {
                fputc(temp, target);
                fputc(ch, target);
                printf("%c%c", temp, ch);
            }
        }
        else
        {
            fputc(ch, target);
            printf("%c", ch);
        }
        ch = fgetc(source);
    }

    fclose(source);
    fclose(target);

    return 0;
}
```

output

```
#include <stdio.h>
#include <string.h>
```

```
int main()
{
   printf("hello world");



   return 0;
}
```

Question 2: Write a LEX program which will count the vowels and consonants of a user given string.

```
%{
int vowel=0;
int cons=0;
%}

%%

[aeiouAEIOU] {vowel++;}
[a-zA-Z] {cons++;}

%%

int yywrap(){}

int main(){
        printf("Enter a char : ");
      yylex();
        printf("NUMBER OF VOWELS= %d and CONSONENT=%d",vowel,cons);
        return 0;
```

```
}
```

Question 3: Write a LEX program to count the number of comment line in a given C program. Also eliminate them and copy that program into separate file.

```
%{
#include<stdio.h>

%}



%%
\/\/(.*) {};
\/\*(.*\n)*.*\*\/ {};
%%

int main()
{
   yyin=fopen("Code.c","r");
   yyout=fopen("Code_out.c","w");
   yylex();



}

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

Question 4: Write a YACC Program to recognize a valid variable, which starts with a letter, followed by any number of letters or digits.

LEX PART:

```
%{
   #include "y.tab.h"
%}
%%
[a-zA-Z_][a-zA-Z_0-9]* return letter;
[0-9]                  return digit;
.                    return yytext[0];
\n                    return 0;
%%
int yywrap()
{
return 1;
}
```

YACC PART:

```
%{
   #include<stdio.h>
   int valid=1;
%}
%token digit letter
%%
start : letter s
s :     letter s
      | digit s
```

```
    |
    ;
%%
int yyerror()
{
   printf("\nIts not a identifier!\n");
   valid=0;
   return 0;
}
int main()
{
   printf("\nEnter a name to tested for identifier ");
   yyparse();
   if(valid)
   {
      printf("\nIt is a identifier!\n");
   }
}
```

OUTPUT

```
yacc -d vid.y
lex vid.l
cc y.tab.c lex.yy.c -ly -ll
./a.out
enter the variable:
abc
valid identifiers


yacc -d vid.y
lex vid.l
 cc y.tab.c lex.yy.c -ly -ll
 ./a.out
enter the variable:
(+cd-)
```

Invalid variable