



Linked List - Mini-project

Project 1: Contact List using Singly Linked List

Objective:

Build a contact list using a **Singly Linked List**, where each node represents a contact with a **name** and **phone number**.

Operations:

- **Add Contact:** Add a contact at the beginning or end of the list.
- **Remove Contact:** Remove a contact by name.
- **Search Contact:** Search for a contact by name.
- **Display Contacts:** Display all contacts in the list.

Suggested Methods:

- `addContact(String name, String phone)`
- `removeContact(String name)`
- `searchContact(String name)`
- `displayContacts()`

Sample Input/Output:

1. Add a Contact:

- **Input:**

```
Name: Aditya Kansana  
Phone: 9425760166
```

- **Output:**

```
Contact added: Aditya Kansana, 9425760166
```

2. Display Contacts:

- **Output:**

```
Contact List:  
Aditya Kansana, 9425760166
```

Project 2: Browser History using Doubly Linked List

Objective:

Implement a browser history system using a **Doubly Linked List**, where each node represents a web page. Users can move forward and backward in the browsing history, add new pages, and clear history.

Operations:

- **Visit Page:** Add a new page at the end of the history.
- **Move Forward:** Go to the next page.
- **Move Backward:** Go to the previous page.
- **Clear History:** Remove all pages from the history.
- **Display Current Page:** Show the current page.

Suggested Methods:

- `visitPage(String url)`
- `moveForward()`
- `moveBackward()`
- `clearHistory()`
- `displayCurrentPage()`

Sample Input/Output:

1. Visit a Page:

- **Input:**

```
URL: www.example.com
```

- **Output:**

```
Visited: www.example.com
```

2. Move Backward:

- **Output:**

```
Moved to previous page: www.previoussite.com
```

Project 3: Playlist using Circular Linked List

Objective:

Build a music playlist system using a **Circular Linked List** where the last song is linked back to the first song. The user can loop through the playlist continuously.

Operations:

- **Add Song:** Add a song to the playlist.
- **Remove Song:** Remove a song by title.
- **Play Next Song:** Move to the next song.
- **Play Previous Song:** Move to the previous song.
- **Display Current Song:** Show the currently playing song.

Suggested Methods:

- `addSong(String title, String artist)`
- `removeSong(String title)`
- `playNext()`
- `playPrevious()`
- `displayCurrentSong()`

Sample Input/Output:

1. Add a Song:

- **Input:**

Title: Kal ho na ho

Artist: Sonu Nigam

- **Output:**

Song added: Kal ho na ho by Sonu Nigam

2. **Play Next Song:**

- **Output:**

Now playing: Kal ho na ho by Sonu Nigam
