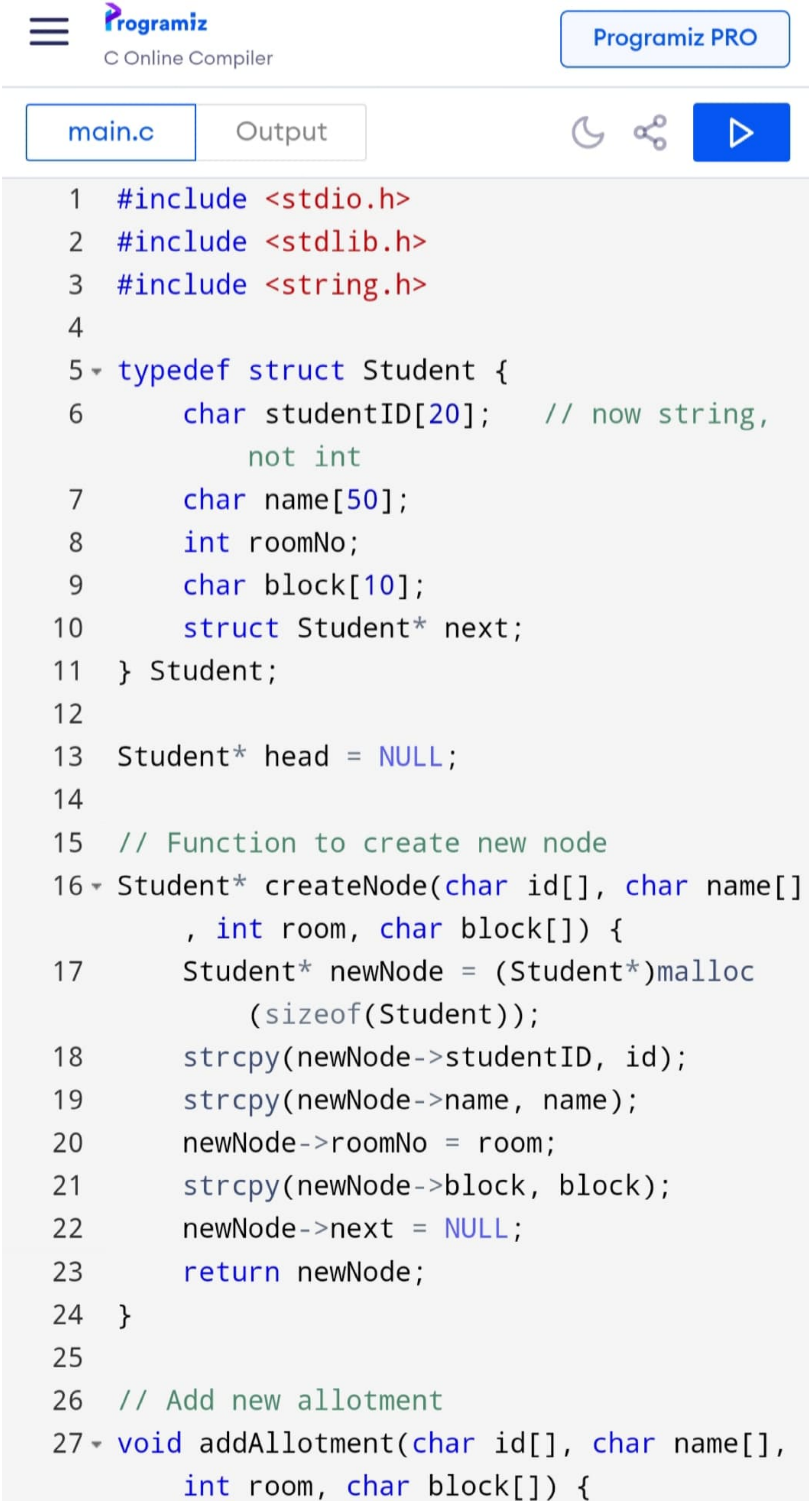
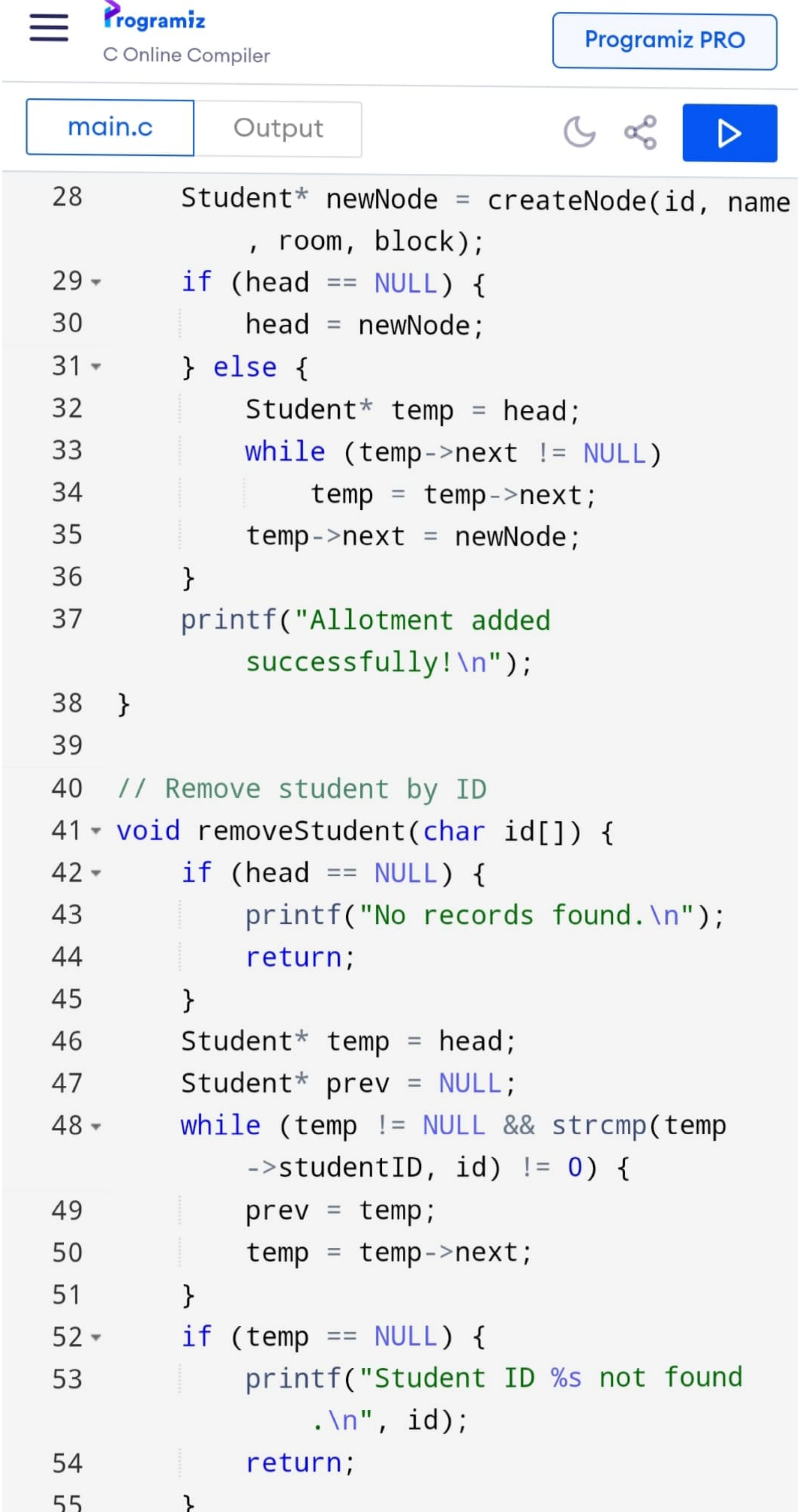
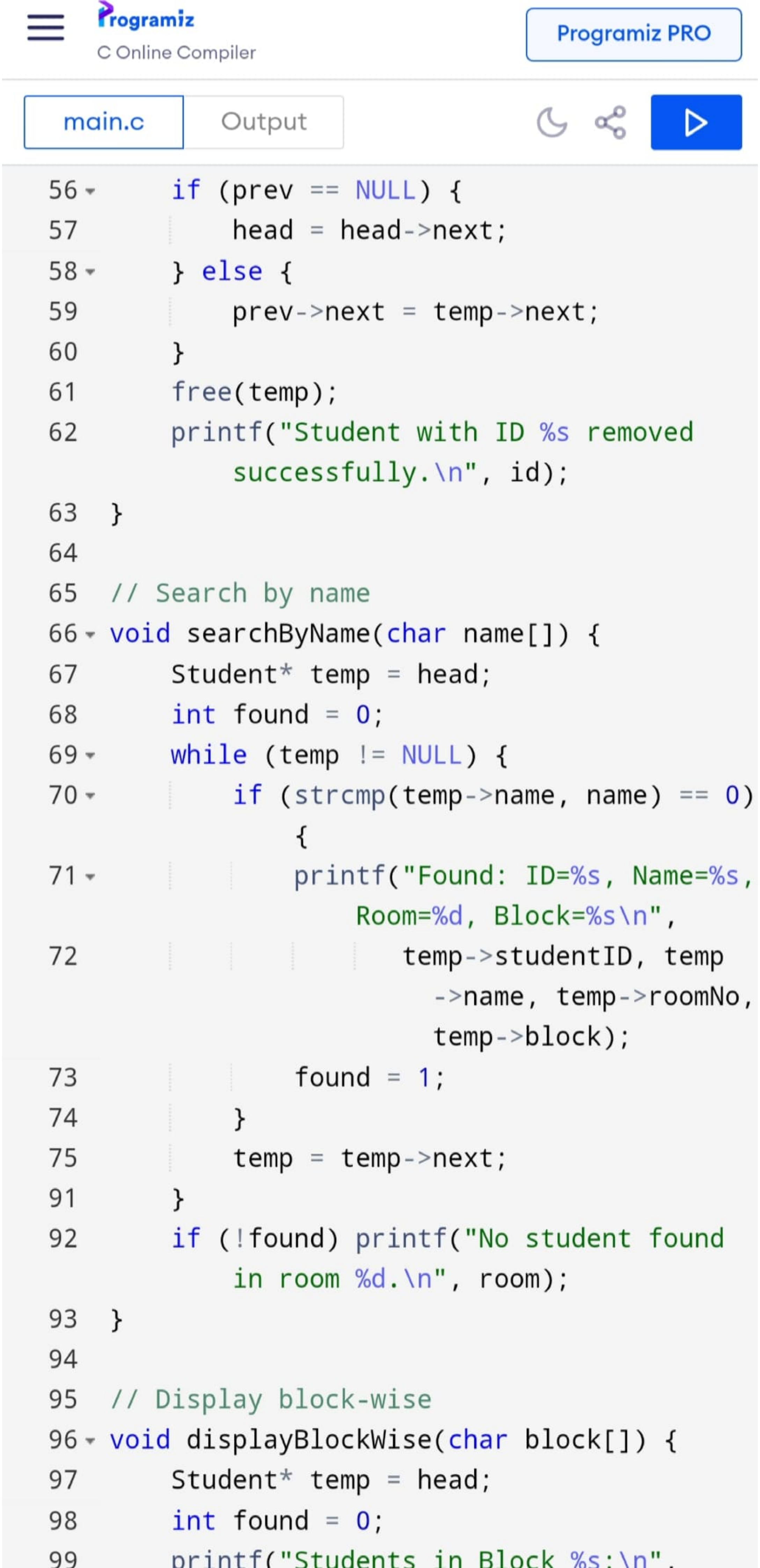


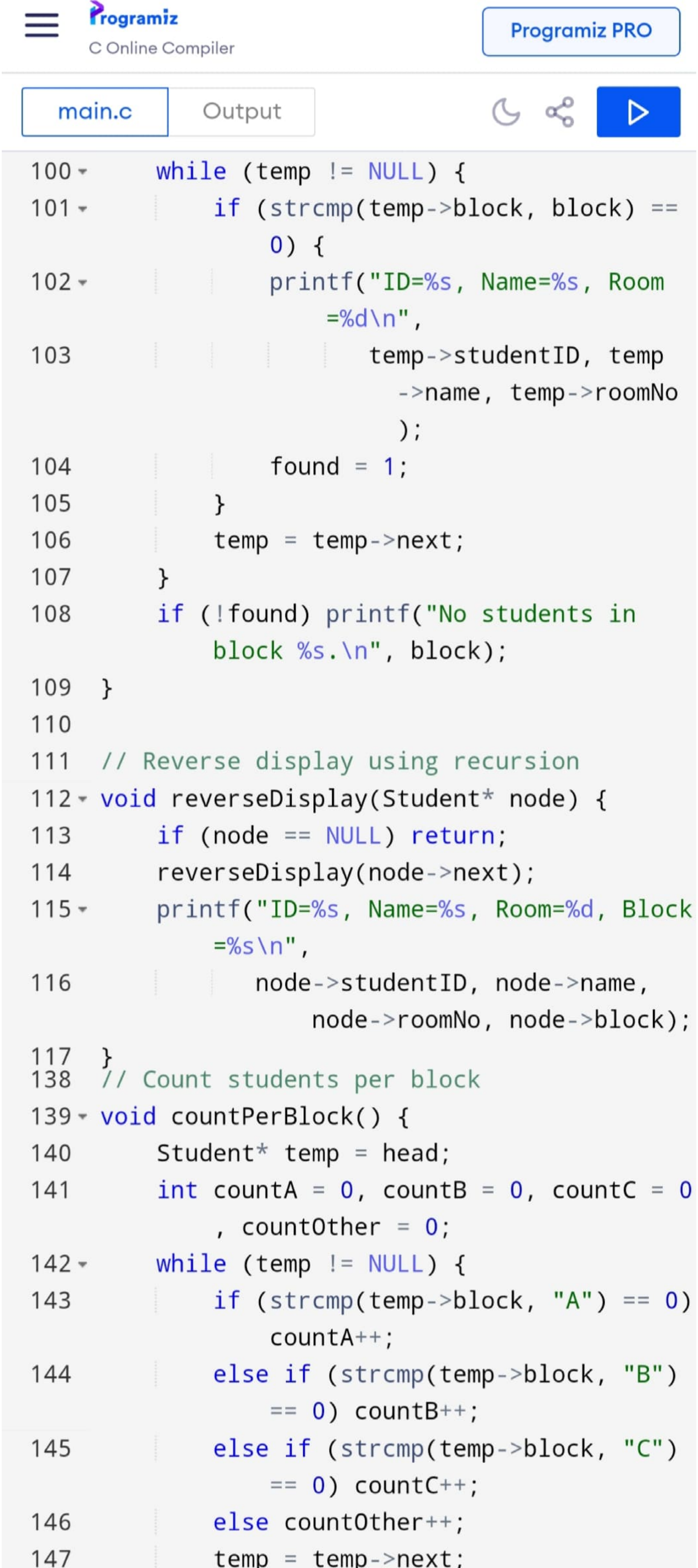
```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

typedef struct Student {
    char studentID[20];   // now string, not int
    char name[50];
    int roomNo;
    char block[10];
    struct Student* next;
} Student;

Student* head = NULL;

// Function to create new node
Student* createNode(char id[], char name[], int room, char block[]) {
