

DATA STRUCTURE

Project 2

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

```
struct Book {
    char name[100];
    char author[100];
    int id;
    struct Book* next;
};
struct Book* head = NULL;
struct Book* last = NULL;
struct Book* temp = NULL;
struct Book* a = NULL;
```

```
void create() {
    int n;
    printf("Enter the number of books: ");
    scanf("%d", &n);
    getchar();

    while (n-- > 0) {
        temp = (struct Book*)malloc(sizeof(struct Book));
        printf("Book's Name: ");
        fgets(temp->name, sizeof(temp->name), stdin);
        temp->name[strcspn(temp->name, "\n")] = '\0';

        printf("Book's ID: ");
        scanf("%d", &temp->id);
        getchar();

        printf("Author's name: ");
        fgets(temp->author, sizeof(temp->author), stdin);
        temp->author[strcspn(temp->author, "\n")] = '\0';

        if (head == NULL) {
            head = temp;
            last = temp;
        } else {
            last->next = temp;
            last = temp;
        }
    }
    last->next = NULL;
}
```

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```

void search() {
    int n, p, check = 0;
    printf("Enter Book's ID you are searching for: ");
    scanf("%d", &n);

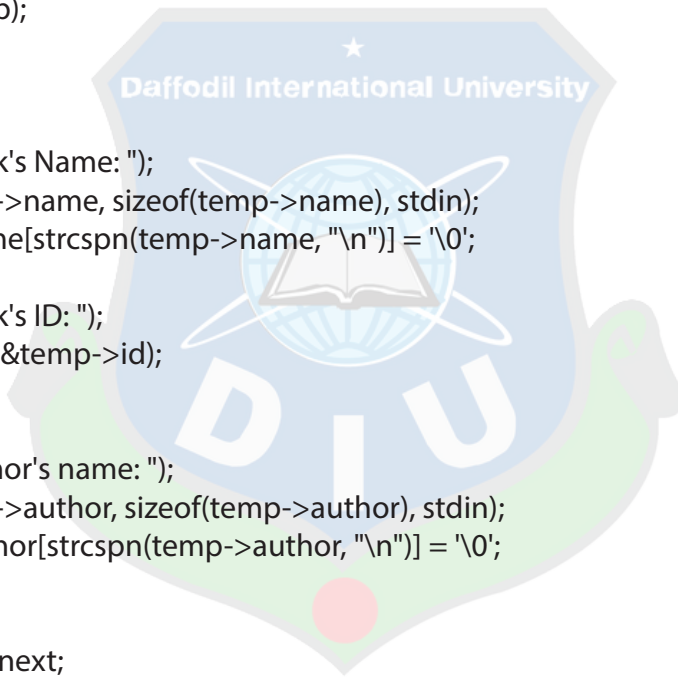
    temp = head;
    while (temp != NULL) {
        if (temp->id == n) {
            check++;
            printf("Book's Name: %s\n", temp->name);
            printf("Book's ID: %d\n", temp->id);
            printf("Author's Name: %s\n", temp->author);
            printf("Do you want to update this book?\n1. Yes\n2. No\nPick an option: ");
            scanf("%d", &p);
            getchar();

            if (p == 1) {
                printf("Book's Name: ");
                fgets(temp->name, sizeof(temp->name), stdin);
                temp->name[strlen(temp->name)] = '\0';

                printf("Book's ID: ");
                scanf("%d", &temp->id);
                getchar();

                printf("Author's name: ");
                fgets(temp->author, sizeof(temp->author), stdin);
                temp->author[strlen(temp->author)] = '\0';
            }
        }
        temp = temp->next;
    }
    if (check == 0) {
        printf("Sorry! Couldn't find the book\n");
    }
}

```



```
void Delete() {
    int n, check = 0;
    printf("Enter Book's ID you want to delete: ");
    scanf("%d", &n);
```

