

C Programming Projects > ChaitanyaManglaLMS.c > ...

```
1 // Developing a Library management System
2 // Chaitanya Mangla
3
4 #include <stdio.h>
5 #include <string.h>
6 #include <stdlib.h>
7
8 // Structure to represent a book
9 struct Books {
10     int id;
11     char title[100];
12     char author[100];
13     int quantity;
14     struct Books *next;
15 };
16
17 // Function Prototypes
18 void addBook(struct Books **head);
19 void displayBooks(struct Books *head);
20 void searchBooks(struct Books *head, int id);
21
22 int main() {
23     struct Books *Library = NULL;
24     int choice;
25
26     do {
27         printf("\n--- Library Management System ---\n");
28         printf("1. Add Book\n");
29         printf("2. Display All Books\n");
30         printf("3. Search Book\n");
31         printf("4. Exit\n");
32         printf("Enter your choice: ");
33         scanf("%d", &choice);
34
35         switch (choice) {
36             case 1:
37                 addBook(&Library);
```



```

35     switch (choice) {
36     case 1:
37         addBook(&Library);
38         break;
39
40     case 2:
41         displayBooks(Library);
42         break;
43
44     case 3: {
45         int id;
46         printf("Enter Book ID to search: ");
47         scanf("%d", &id);
48         searchBooks(Library, id);
49         break;
50     }
51
52     case 4:
53         printf("Exiting...\nGoodbye");
54         break;
55
56     default:
57         printf("Invalid choice. Please try again.\n");
58     }
59 } while (choice != 4);
60
61 // Free allocated memory
62 struct Books *current = Library;
63 while (current != NULL) {
64     struct Books *temp = current;
65     current = current->next;
66     free(temp);
67 }
68
69 return 0;

```

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71
72 // Function to add a new book
73 void addBook(struct Books **head) {
74     struct Books *newNode = (struct Books *)malloc(sizeof(struct Books));
75     if (newNode == NULL) {
76         printf("Memory allocation failed.\n");
77         return;
78     }
79
80     printf("Enter Book ID: ");
81     scanf("%d", &newNode->id);
82
83     printf("Enter Book Title: ");
84     scanf(" %[^\n]", newNode->title); // To accept spaces
85
86     printf("Enter Author Name: ");
87     scanf(" %[^\n]", newNode->author); // To accept spaces
88
89     printf("Enter Quantity: ");
90     scanf("%d", &newNode->quantity);
91
92     newNode->next = NULL;
93
94     if (*head == NULL) {
95         *head = newNode;
96     } else {
97         struct Books *temp = *head;
98         while (temp->next != NULL) {
99             temp = temp->next;
100         }
101         temp->next = newNode;
102     }
103
104     printf("Book added successfully.\n");
105 }
106

```



```
106
107 // Function to display all books
108 void displayBooks(struct Books *head) {
109     if (head == NULL) {
110         printf("No books in the library.\n");
111         return;
112     }
113
114     printf("\n--- Library Books ---\n");
115     struct Books *current = head;
116     while (current != NULL) {
117         printf("ID: %d, Title: %s, Author: %s, Quantity: %d\n",
118             current->id, current->title, current->author, current->quantity);
119         current = current->next;
120     }
121 }
122
123 // Function to search for a book by ID
124 void searchBooks(struct Books *head, int id) {
125     struct Books *current = head;
126     while (current != NULL) {
127         if (current->id == id) {
128             printf("\nBook Found:\n");
129             printf("ID: %d, Title: %s, Author: %s, Quantity: %d\n",
130                 current->id, current->title, current->author, current->quantity);
131             return;
132         }
133         current = current->next;
134     }
135
136     printf("Book with ID %d not found.\n", id);
137 }
138
```

```
PS D:\Coding\C Programming Projects> cd "d:\Coding\C Programming Projects\" ; if ($?) { gcc ChaitanyaManglaLMS.c -o ChaitanyaManglaLMS }  
; if ($?) { .\ChaitanyaManglaLMS }
```

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 1

Enter Book ID: 32

Enter Book Title: Concepts of Physics

Enter Author Name: HC Verma

Enter Quantity: 432

Book added successfully.

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 2

--- Library Books ---

ID: 32, Title: Concepts of Physics, Author: HC Verma, Quantity: 432

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 1

Enter Book ID: 33

Enter Book Title: Cengage mathematics

Enter Author Name: G Tewani

Enter Quantity: 400

Book added successfully.

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 2

--- Library Books ---

ID: 32, Title: Concepts of Physics, Author: HC Verma, Quantity: 432

ID: 33, Title: Cengage mathematics, Author: G Tewani, Quantity: 400

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 3

Enter Book ID to search: 32

Book Found:

ID: 32, Title: Concepts of Physics, Author: HC Verma, Quantity: 432

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 1

Enter Book ID: 34

Enter Book Title: General Problems in Physics

Enter Author Name: IE Irodov

Enter Quantity: 100

Book added successfully.

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 2

--- Library Books ---

ID: 32, Title: Concepts of Physics, Author: HC Verma, Quantity: 432

ID: 33, Title: Cengage mathematics, Author: G Tewani, Quantity: 400

ID: 34, Title: General Problems in Physics, Author: IE Irodov, Quantity: 100

--- Library Management System ---

1. Add Book
2. Display All Books
3. Search Book
4. Exit

Enter your choice: 4

Exiting...

Goodbye

PS D:\Coding\C Programming Projects> █