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15.Design a C program to organise the file using a two level directory structure.

Aim:

To design a C program that simulates the organization of files using a two-level directory structure.

Algorithm:

1. Start the program.
2. Create a structure representing a directory, containing:
 - A directory name.
 - An array of files.
3. Prompt the user to:
 - Create a directory.
 - Add files to a directory.
 - Search for files in a directory.
4. Perform the necessary operations based on user input:
 - Add files to a specific directory.
 - List files in a specific directory.
 - Search for a file in a specific directory.
5. Continue until the user exits.
6. End the program.

Procedure:

1. Define a `struct` for directories and files.
2. Use an array of directories to simulate the two-level structure.
3. Write functions to add directories, add files to directories, display directory contents, and search for files.
4. Use a menu-driven approach to handle user input and call corresponding functions.

Code:

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

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

```
#define MAX_DIRS 10
```

```
#define MAX_FILES 10
```

```
typedef struct {
```

```
    char name[20];
```

```
    char files[MAX_FILES][20];
```

```
    int file_count;
```

```
} Directory;
```

```
int main() {
```

```
    Directory dirs[MAX_DIRS];
```

```
    int dir_count = 0, choice;
```

```
    char dir_name[20], file_name[20];
```

```
    int i, j, found;
```

```
    do {
```

```
        printf("\n1. Create Directory\n2. Add File\n3. Display Directory\n4. Search File\n5.  
Exit\nEnter choice: ");
```

```
        scanf("%d", &choice);
```

```
        switch (choice) {
```

```
            case 1:
```

```
                if (dir_count < MAX_DIRS) {
```

```
                    printf("Enter directory name: ");
```

```
                    scanf("%s", dirs[dir_count].name);
```

```
                    dirs[dir_count].file_count = 0;
```

```
        dir_count++;

    } else {

        printf("Maximum directories reached.\n");

    }

    break;
```

case 2:

```
    printf("Enter directory name: ");

    scanf("%s", dir_name);

    found = 0;

    for (i = 0; i < dir_count; i++) {

        if (strcmp(dirs[i].name, dir_name) == 0) {

            if (dirs[i].file_count < MAX_FILES) {

                printf("Enter file name: ");

                scanf("%s", dirs[i].files[dirs[i].file_count]);

                dirs[i].file_count++;

            } else {

                printf("Maximum files in this directory reached.\n");

            }

            found = 1;

            break;

        }

    }

}
```

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

case 3:

```
printf("Enter directory name: ");  
  
scanf("%s", dir_name);  
  
found = 0;  
  
for (i = 0; i < dir_count; i++) {  
  
    if (strcmp(dirs[i].name, dir_name) == 0) {  
  
        printf("Directory: %s\n", dirs[i].name);  
  
        printf("Files:\n");  
  
        for (j = 0; j < dirs[i].file_count; j++) {  
  
            printf("- %s\n", dirs[i].files[j]);  
  
        }  
  
        found = 1;  
  
        break;  
  
    }  
  
}  
  
if (!found) printf("Directory not found.\n");  
  
break;
```

case 4:

```
printf("Enter directory name: ");
```

```
scanf("%s", dir_name);

printf("Enter file name: ");

scanf("%s", file_name);

found = 0;

for (i = 0; i < dir_count; i++) {

    if (strcmp(dirs[i].name, dir_name) == 0) {

        for (j = 0; j < dirs[i].file_count; j++) {

            if (strcmp(dirs[i].files[j], file_name) == 0) {

                printf("File found in directory %s.\n", dir_name);

                found = 1;

                break;

            }

        }

    }

    if (found) break;

}

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

break;
```

case 5:

```
printf("Exiting...\n");

break;
```

```

        default:

            printf("Invalid choice.\n");

        }

    } while (choice != 5);

return 0;

}

```

Result:

1. Successfully created directories.
2. Added files to directories.
3. Displayed the contents of a directory.
4. Searched and found files in a specific directory.

Output:

```

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1. Create Directory
2. Add File
3. Display Directory
4. Search File
5. Exit
Enter choice: 2
Enter directory name: hi
Directory not found.

1. Create Directory
2. Add File
3. Display Directory
4. Search File
5. Exit
Enter choice: 3
Enter directory name: 5
Directory not found.

1. Create Directory
2. Add File
3. Display Directory
4. Search File
5. Exit
Enter choice: 5
Exiting...

Program finished with exit code 0

```