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**Practical No: 11**

**Title:** Implement direct access file for any Database and perform following operations on it i) Create Database ii) Display Database iii) Search a record

**Code:**

import **java**.**io**.\*;

class **Record** {

    private int id;

    private **String** name;

    public **Record**(int id, **String** name) {

        this.id = id;

        this.name = name;

    }

    public int **getId**() {

        return id;

    }

    public **String** **getName**() {

        return name;

    }

    @**Override**

    public **String** **toString**() {

        return "Record{id=" + id + ", name='" + name + "'}";

    }

}

public class **Assignment11** {

    private static final **String** FILE\_PATH = "database.txt";

    public static void **main**(**String**[] args) {

        try {

*// Prompt user for the file name to be created*

**BufferedReader** reader = new **BufferedReader**(new **InputStreamReader**(**System**.in));

**System**.out.**print**("Enter the file name to be created: ");

**String** fileName = reader.**readLine**();

**String** filePath = fileName + ".txt";

*// Create or open the database file*

**File** file = new **File**(filePath);

            if (!file.**exists**()) {

                file.**createNewFile**();

**System**.out.**println**("New database created.");

            }

*// Display Database*

**displayDatabase**(file);

*// Menu*

**menu**(file, reader);

        } catch (**IOException** | **NumberFormatException** e) {

            e.**printStackTrace**();

        }

    }

    private static void **displayDatabase**(**File** file) {

        try (**BufferedReader** reader = new **BufferedReader**(new **FileReader**(file))) {

**System**.out.**println**("Current Database Records:");

**String** line;

            int lineNumber = 1;

            while ((line = reader.**readLine**()) != null) {

**String**[] parts = line.**split**(",");

                int id = **Integer**.**parseInt**(parts[0]);

**String** name = parts[1];

**System**.out.**println**("Record " + lineNumber++ + ": ID=" + id + ", Name=" + name);

            }

        } catch (**IOException** e) {

            e.**printStackTrace**();

        }

    }

    private static void **menu**(**File** file, **BufferedReader** reader) {

        while (true) {

**System**.out.**println**("\nMenu:");

**System**.out.**println**("1. Add Record");

**System**.out.**println**("2. Search Record");

**System**.out.**println**("3. Display Database");

**System**.out.**println**("4. Exit");

**System**.out.**print**("Enter your choice: ");

            try {

                int choice = **Integer**.**parseInt**(reader.**readLine**());

                switch (choice) {

                    case 1:

**addRecord**(file, reader);

                        break;

                    case 2:

**searchRecord**(file, reader);

                        break;

                    case 3:

**displayDatabase**(file);

                        break;

                    case 4:

                        return;

                    default:

**System**.out.**println**("Invalid choice. Please enter a valid option.");

                }

            } catch (**IOException** | **NumberFormatException** e) {

                e.**printStackTrace**();

            }

        }

    }

    private static void **addRecord**(**File** file, **BufferedReader** reader) {

        try (**FileWriter** writer = new **FileWriter**(file, true)) {

**System**.out.**print**("Enter ID for the new record: ");

            int id = **Integer**.**parseInt**(reader.**readLine**());

**System**.out.**print**("Enter name for the new record: ");

**String** name = reader.**readLine**();

            writer.**write**(id + "," + name + "\n");

**System**.out.**println**("Record added successfully.");

        } catch (**IOException** | **NumberFormatException** e) {

            e.**printStackTrace**();

        }

    }

    private static void **searchRecord**(**File** file, **BufferedReader** reader) {

        try (**BufferedReader** fileReader = new **BufferedReader**(new **FileReader**(file))) {

**System**.out.**print**("Enter ID to search: ");

            int idToSearch = **Integer**.**parseInt**(reader.**readLine**());

**String** line;

            int lineNumber = 1;

            boolean found = false;

            while ((line = fileReader.**readLine**()) != null) {

**String**[] parts = line.**split**(",");

                int id = **Integer**.**parseInt**(parts[0]);

**String** name = parts[1];

                if (id == idToSearch) {

**System**.out.**println**("Record found: ID=" + id + ", Name=" + name);

                    found = true;

                    break;

                }

                lineNumber++;

            }

            if (!found) {

**System**.out.**println**("Record with ID " + idToSearch + " not found.");

            }

        } catch (**IOException** | **NumberFormatException** e) {

            e.**printStackTrace**();

        }

    }

}

**Output:**Enter the file name to be created: fileno11

New database created.

Current Database Records:

Menu:

1. Add Record

2. Search Record

3. Display Database

4. Exit

Enter your choice: 1

Enter ID for the new record: 73

Enter name for the new record: vijay

Record added successfully.

Menu:

1. Add Record

2. Search Record

3. Display Database

4. Exit

Enter your choice: 3

Current Database Records:

Record 1: ID=73, Name=vijay

Menu:

1. Add Record

2. Search Record

3. Display Database

4. Exit

Enter your choice: 2

Enter ID to search: 73

Record found: ID=73, Name=vijay

Menu:

1. Add Record

2. Search Record

3. Display Database

4. Exit

Enter your choice: 4