    Student* newNode = (Student*)malloc(sizeof(Student));
    strcpy(newNode->studentID, id);
    strcpy(newNode->name, name);
    newNode->roomNo = room;
    strcpy(newNode->block, block);
    newNode->next = NULL;
    return newNode;
}

// Add new allotment
void addAllotment(char id[], char name[], int room, char block[]) {
```



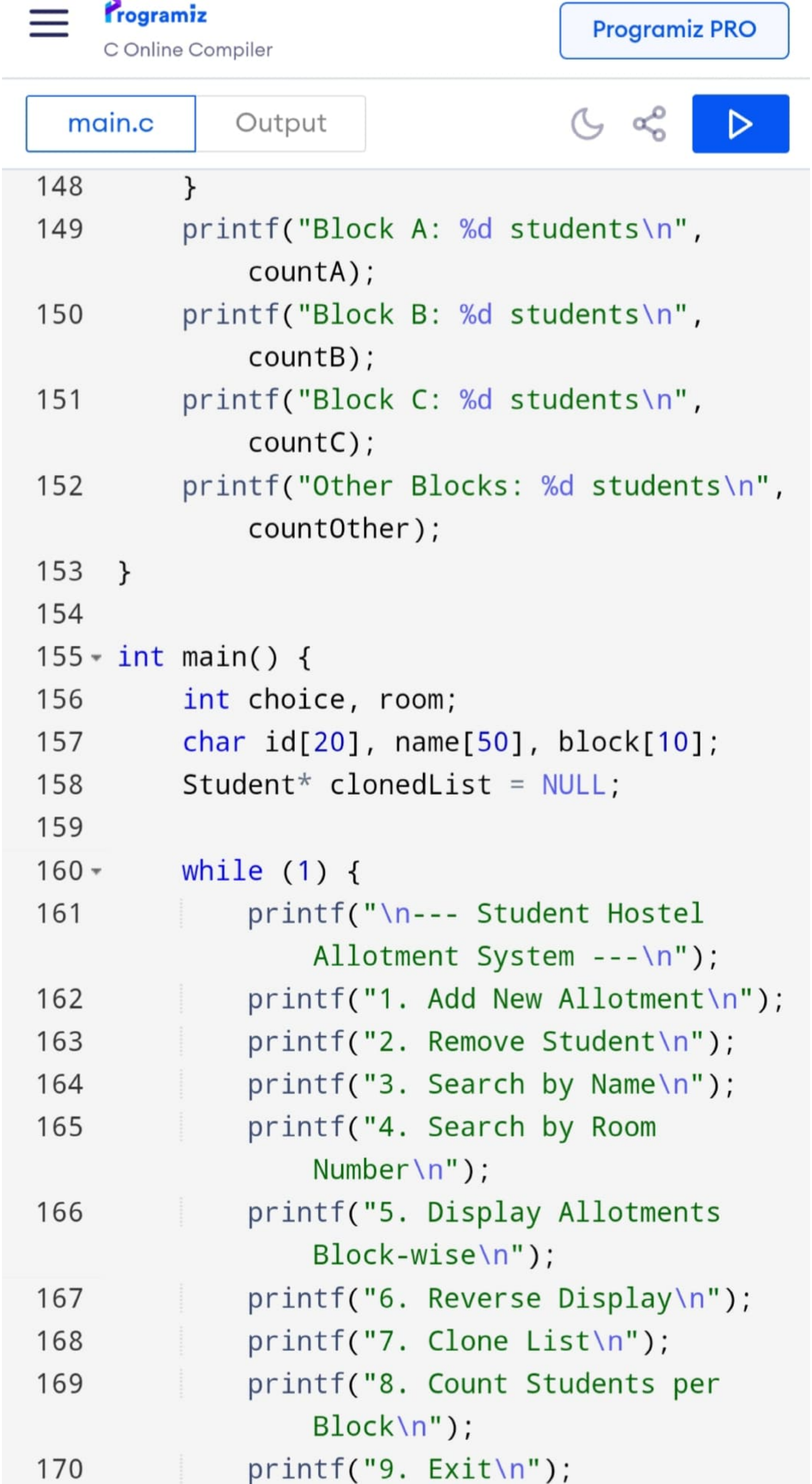
```c
    Student* newNode = createNode(id, name, room, block);
    if (head == NULL) {
