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#include <iostream>
#include <string.h>
using namespace std;

class node {
    friend class list;
    int prnno;
    char name[30];
    node* next;

public:
    node(int d, char s[10]) {
        prnno = d;
        strcpy(name, s);
        next = NULL;
    }
};

class list {
    node* start;

public:
    list() {
        start = NULL;
    }

    void display();
    void insertmember();
    void createmember();
    void insertpresident();
    void insertsecretary();
    void deletemember();
    void delete1();
    void deletesecretary();
    void deletepresident();
    void count();
    void reverse(node*);
    void reverse1() {
        reverse(start);
    }
    void concatenation(list, list);
};

void list::insertmember() {
    int prnno;
    char name[30];
    node* ptr, *temp;

    cout << "\nEnter prnno:";
    cin >> prnno;
    cout << "\nEnter name:";
    cin >> name;

    temp = new node(prnno, name);
    if (start == NULL) {
        start = temp;
    } else {
        ptr = start;
        while (ptr->next != NULL) {
            ptr = ptr->next;
        }
    }
}

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        ptr->next = temp;
    }
}

void list::insertpresident() {
    int prnno;
    char name[30];
    node* temp;

    cout << "\nEnter prnno:";
    cin >> prnno;
    cout << "\nEnter name:";
    cin >> name;

    temp = new node(prnno, name);
    temp->next = start;
    start = temp;
}

void list::insertsecretary() {
    int prnno;
    char name[30];
    node* ptr, *temp;

    cout << "\nEnter prnno:";
    cin >> prnno;
    cout << "\nEnter name:";
    cin >> name;

    temp = new node(prnno, name);
    ptr = start;

    while (ptr->next != NULL) {
        ptr = ptr->next;
    }

    ptr->next = temp;
}

void list::createmember() {
    int ch;
    char ans;
    do {
        cout << "\nEnter your choice:";
        cout << "\n1-member\n2-secretary\n3-president" << endl;
        cin >> ch;
        switch (ch) {
            case 1:
                insertmember();
                break;
            case 2:
                insertsecretary();
                break;
            case 3:
                insertpresident();
                break;
            default:
                cout << "\nInvalid choice";
                break;
        }
        cout << "\nInsert more? (y/n): ";
    }
}

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        cin >> ans;
    } while (ans == 'y');
}

void list::delete1() {
    int ch;
    char ans;
    do {
        cout << "\nEnter your choice:";
        cout << "\n1-member\n2-secretary\n3-president" << endl;
        cin >> ch;
        switch (ch) {
            case 1:
                deletemember();
                break;
            case 2:
                deletesecretary();
                break;
            case 3:
                deletepresident();
                break;
            default:
                cout << "\nInvalid choice";
                break;
        }
        cout << "\nDelete more (y/n): ";
        cin >> ans;
    } while (ans == 'y');
}

void list::deletesecretary() {
    node* ptr, *prev;
    ptr = start;
    while (ptr->next != NULL) {
        prev = ptr;
        ptr = ptr->next;
    }
    prev->next = NULL;
    delete ptr;
    cout << "\ndeleted";
}

void list::deletepresident() {
    node* ptr;
    ptr = start;
    start = start->next;
    delete ptr;
    cout << "\ndeleted";
}

void list::deletemember() {
    int p;
    node* ptr, *prev;
    cout << "\nEnter prnno. to delete: ";
    cin >> p;
    ptr = start;
    prev = NULL;

    while (ptr != NULL) {
        if (ptr->prnno == p) {
            if (prev == NULL) {

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        start = ptr->next;
    } else {
        prev->next = ptr->next;
    }

    ptr->next = NULL;
    delete ptr;
    cout << "\ndeleted";
    return;
}
prev = ptr;
ptr = ptr->next;
}
cout << "\ndata not found!";
}

void list::count() {
    node* ptr;
    int cnt = 0;
    ptr = start;
    while (ptr != NULL) {
        cnt++;
        ptr = ptr->next;
    }
    cout << "\ntotal no. of nodes is:" << cnt;
}

void list::reverse(node* ptr) {
    if (ptr == NULL)
        return;
    else {
        reverse(ptr->next);
    }
    cout << "\n" << ptr->prnno;
    cout << "\t" << ptr->name;
}

void list::concatination(list s1, list s2) {
    node* ptr;
    ptr = s1.start;
    while (ptr->next != NULL) {
        ptr = ptr->next;
    }
    ptr->next = s2.start;
    s1.display();
}

void list::display() {
    node* ptr;
    ptr = start;
    cout << " \n Info is: \n ";
    while (ptr != NULL) {
        cout << "\n" << ptr->prnno;
        cout << "\t" << ptr->name;
        ptr = ptr->next;
    }
}

int main() {
    int ch;
    char ans;

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list sll1, sll2, s1, s2;
do {
    cout << "\nEnter your choice:";
    cout << "\n1-create member\n2-display\n3-delete member\n4-No.of node\n5-reverse\n6-concatenate" << endl;
    cin >> ch;
    switch (ch) {
        case 1:
            sll1.createmember();
            break;
        case 2:
            sll1.display();
            break;
        case 3:
            cout << "\nEnter the node to be deleted in list:";
            sll1.delete1();
            break;
        case 4:
            cout << "\nNo. of node is:";
            sll1.count();
            break;
        case 5:
            cout << "\nreversed is:";
            sll1.reverse1();
            break;
        case 6:
            sll2.createmember();
            sll1.concatination(sll1, sll2);
            break;
        default:
            cout << "\nInvalid choice";
            break;
    }
    cout << "\n\n Do you want to continue ? (y/n): ";
    cin >> ans;
} while (ans == 'y');
return 0;
}

```

/* -----OUTPUT-----

```

Enter your choice:
1-create member
2-display
3-delete member
4-No.of node
5-reverse
6-concatenate
1

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Enter your choice:
1-member
2-secretary
3-president
1

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Enter prnno:1234

Enter name:Snehal

Insert more? (y/n): n

Do you want to continue ? (y/n): y

Enter your choice:

1-create member
2-display
3-delete member
4-No.of node
5-reverse
6-concatenate
2

Info is:

1234 Snehal

Do you want to continue ? (y/n): y

Enter your choice:

1-create member
2-display
3-delete member
4-No.of node
5-reverse
6-concatenate
6

Enter your choice:

1-member
2-secretary
3-president
1

Enter prnno:1245

Enter name:Bharati

Insert more? (y/n): n

Info is:

1234 Snehal
1245 Bharati

Do you want to continue ? (y/n): y

Enter your choice:

1-create member
2-display
3-delete member
4-No.of node
5-reverse
6-concatenate
4

No. of node is:

total no. of nodes is:2

Do you want to continue ? (y/n): y

Enter your choice:

1-create member
2-display
3-delete member
4-No.of node
5-reverse
6-concatenate
3

Enter the node to be deleted in list:
Enter your choice:
1-member
2-secretary
3-president
1

Enter prnno. to delete: 1245

deleted
Delete more (y/n): n

Do you want to continue ? (y/n): 5

Process exited after 73.57 seconds with return value 0
Press any key to continue . . .

*/