# b) Two level directory

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

#define MAX_USERS 10
#define MAX_FILES 10
#define NAME_LEN 20

struct UserDirectory {
   char userName[NAME_LEN];
   char files[MAX_FILES][NAME_LEN];
   int fileCount;
};

int main() {
   struct UserDirectory users[MAX_USERS];
   int userCount = 0;
   int choice, i, j;
   char uname[NAME_LEN], fname[NAME_LEN];

   printf("Two-Level Directory File System Simulation\n");

   while (1) {
      printf("\n1. Create User Directory\n2. Create File\n3. Delete File\n4. Display
Directory\n5. Exit\n");
      printf("Enter your choice: ");
      scanf("%d", &choice);

      switch(choice) {
         case 1:
            if(userCount >= MAX_USERS) {
               printf("Maximum user limit reached.\n");
               break;
            }

            printf("Enter user name: ");
            scanf("%s", uname);

            int exists = 0;
            for(i = 0; i < userCount; i++) {
               if(strcmp(users[i].userName, uname) == 0) {
                  exists = 1;
                  break;
               }
            }

            if(exists)
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            printf("User already exists.\n");
        else {
            strcpy(users[userCount].userName, uname);
            users[userCount].fileCount = 0;
            userCount++;
            printf("User directory created.\n");
        }
        break;

    case 2:
        printf("Enter user name: ");
        scanf("%s", uname);

        int uid = -1;
        for(i = 0; i < userCount; i++) {
            if(strcmp(users[i].userName, uname) == 0) {
                uid = i;
                break;
            }
        }

        if(uid == -1) {
            printf("User not found.\n");
            break;
        }

        if(users[uid].fileCount >= MAX_FILES) {
            printf("User's directory is full.\n");
            break;
        }

        printf("Enter file name: ");
        scanf("%s", fname);

        int found = 0;
        for(j = 0; j < users[uid].fileCount; j++) {
            if(strcmp(users[uid].files[j], fname) == 0) {
                found = 1;
                break;
            }
        }

        if(found)
            printf("File already exists.\n");
        else {
            strcpy(users[uid].files[users[uid].fileCount], fname);
            users[uid].fileCount++;
            printf("File created.\n");
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    }
    break;

case 3:
    printf("Enter user name: ");
    scanf("%s", uname);

    uid = -1;
    for(i = 0; i < userCount; i++) {
        if(strcmp(users[i].userName, uname) == 0) {
            uid = i;
            break;
        }
    }

    if(uid == -1) {
        printf("User not found.\n");
        break;
    }

    printf("Enter file name to delete: ");
    scanf("%s", fname);

    found = 0;
    for(j = 0; j < users[uid].fileCount; j++) {
        if(strcmp(users[uid].files[j], fname) == 0) {
            for(int k = j; k < users[uid].fileCount - 1; k++)
                strcpy(users[uid].files[k], users[uid].files[k + 1]);
            users[uid].fileCount--;
            found = 1;
            printf("File deleted.\n");
            break;
        }
    }

    if(!found)
        printf("File not found.\n");
    break;

case 4:
    for(i = 0; i < userCount; i++) {
        printf("User: %s\n", users[i].userName);
        if(users[i].fileCount == 0)
            printf("  [No files]\n");
        else {
            for(j = 0; j < users[i].fileCount; j++)
                printf("  %s\n", users[i].files[j]);
        }
```

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            }
            break;

        case 5:
            return 0;

        default:
            printf("Invalid choice.\n");
      }
   }

   return 0;
}
```

**Output**

```
Two-Level Directory File System Simulation

1. Create User Directory
2. Create File
3. Delete File
4. Display Directory
5. Exit
Enter your choice: 1
Enter user name: shreyas
User directory created.

1. Create User Directory
2. Create File
3. Delete File
4. Display Directory
5. Exit
Enter your choice: 2
Enter user name: suhas
User not found.
```