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## **LAB 2 : PRELIMINARY SCANNING APPLICATIONS**

Q1) That takes a file as input and replaces blank spaces and tabs by single space and writes the output to a file.

Code:

```
#include <stdio.h>

int main() {
FILE *fp1, *fp2;
char ch;
int space = 0;

fp1 = fopen("testQ1.txt", "r");
fp2 = fopen("outputQ1.txt", "w");

while ((ch = fgetc(fp1)) != EOF) {
if (ch == ' ' || ch == '\t') {
if (space == 0) {
fputc(' ', fp2);
space = 1;
}
} else {
fputc(ch, fp2);
space = 0;
}
}

fclose(fp1);
fclose(fp2);

printf("Spaces and tabs replaced successfully\n");
return 0;
}
```

Input File:

The terminal window shows the file \*testQ1.txt with the following content:  
1 hello world  
2 i have t ushar pathak

Output file:

```
cdl-6cse-b2@sce-cl11-15:~/Desktop/230905396/Lab2$ gcc Q1.c -o Q1
cdl-6cse-b2@sce-cl11-15:~/Desktop/230905396/Lab2$ ./Q1
Spaces and tabs replaced successfully
```

The terminal window shows the file outputQ1.txt with the following content:  
1 hello world  
2 i have t ushar pathak

Q2) To discard preprocessor directives from the given input 'C' file.

Code :

```
#include <stdio.h>

int main() {
FILE *fp1, *fp2;
char line[200];

fp1 = fopen("inputQ2.c", "r");
fp2 = fopen("outputQ2.c", "w");

while (fgets(line, sizeof(line), fp1)) {
if (line[0] != '#') {
fputs(line, fp2);
}
}

fclose(fp1);
fclose(fp2);

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

### Input File :

The screenshot shows a code editor window with the following details:

- File name: \*inputQ2.c
- Path: ~/Desktop/230905396/Lab2
- Buttons: Open, Save, Minimize, Close.
- Code content:

```
1 #include<stdio.h>
2 int main(){
3     printf("Hello World");
4     return 0;
5 }
```

### Output And New File :

```
cdl-6cse-b2@sce-cl11-15:~/Desktop/230905396/Lab2$ gcc Q2.c -o Q2
cdl-6cse-b2@sce-cl11-15:~/Desktop/230905396/Lab2$ ./Q2
Preprocessor directives removed
```

The screenshot shows a code editor window with the following details:

- File name: outputQ2.c
- Path: ~/Desktop/230905396/Lab2
- Buttons: Open, Save, Minimize, Close.
- Code content:

```
1 int main(){
2     printf("Hello World");
3     return 0;
4 }
```

Q3) That takes C program as input, recognizes all the keywords and prints them in upper case.

### Code :

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

char keywords[][10] = {
    "int", "float", "char", "if", "else",
    "for", "while", "return", "void"
};

int isKeyword(char *word) {
    int i;
    for (i = 0; i < 9; i++) {
        if (strcmp(word, keywords[i]) == 0)
            return 1;
    }
    return 0;
}

void toUpper(char *word) {
    int i;
```

```

for (i = 0; word[i]; i++)
word[i] = toupper(word[i]);
}

int main() {
FILE *fp;
char word[50];

fp = fopen("inputQ3.c", "r");
printf("Keywords in UPPER CASE:\n");

while (fscanf(fp, "%s", word) != EOF) {
if (isKeyword(word)) {
toUpper(word);
printf("%s\n", word);
}
}

fclose(fp);
return 0;
}

```

Input File :

```

1 #include <stdio.h>
2
3 int main() {
4     FILE *fp;
5     char ch;
6     int lines = 0, chars = 0;
7
8     fp = fopen("input.txt", "r");
9
10    if (fp == NULL) {
11        printf("File cannot be opened\n");
12        return 1;
13    }
14
15    while ((ch = fgetc(fp)) != EOF) {
16        chars++;
17        if (ch == '\n')
18            lines++;
19    }
20
21    fclose(fp);
22
23    printf("Number of characters = %d\n", chars);
24    printf("Number of lines = %d\n", lines);
25
26    return 0;
27 }

```

Output :

```
cdl-6cse-b2@sce-cl11-15:~/Desktop/230905396/Lab2$ gcc Q3.c -o Q3
cdl-6cse-b2@sce-cl11-15:~/Desktop/230905396/Lab2$ ./Q3
Keywords in UPPER CASE:
INT
CHAR
INT
IF
RETURN
WHILE
IF
RETURN
```