Ex. No.: 12

File Organization Technique- Single and Two level directory

AIM:

To implement File Organization Structures in C are a.
Single Level Directory
b. Two-Level Directory
c. Hierarchical Directory Structure
d. Directed Acyclic Graph Structure

a. Single Level Directory

ALGORITHM

1. Start
2. Declare the number, names and size of the directories and file names.
3. Get the values for the declared variables.
4. Display the files that are available in the directories.
5. Stop.

PROGRAM:

```
#include <stdio.h>

struct Directory {
   char name[20];
   char files[10][20];
   int fileCount;
};

int main() {
   struct Directory dirs[10];
   int dirCount;

   printf("Enter number of directories: ");
   scanf("%d", &dirCount);
```

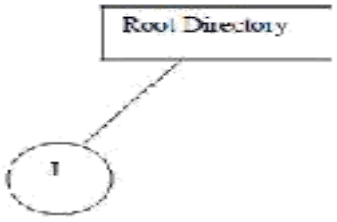
```
    for (int i = 0; i < dirCount; i++) {
        printf("\nEnter name of directory %d: ", i + 1);
        scanf("%s", dirs[i].name);

        printf("Enter number of files in directory %s: ", dirs[i].name);
        scanf("%d", &dirs[i].fileCount);

        for (int j = 0; j < dirs[i].fileCount; j++) {
            printf("Enter name of file %d: ", j + 1);
            scanf("%s", dirs[i].files[j]);
        }
    }

    printf("\nFiles available in directories:\n");
    for (int i = 0; i < dirCount; i++) {
        printf("\nDirectory: %s\n", dirs[i].name);
        for (int j = 0; j < dirs[i].fileCount; j++) {
            printf("  %s\n", dirs[i].files[j]);
        }
    }

    return 0;
}
```

OUTPUT:

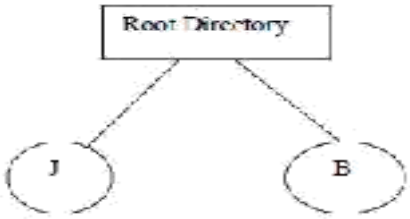
Enter the Number of files

2

Enter the file1 J



Enter the file2 B



Output:

Enter number of directories: 2

Enter name of directory 1: docs
Enter number of files in directory docs: 2
Enter name of file 1: resume.doc
Enter name of file 2: coverletter.doc

Enter name of directory 2: media
Enter number of files in directory media: 3
Enter name of file 1: song.mp3
Enter name of file 2: video.mp4
Enter name of file 3: photo.jpg

Files available in directories:

Directory: docs
 resume.doc
 coverletter.doc

Directory: media
 song.mp3
 video.mp4
 photo.jpg

b. Two-level directory Structure

ALGORITHM:

1. Start
2. Declare the number, names and size of the directories and subdirectories and file names.
3. Get the values for the declared variables.
4. Display the files that are available in the directories and subdirectories.
5. Stop.

PROGRAM:

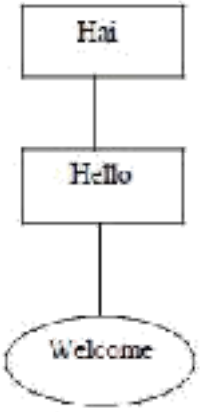
```
#include <stdio.h>

struct SubDirectory {
   char name[20];
   char files[10][20];
   int fileCount;
};
```

```
struct Directory {
   char name[20];
   struct SubDirectory subdirs[10];
   int subdirCount;
};

int main() {
   struct Directory dirs[10];
   int dirCount;

   printf("Enter number of directories: ");
   scanf("%d", &dirCount);

   for (int i = 0; i < dirCount; i++) {
      printf("\nEnter name of directory %d: ", i + 1);
      scanf("%s", dirs[i].name);

      printf("Enter number of subdirectories in %s: ", dirs[i].name);
      scanf("%d", &dirs[i].subdirCount);

      for (int j = 0; j < dirs[i].subdirCount; j++) {
         printf("  Enter name of subdirectory %d: ", j + 1);
         scanf("%s", dirs[i].subdirs[j].name);

         printf("  Enter number of files in %s: ", dirs[i].subdirs[j].name);
         scanf("%d", &dirs[i].subdirs[j].fileCount);

         for (int k = 0; k < dirs[i].subdirs[j].fileCount; k++) {
            printf("    Enter name of file %d: ", k + 1);
            scanf("%s", dirs[i].subdirs[j].files[k]);
         }
      }
   }

   printf("\nFiles available in directories and subdirectories:\n");
   for (int i = 0; i < dirCount; i++) {
      printf("\nDirectory: %s\n", dirs[i].name);
      for (int j = 0; j < dirs[i].subdirCount; j++) {
         printf("  Subdirectory: %s\n", dirs[i].subdirs[j].name);
         for (int k = 0; k < dirs[i].subdirs[j].fileCount; k++) {
            printf("    %s\n", dirs[i].subdirs[j].files[k]);
         }
      }
   }
```

```
    return 0;
}
```

Sample Output:

```
        Enter the name of dir/file(under null): Hai
        How many users(for Hai):1
        Enter name of dir/file(under Hai):Hello
How many files(for Hello):1
        Enter name of dir/file(under Hello):welcome
```



Output:

```
Enter number of directories: 1
Enter name of directory 1: user1
Enter number of subdirectories in user1: 2
  Enter name of subdirectory 1: docs
  Enter number of files in docs: 2
    Enter name of file 1: file1.txt
    Enter name of file 2: file2.txt
  Enter name of subdirectory 2: pics
  Enter number of files in pics: 1
    Enter name of file 1: image.jpg
```

Result:

File organisation structures have been successfully implemented and the output has been verified.