**Expt-1**

**Write a C program to merge contents of two files containing USNs of students in a sorted order in to the third file such that the third file contains Unique USNs. Program should also display common USNs in both the files**.

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#define MAX\_USN\_LENGTH 100

int compareUSNs(const void \*a, const void \*b) {

const char \*usn1 = (const char \*)a;

const char \*usn2 = (const char \*)b;

return strcmp(usn1, usn2);

}

int main() {

FILE \*file1, \*file2, \*file3;

char usn1[MAX\_USN\_LENGTH], usn2[MAX\_USN\_LENGTH];

int usn1\_count, usn2\_count, common\_count = 0;

// Open files

file1 = fopen("C:/Users/VAISHNAVI/Desktop/File1.txt", "r");

if (file1 == NULL) {

perror("Error opening file1.txt");

return 1;

}

file2 = fopen("C:/Users/VAISHNAVI/Desktop/File2.txt", "r");

if (file2 == NULL) {

perror("Error opening file2.txt");

return 1;

}

file3 = fopen("C:/Users/VAISHNAVI/Desktop/File3 output.txt", "w");

if (file3 == NULL) {

perror("Error opening merged\_unique.txt");

return 1;

}

// Read USNs from file1 into an array

char usns1[1000][MAX\_USN\_LENGTH];

usn1\_count = 0;

while (fscanf(file1, "%s", usn1) != EOF) {

strcpy(usns1[usn1\_count++], usn1);

}

// Read USNs from file2 into an array

char usns2[1000][MAX\_USN\_LENGTH];

usn2\_count = 0;

while (fscanf(file2, "%s", usn2) != EOF) {

strcpy(usns2[usn2\_count++], usn2);

}

// Sort the arrays

qsort(usns1, usn1\_count, sizeof(usns1[0]), compareUSNs);

qsort(usns2, usn2\_count, sizeof(usns2[0]), compareUSNs);

// Merge the arrays into the third file, ensuring uniqueness

int i = 0, j = 0;

while (i < usn1\_count && j < usn2\_count) {

if (strcmp(usns1[i], usns2[j]) < 0) {

fprintf(file3, "%s\n", usns1[i]);

i++;

} else if (strcmp(usns1[i], usns2[j]) > 0) {

fprintf(file3, "%s\n", usns2[j]);

j++;

} else {

// USNs are the same, count as common

common\_count++;

i++;

j++;

}

}

// Write remaining USNs from file1

while (i < usn1\_count) {

fprintf(file3, "%s\n", usns1[i]);

i++;

}

// Write remaining USNs from file2

while (j < usn2\_count) {

fprintf(file3, "%s\n", usns2[j]);

j++;

}

// Display common USNs

printf("Common USNs:\n");

for (int k = 0; k < common\_count; k++) {

printf("%s\n", usns1[i - common\_count + k]);

}

// Display unique USNs in the third file

printf("\nUnique USNs in merged\_unique.txt:\n");

for (int k = 0; k < usn1\_count + usn2\_count - common\_count; k++) {

printf("%s\n", usns1[i + k]);

}

// Close files

fclose(file1);

fclose(file2);

fclose(file3);

return 0;

}