        head = newNode;
    } else {
        Student* temp = head;
        while (temp->next != NULL)
            temp = temp->next;
        temp->next = newNode;
    }
    printf("Allotment added successfully!\n");
}

// Remove student by ID
void removeStudent(char id[]) {
    if (head == NULL) {
        printf("No records found.\n");
        return;
    }
    Student* temp = head;
    Student* prev = NULL;
    while (temp != NULL && strcmp(temp->studentID, id) != 0) {
        prev = temp;
        temp = temp->next;
    }
    if (temp == NULL) {
        printf("Student ID %s not found.\n", id);
        return;
    }
```



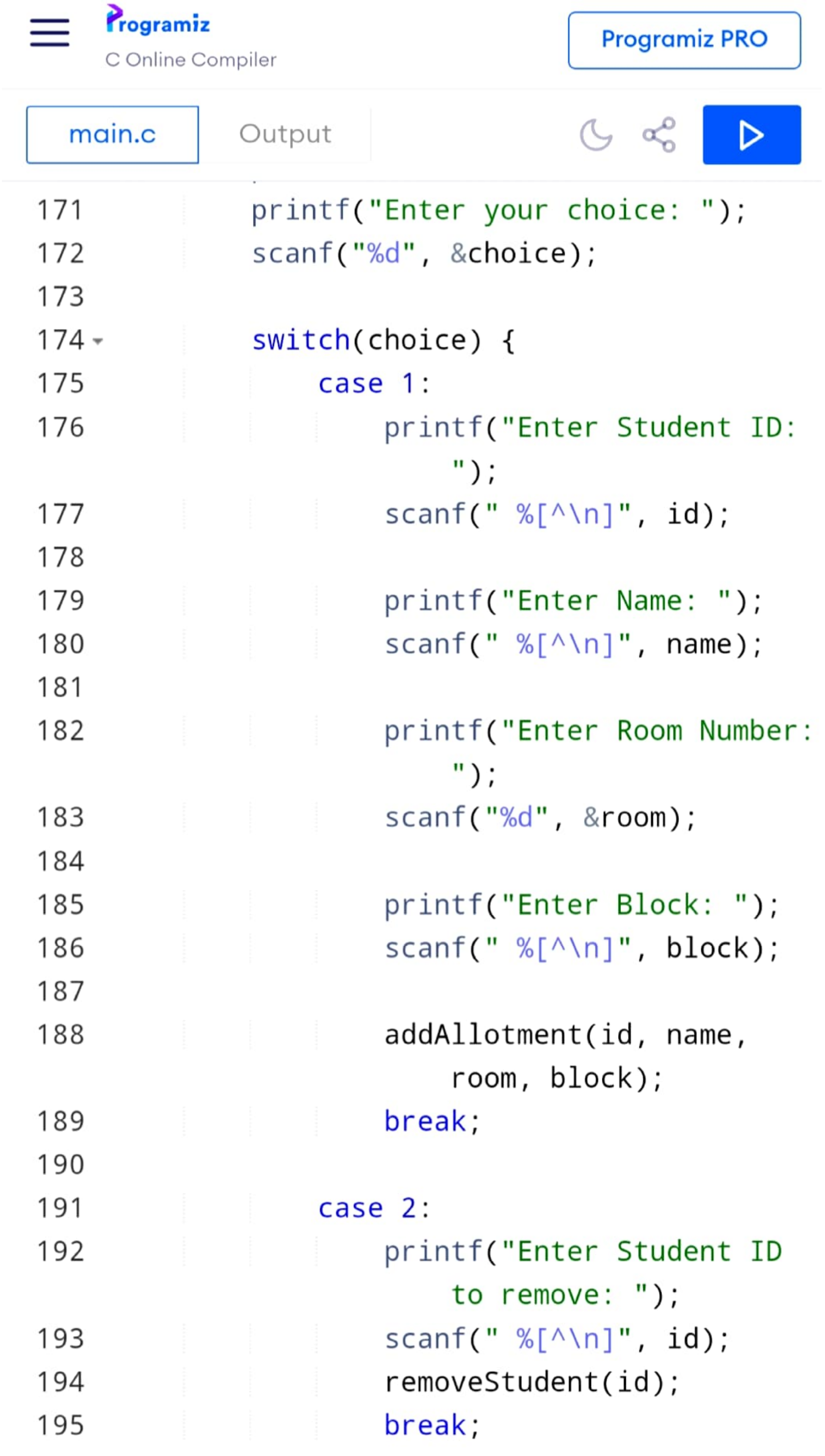
```c
    if (prev == NULL) {
        head = head->next;
    } else {
        prev->next = temp->next;
    }
    free(temp);
    printf("Student with ID %s removed successfully.\n", id);
}

// Search by name
void searchByName(char name[]) {
    Student* temp = head;
    int found = 0;
    while (temp != NULL) {
