1.Database Management (Simplified)

Objective:

To store and manage multiple records using arrays of structures. Each structure stores multiple fields similar to a database record.

Program (Example in C language):

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

struct Record {
    int id;
    char name[50];
    int age;
};

int main() {
    struct Record database[100];
    int count = 0, choice, searchID, i;

    while (1) {
        printf("\n--- Simple Database Management System ---\n");
        printf("1. Add Record\n");
        printf("2. Display All Records\n");
        printf("3. Search Record by ID\n");
        printf("4. Update Record\n");
        printf("5. Exit\n");
        printf("Enter choice: ");
        scanf("%d", &choice);

        if (choice == 1) {
            printf("Enter ID: ");
            scanf("%d", &database[count].id);

            printf("Enter Name: ");
            scanf("%s", database[count].name);
```

```
        printf("Enter Age: ");
        scanf("%d", &database[count].age);

        count++;
        printf("Record Added Successfully!\n");
    }

    else if (choice == 2) {
        printf("\nID\tName\tAge\n");
        for (i = 0; i < count; i++)
            printf("%d\t%s\t%d\n", database[i].id, database[i].name,
database[i].age);
    }

    else if (choice == 3) {
        printf("\nEnter ID to search: ");
        scanf("%d", &searchID);

        for (i = 0; i < count; i++) {
            if (database[i].id == searchID) {
                printf("\nRecord Found:\nID: %d\nName: %s\nAge: %d\n",
                    database[i].id, database[i].name, database[i].age);
                break;
            }
        }
        if (i == count)
            printf("Record Not Found!\n");
    }

    else if (choice == 4) {
        printf("\nEnter ID to update: ");
        scanf("%d", &searchID);

        for (i = 0; i < count; i++) {
            if (database[i].id == searchID) {
                printf("Enter New Name: ");
                scanf("%s", database[i].name);

                printf("Enter New Age: ");
                scanf("%d", &database[i].age);

                printf("Record Updated Successfully!\n");
                break;
    }
```

```
        }
        if (i == count)
            printf("Record Not Found!\n");
}

else if (choice == 5) {
        printf("Exiting Program...\n");
        break;
}
            else
                printf("Invalid Choice! Try Again.\n");
        }

        return 0;
}
```

Applications:

✔ Basic Data Storage:
Stores structured information similar to records in a database.

✔ Data Retrieval:
Allows searching and displaying records based on a unique identifier (like ID).

✔ Data Manipulation:
Records can be modified or updated as needed.

✔ Useful in:

School student storage system

Employee record management

Small embedded systems

Prototype database applications