

LAB NO: 2

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PRELIMINARY SCANNING APPLICATIONS

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CSE B2

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Lab Exercises:

Q1) Write a 'C' program that takes a file as input and replaces blank spaces and tabs by single space and writes the output to a file.

Ans)

```
#include <stdio.h>
#include <stdlib.h>
int main(int argc, char *argv[])
{
    FILE *fin, *fout;
    int ch;
    int in_space = 0;
    if (argc != 3)
    {
        printf("Usage: %s <input_file> <output_file>\n", argv[0]);
        return 1;
    }
    fin = fopen(argv[1], "r");
    if (fin == NULL)
    {
        printf("Error: Cannot open input file.\n");
        return 1;
    }
    fout = fopen(argv[2], "w");
    if (fout == NULL)
    {
        printf("Error: Cannot open output file.\n");
```

```

fclose(fin);
return 1;
}
while ((ch = fgetc(fin)) != EOF)
{
if (ch == ' ' || ch == '\t')
{
if (!in_space)
{
fputc(' ', fout);
in_space = 1;
}
}
else
{
fputc(ch, fout);
in_space = 0;
if (ch == '\n')
in_space = 0;
}
}
fclose(fin);
fclose(fout);
printf("File processed successfully.\n");
return 0;
}

```

Output:

```

C q1.c  out.txt  dummy.txt  in.txt
week2 > out.txt
1 Hello everyone. My name is Satyam Singh .
2 currently I'm in my 3rd year CSE .
3

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
cd1-6cse-b2@sce-cl11-03:~/Documents/230905256/week2$ gcc -o q1 q1.c
cd1-6cse-b2@sce-cl11-03:~/Documents/230905256/week2$ ./q1 in.txt out.txt
File processed successfully.

```

Q2) Write a 'C' Program to discard preprocessor directives from the given input 'C' file

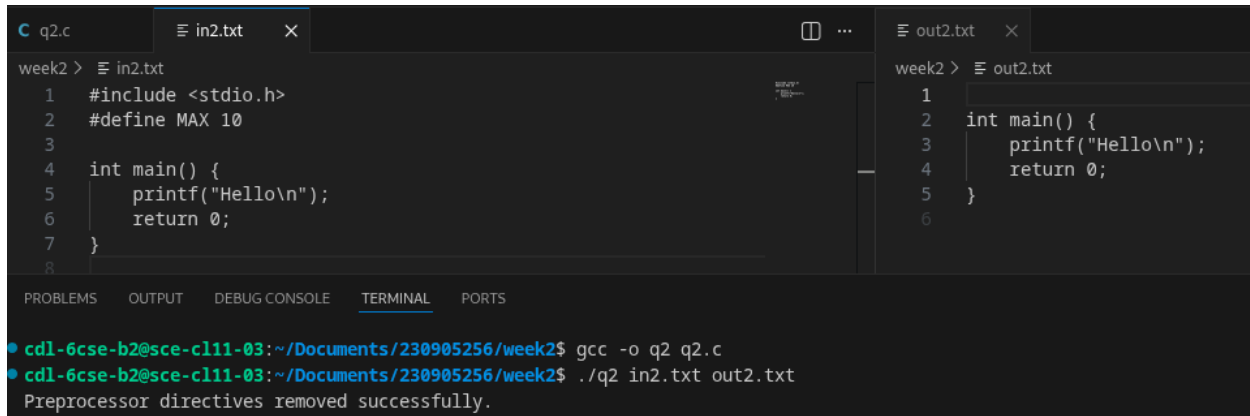
Ans)

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

int main(int argc, char *argv[])
{
    FILE *fin, *fout;
    char line[1024];
    if (argc != 3)
    {
        printf("Usage: %s <input_c_file> <output_file>\n", argv[0]);
        return 1;
    }
    fin = fopen(argv[1], "r");
    if (fin == NULL)
    {
        printf("Error: Cannot open input file.\n");
        return 1;
    }
    fout = fopen(argv[2], "w");
    if (fout == NULL)
    {
        printf("Error: Cannot open output file.\n");
        fclose(fin);
        return 1;
    }
    while (fgets(line, sizeof(line), fin) != NULL)
    {
        if (line[0] != '#')
        {
            fputs(line, fout);
        }
    }
    fclose(fin);
    fclose(fout);

    printf("Preprocessor directives removed successfully.\n");
    return 0;
}
```

Output:



```
week2 > in2.txt
1 #include <stdio.h>
2 #define MAX 10
3
4 int main() {
5     printf("Hello\n");
6     return 0;
7 }
8

week2 > out2.txt
1
2 int main() {
3     printf("Hello\n");
4     return 0;
5 }
6

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
• cd1-6cse-b2@sce-cl11-03:~/Documents/230905256/week2$ gcc -o q2 q2.c
• cd1-6cse-b2@sce-cl11-03:~/Documents/230905256/week2$ ./q2 in2.txt out2.txt
Preprocessor directives removed successfully.
```

Q3) Write a 'C' program that takes C program as input, recognizes all the keywords and prints them in upper case.

Ans)

```
#include <stdio.h>
#include <string.h>
#include <ctype.h>
#define MAX 100
const char *keywords[] = {
    "auto", "break", "case", "char", "const", "continue", "default", "do",
    "double", "else", "enum", "extern", "float", "for", "goto", "if", "int",
    "long", "register", "return", "short", "signed", "sizeof", "static",
    "struct", "switch", "typedef", "union", "unsigned", "void", "volatile", "while"
};
int isKeyword(char *word)
{
    int i;
    int count = sizeof(keywords) / sizeof(keywords[0]);

    for (i = 0; i < count; i++)
    {
        if (strcmp(word, keywords[i]) == 0)
            return 1;
    }
    return 0;
}
void printUpper(char *word)
```

```

{
int i;
for (i = 0; word[i]; i++)
putchar(toupper(word[i]));
}
int main(int argc, char *argv[])
{
FILE *fp;
char word[MAX];
int c, i = 0;

if (argc != 2)
{
printf("Usage: %s <input_c_file>\n", argv[0]);
return 1;
}

fp = fopen(argv[1], "r");
if (fp == NULL)
{
printf("Error: Cannot open file.\n");
return 1;
}

while ((c = fgetc(fp)) != EOF)
{
if (isalpha(c) || c == '_')
{
word[i++] = c;
}

while ((c = fgetc(fp)) != EOF && (isalnum(c) || c == '_'))
{
word[i++] = c;
}

word[i] = '\0';
i = 0;
if (isKeyword(word))
printUpper(word);
else
printf("%s", word);

if (c != EOF)

```

```
putchar(c);  
}  
else  
{  
putchar(c);  
}  
}  
fclose(fp);  
return 0;  
}
```

Output:

```
cdl-6cse-b2@sce-cl11-03:~/Documents/230905256/week2$ gcc -o q3 q3.c  
cdl-6cse-b2@sce-cl11-03:~/Documents/230905256/week2$ ./q3 in3.c  
INT main() {  
    IF(a > b)  
        RETURN a;  
}
```