Operating System – CS23431

Ex 12	File Organisation Techniques
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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>
#include <string.h>

struct directory {
   int fcount;
   char fname[10][10], dname[10];
};

int main() {
   struct directory my_dic;
   printf("Enter the Directory Name: ");
   scanf("%s", my_dic.dname);

   printf("Enter the number of files: ");
```

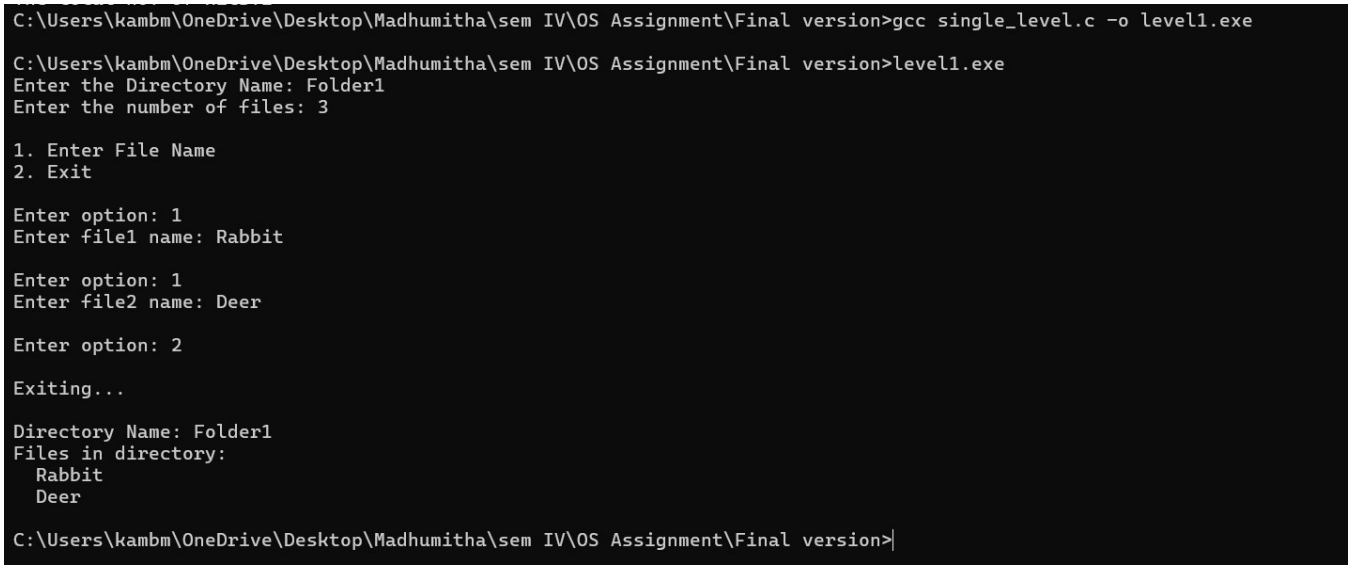
```
    scanf("%d", &my_dic.fcount);

    printf("\n1. Enter File Name\n2. Exit\n");

    int i = 0, opt;
    while (i < my_dic.fcount) {
        printf("\nEnter option: ");
        scanf("%d", &opt);

        if (opt == 1) {
            printf("Enter file%d name: ", i + 1);
            scanf("%s", my_dic.fname[i]);
            i++;
        } else {
            break;
        }
    }

    printf("\nExiting...\n");

    // Display entered data
    printf("\nDirectory Name: %s\n", my_dic.dname);
    printf("Files in directory:\n");
    for (int j = 0; j < i; j++) {
        printf("  %s\n", my_dic.fname[j]);
    }

    return 0;
}
```

Output:

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

struct directory {
    int fcount;
    char fname[10][10], dname[10];
};

int main() {
    struct directory my_dic;
    printf("Enter the Directory Name: ");
    scanf("%s", my_dic.dname);

    printf("Enter the number of files: ");
    scanf("%d", &my_dic.fcount);

    printf("\n1. Enter File Name\n2. Exit\n");

    int i = 0, opt;
```

```
    while (i < my_dic.fcount) {
        printf("\nEnter option: ");
        scanf("%d", &opt);

        if (opt == 1) {
            printf("Enter file%d name: ", i + 1);
            scanf("%s", my_dic.fname[i]);
            i++;
        } else {
            break;
        }
    }

    printf("\nExiting...\n");

    // Display entered data
    printf("\nDirectory Name: %s\n", my_dic.dname);
    printf("Files in directory:\n");
    for (int j = 0; j < i; j++) {
        printf("  %s\n", my_dic.fname[j]);
    }

    return 0;
}
```

