User Authentication:

#include <stdio.h>

#include <string.h>

#include <stdlib.h>

unsigned long hash(const char \*str) {

unsigned long h = 0;

while (\*str) {

h = h \* 31 + \*str++;

}

return h;

}

void register\_user() {

char username[50], password[50];

printf("Register - Enter username: ");

scanf("%s", username);

printf("Enter password: ");

scanf("%s", password);

FILE \*f = fopen("users.txt", "a");

if (!f) {

printf("Error opening file.\n");

return;

}

fprintf(f, "%s:%lu\n", username, hash(password));

fclose(f);

printf("User registered!\n");

}

int login\_user() {

char username[50], password[50];

char file\_user[50];

unsigned long file\_hash, input\_hash;

printf("Login - Enter username: ");

scanf("%s", username);

printf("Enter password: ");

scanf("%s", password);

input\_hash = hash(password);

FILE \*f = fopen("users.txt", "r");

if (!f) {

printf("No user file found.\n");

return 0;

}

while (fscanf(f, "%[^:]:%lu\n", file\_user, &file\_hash) != EOF) {

if (strcmp(file\_user, username) == 0 && input\_hash == file\_hash) {

fclose(f);

printf("Login successful!\n");

return 1;

}

}

fclose(f);

printf("Login failed.\n");

return 0;

}

int main() {

int choice;

while (1) {

printf("\n1. Register\n2. Login\n3. Exit\nEnter choice: ");

scanf("%d", &choice);

if (choice == 1) register\_user();

else if (choice == 2) {

if (login\_user()) break; // proceed to next step later

}

else if (choice == 3) {

printf("Goodbye!\n");

break;

}

else printf("Invalid choice.\n");

}

return 0;

}