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16. Develop a C program for implementing random access file for processing the employee details.

**Aim**

To develop a C program to manage employee records using a random access file for adding, viewing, and modifying employee details efficiently.

**Algorithm**

1. **Start**
2. Define a structure for employee details with fields like ID, name, and salary.
3. Open a binary file in read/write mode.
4. Provide a menu-driven interface:
   * Add a new employee
   * Display employee details
   * Modify employee details
   * Exit
5. For each menu option:
   * **Add**: Append employee details to the file.
   * **View**: Read the file and display all records.
   * **Modify**: Locate the record by ID, update it, and rewrite it in place.
6. Close the file and end the program.

**Procedure**

1. Start the program and include the necessary header files.
2. Define a structure for employee details.
3. Open the binary file using fopen() in read/write mode.
4. Implement menu-driven functionality:
   * Use fwrite() for adding records.
   * Use fread() to display or locate records.
   * Use fseek() to navigate to specific records for modification.
5. Ensure proper file handling and error checking.
6. Run the program and test the menu options.

### Code:

#include <stdio.h>

#include <stdlib.h>

#include <string.h>

struct Employee {

int id;

char name[50];

float salary;

};

void addEmployee(FILE \*file) {

struct Employee emp;

printf("Enter ID: ");

scanf("%d", &emp.id);

printf("Enter Name: ");

scanf("%s", emp.name);

printf("Enter Salary: ");

scanf("%f", &emp.salary);

fseek(file, 0, SEEK\_END);

fwrite(&emp, sizeof(emp), 1, file);

}

void displayEmployees(FILE \*file) {

struct Employee emp;

rewind(file);

while (fread(&emp, sizeof(emp), 1, file)) {

printf("ID: %d, Name: %s, Salary: %.2f\n", emp.id, emp.name, emp.salary);

}

}

void modifyEmployee(FILE \*file) {

struct Employee emp;

int id, found = 0;

printf("Enter ID to modify: ");

scanf("%d", &id);

rewind(file);

while (fread(&emp, sizeof(emp), 1, file)) {

if (emp.id == id) {

found = 1;

printf("Enter New Name: ");

scanf("%s", emp.name);

printf("Enter New Salary: ");

scanf("%f", &emp.salary);

fseek(file, -sizeof(emp), SEEK\_CUR);

fwrite(&emp, sizeof(emp), 1, file);

break;

}

}

if (!found) {

printf("Employee with ID %d not found.\n", id);

}

}

int main() {

FILE \*file = fopen("employees.dat", "rb+");

if (!file) {

file = fopen("employees.dat", "wb+");

if (!file) {

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

return 1;

}

}

int choice;

while (1) {

printf("\n1. Add Employee\n2. Display Employees\n3. Modify Employee\n4. Exit\n");

printf("Enter your choice: ");

scanf("%d", &choice);

switch (choice) {

case 1: addEmployee(file); break;

case 2: displayEmployees(file); break;

case 3: modifyEmployee(file); break;

case 4: fclose(file); return 0;

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

}

}

}

### Result

The program successfully implements a random access file for employee details. It allows adding new employee records, displaying all records, and modifying existing records based on their unique ID.

**Output:**