Output:

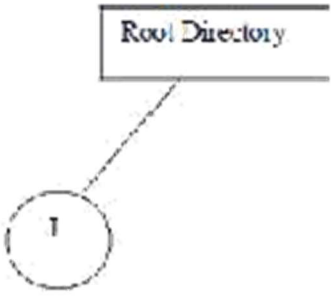


OUTPUT:

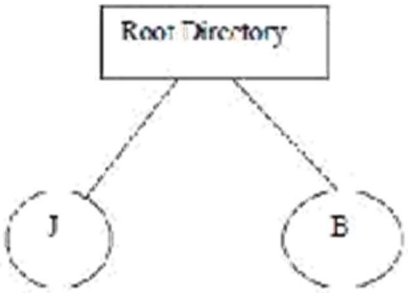
Enter the Number of files

2

Enter the file1 J



Enter the file2 B



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>
#include <string.h>

// Define subdirectory structure first
struct subdirectory {
   int fcount;
   char fname[10][10], sdname[10];
};

// Now define the directory structure
struct directory {
   int subcount;
   char dname[10];
   struct subdirectory subdirectory[10];  // Array of subdirectories
};

int main() {
   struct directory my_dic;

   printf("Enter the Directory Name: ");
   scanf("%s", my_dic.dname);

   printf("Enter the number of subdirectories: ");
   scanf("%d", &my_dic.subcount);

   for (int j = 0; j < my_dic.subcount; j++) {
      printf("Enter Subdirectory%d name: ", j + 1);
      scanf("%s", my_dic.subdirectory[j].sdname);

      printf("Enter the number of files in subdirectory%d: ", j + 1);
      scanf("%d", &my_dic.subdirectory[j].fcount);

      printf("1. Enter File Name\n2. Exit\n");
      int i = 0, opt;

      while (i < my_dic.subdirectory[j].fcount) {
```

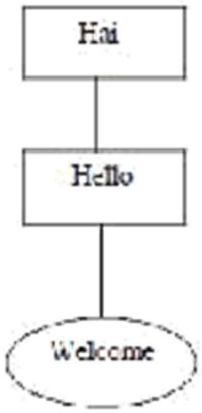
```
            printf("\nEnter option: ");
            scanf("%d", &opt);

            if (opt == 1) {
                printf("Enter file%d name: ", i + 1);
                scanf("%s", my_dic.subdirectory[j].fname[i]);
                i++;
            } else {
                break;
            }
        }
    }

    // Optional: Display all data
    printf("\n\nDirectory Structure for '%s':\n", my_dic.dname);
    for (int j = 0; j < my_dic.subcount; j++) {
        printf(" Subdirectory %d: %s\n", j + 1, my_dic.subdirectory[j].sdname);
        for (int i = 0; i < my_dic.subdirectory[j].fcount; i++) {
            printf("   File %d: %s\n", i + 1, my_dic.subdirectory[j].fname[i]);
        }
    }

    printf("\nExiting...\n");
    return 0;
}
```

Output:

```
C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>gcc twolevel.c -o level2.exe

C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>level2.exe
Enter the Directory Name: Folder1
Enter the number of subdirectories: 2
Enter Subdirectory1 name: Subfolder1
Enter the number of files in subdirectory1: 2
1. Enter File Name
2. Exit

Enter option: 1
Enter file1 name: Rabbit

Enter option: 1
Enter file2 name: Deer
Enter Subdirectory2 name: Subfolder2
Enter the number of files in subdirectory2: 2
1. Enter File Name
2. Exit

Enter option: 1
Enter file1 name: Brinjal

Enter option: 1
Enter file2 name: Carrot


Directory Structure for 'Folder1':
 Subdirectory 1: Subfolder1
   File 1: Rabbit
   File 2: Deer
 Subdirectory 2: Subfolder2
   File 1: Brinjal
   File 2: Carrot

Exiting...

C:\Users\kambm\OneDrive\Desktop\Madhumitha\sem IV\OS Assignment\Final version>
```

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



Result: Thus, executed successfully.