```
    temp = head;
    a = temp;
```

```
    while (temp != NULL) {
        if (temp->id == n) {
            if (a != temp) {
                a->next = temp->next;
            } else {
                head = temp->next;
            }
            free(temp);
            break;
        }
        a = temp;
        temp = temp->next;
    }
}
```

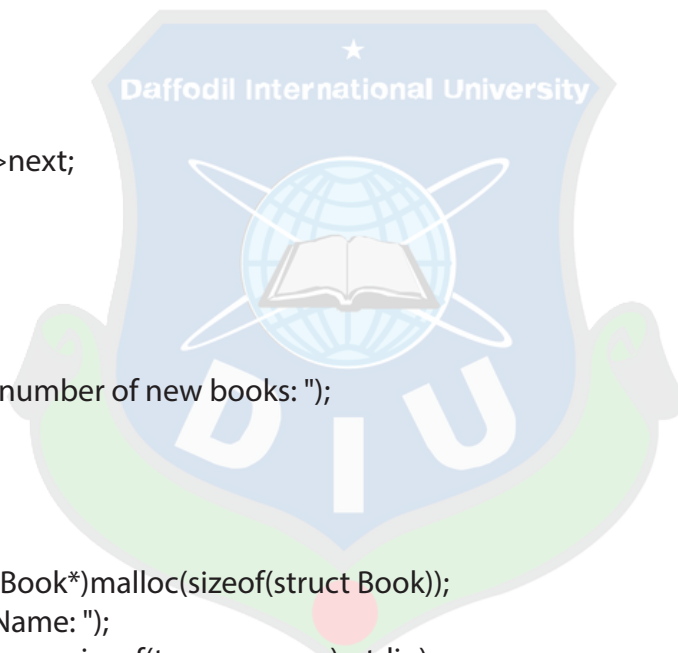
```
void addnew() {
    int n;
    printf("Enter the number of new books: ");
    scanf("%d", &n);
    getchar();

    while (n-->0) {
        temp = (struct Book*)malloc(sizeof(struct Book));
        printf("Book's Name: ");
        fgets(temp->name, sizeof(temp->name), stdin);
        temp->name[strcspn(temp->name, "\n")] = '\0';

        printf("Book's ID: ");
        scanf("%d", &temp->id);
        getchar();

        printf("Author's name: ");
        fgets(temp->author, sizeof(temp->author), stdin);
        temp->author[strcspn(temp->author, "\n")] = '\0';

        last->next = temp;
        last = temp;
    }
    last->next = NULL;
}
```



```

void display() {
    temp = head;
    while (temp != NULL) {
        printf("|%s, %d, %s|>", temp->name, temp->id, temp->author);
        temp = temp->next;
    }
    printf("NULL\n");
}

int main() {
    int k;
    while (1) {
        printf("Library Management System:\n");
        printf("1. Entry of Books.\n2. Display.\n3. Add new books.\n4. Search or update a book.\n5. Delete a book.\n");
        printf("Pick an option: ");
        scanf("%d", &k);

        switch (k) {
            case 1:
                create();
                break;
            case 2:
                display();
                break;
            case 3:
                addnew();
                break;
            case 4:
                search();
                break;
            case 5:
                Delete();
                break;
            default:
                printf("Wrong Option\n");
                break;
        }
    }

    return 0;
}

```



OUTPUT:

```
"D:\Programming\C Program" x + v

Library Management System:
1. Entry of Books.
2. Display.
3. Add new books.
4. Search or update a book.
5. Delete a book.
Pick an option: 1
Enter the number of books: 3
Book's Name: Himu
Book's ID: 101
Author's name: H.A.
Book's Name: Kobi
Book's ID: 102
Author's name: H.A.
Book's Name: Ami
Book's ID: 103
Author's name: H.A.
Library Management System:
1. Entry of Books.
2. Display.
3. Add new books.
4. Search or update a book.
5. Delete a book.
Pick an option: 2
|Himu, 101, H.A.|->|Kobi, 102, H.A.|->|Ami, 103, H.A.|->NULL
Library Management System:
1. Entry of Books.
2. Display.
3. Add new books.
4. Search or update a book.
5. Delete a book.
Pick an option: 4
Enter Book's ID you are searching for: 102
Book's Name: Kobi
Book's ID: 102
Author's Name: H.A.
Do you want to update this book?
1. Yes
2. No
Pick an option: |
```