PIMPRI CHINCHWAD EDUCATION TRUST's.

PIMPRI CHINCHWAD COLLEGE OF ENGINEERING

(An Autonomous Institute)

S.Y. B. TECH **Year:** 2024 – 25 **Semester:** I

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Department : Computer Engineering **Division:** B

Course : Data Structures Laboratory **Course Code:** BCE23PC02

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Assignment – 4

- **Aim:**

  Implement a simple text editor application using a doubly linked list to manage the text buffer. Text editor should support the following functionalities:

  1. Insert text.
  2. Delete text.
  3. Display text.
  4. Search text.
  5. Print text in reverse.

- **Source Code:**

```
#include <iostream>

#include <string>

using namespace std;

   struct Node { char

   data; Node* prev;

   Node* next;

};
```

```
class TextEditor { Node*
head;
public:
TextEditor() : head(nullptr) {}
void insert(char c) {
Node* newNode = new Node{c, nullptr, nullptr}; if
(!head) {
head = newNode;
} else {
Node* temp = head; while
(temp->next) {
temp = temp->next;
}
temp->next = newNode;
newNode->prev = temp;
}
}
void deleteText() { if
(head) {
if (!head->next) {
delete head; head =
nullptr;
} else {
Node* temp = head;
```

```
            while (temp->next->next) { temp
            = temp->next;
        }
        delete temp->next;
        temp->next = nullptr;
    }
  }
}
  void display() { Node* temp
  = head; while (temp) {
    cout << temp->data; temp =
    temp->next;
  }
  cout << endl;
}
  bool search(char c) { Node*
  temp = head; while (temp) {
        if (temp->data == c) {
        return true;
    }
    temp = temp->next;
  }
  return false;
}
```

```
    void reverse() { Node* temp
    = head;
        while (temp->next) { temp =
        temp->next;
    }
    while (temp) {
        cout << temp->data; temp =
        temp->prev;
    }
    cout << endl;
  }
};
  int main() { TextEditor
  editor;
  while (true) {
    cout << "Text Editor Menu:" << endl; cout <<
    "1. Insert text" << endl;
    cout << "2. Delete text" << endl; cout <<
    "3. Display text" << endl; cout << "4.
    Search text" << endl;
    cout << "5. Print text in reverse" << endl; cout <<
    "6. Exit" << endl;
```

```
int choice; cout<<"Enter
choice:"; cin >> choice;
    switch (choice) { case
    1: {
        string text;
        cout << "Enter text: "; cin >>
        text;
            for (char c : text) {
            editor.insert(c);
        }
        break;
    }
    case 2:
        editor.deleteText(); break;
    case 3:
        editor.display(); break;
        case 4: { char c;

        cout << "Enter character to search: "; cin >>
        c;

        if (editor.search(c)) {
            cout << "Character found." << endl;
        } else {
```

```
                cout << "Character not found." << endl;
            }
            break;
        }
        case 5:
            editor.reverse(); break;
        case 6:
        return 0; default:
            cout << "Invalid choice." << endl;
      }
   }
   return 0;
}
```

- **Screen shots of Output:**

1.

```
Output
/tmp/EVAalKOebS.o
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:1
Enter text: prachi
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:3
prachi
```

```
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:2
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:3
prach
```

```
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:4
Enter character to search: i
Character not found.
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:1
Enter text: i
```

```
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:5
ihcarp
Text Editor Menu:
1. Insert text
2. Delete text
3. Display text
4. Search text
5. Print text in reverse
6. Exit
Enter choice:6


=== Code Execution Successful ===
```

- **Conclusion:**

  Hence, we studied about doubly linked list and its operations like insertion, deletion, traversing, etc.