

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:

```

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

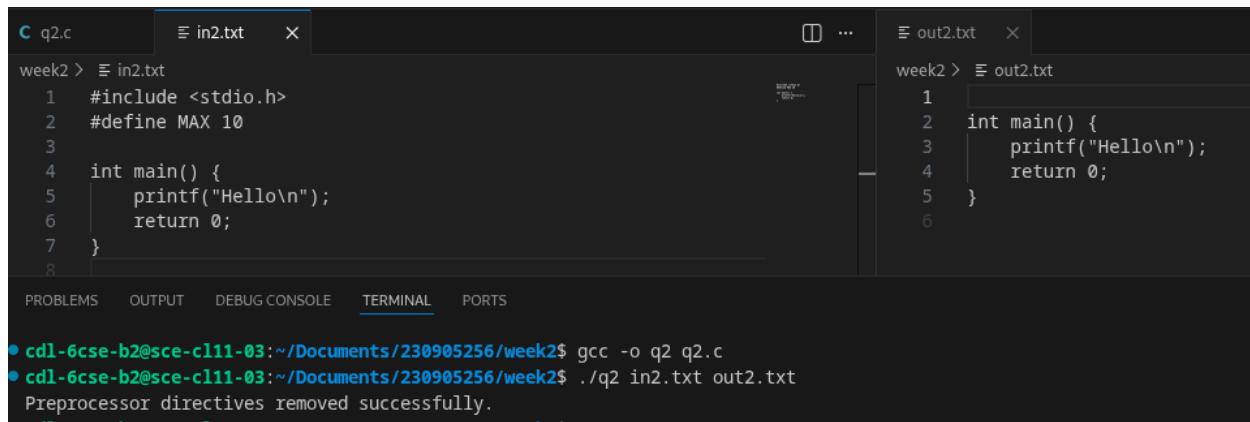
Ans)

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

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

● cd1-6cse-b2@sce-c111-03:~/Documents/230905256/week2$ gcc -o q2 q2.c
● cd1-6cse-b2@sce-c111-03:~/Documents/230905256/week2$ ./q2 in2.txt out2.txt
Preprocessor directives removed successfully.

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

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;
}
```