        if (strcmp(temp->name, name) == 0) {
            printf("Found: ID=%s, Name=%s, Room=%d, Block=%s\n",
                   temp->studentID, temp->name, temp->roomNo, temp->block);
            found = 1;
        }
        temp = temp->next;
    }
    if (!found) printf("No student found in room %d.\n", room);
}

// Display block-wise
void displayBlockWise(char block[]) {
    Student* temp = head;
    int found = 0;
    printf("Students in Block %s:\n",
```



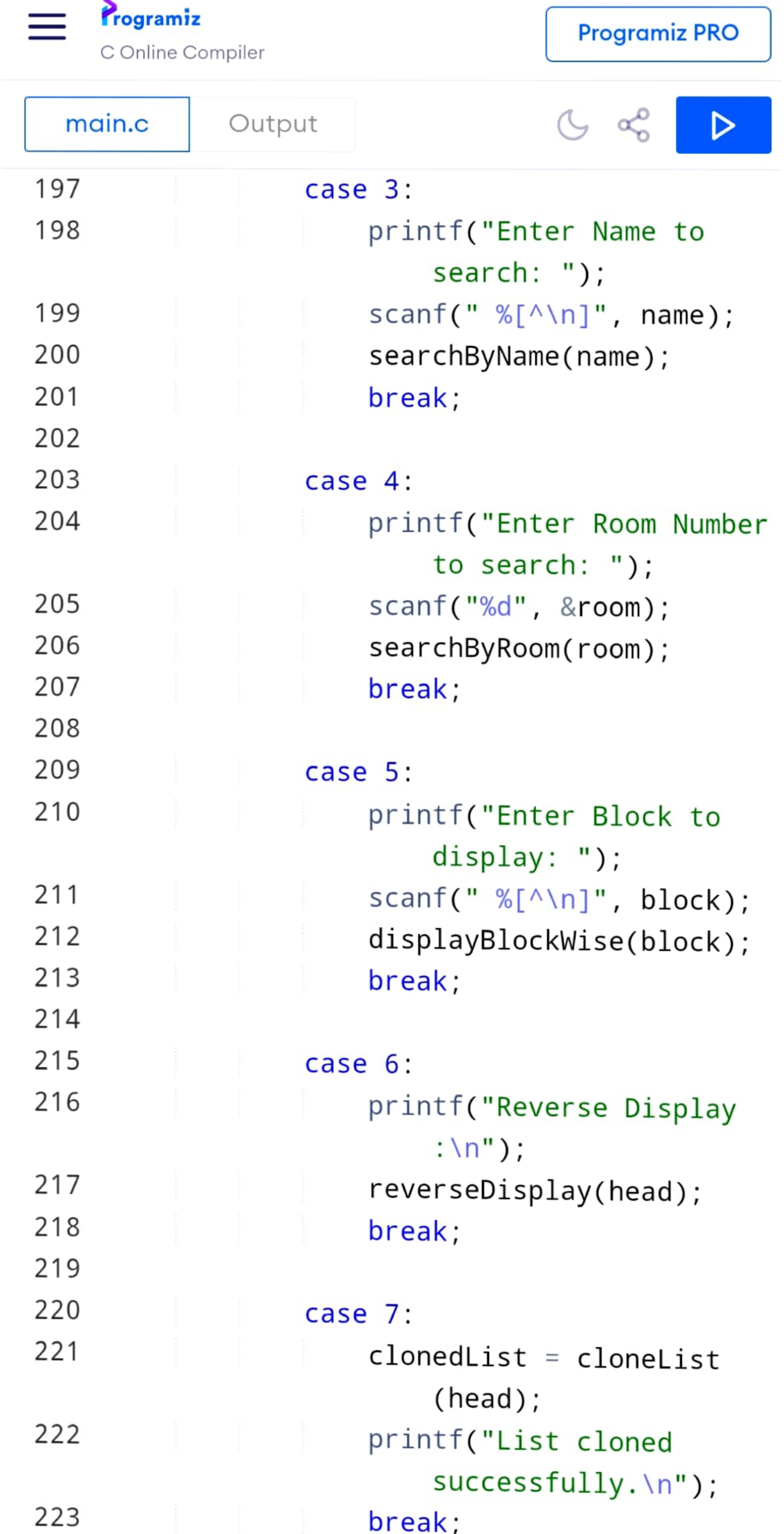
```c
    while (temp != NULL) {
        if (strcmp(temp->block, block) == 0) {
            printf("ID=%s, Name=%s, Room=%d\n",
                   temp->studentID, temp->name, temp->roomNo);
            found = 1;
        }
        temp = temp->next;
    }
    if (!found) printf("No students in block %s.\n", block);
}

// Reverse display using recursion
void reverseDisplay(Student* node) {
    if (node == NULL) return;
    reverseDisplay(node->next);
    printf("ID=%s, Name=%s, Room=%d, Block=%s\n",
           node->studentID, node->name, node->roomNo, node->block);
}
// Count students per block
void countPerBlock() {
    Student* temp = head;
    int countA = 0, countB = 0, countC = 0, countOther = 0;
    while (temp != NULL) {
        if (strcmp(temp->block, "A") == 0) countA++;
        else if (strcmp(temp->block, "B") == 0) countB++;
        else if (strcmp(temp->block, "C") == 0) countC++;
        else countOther++;
        temp = temp->next;
```



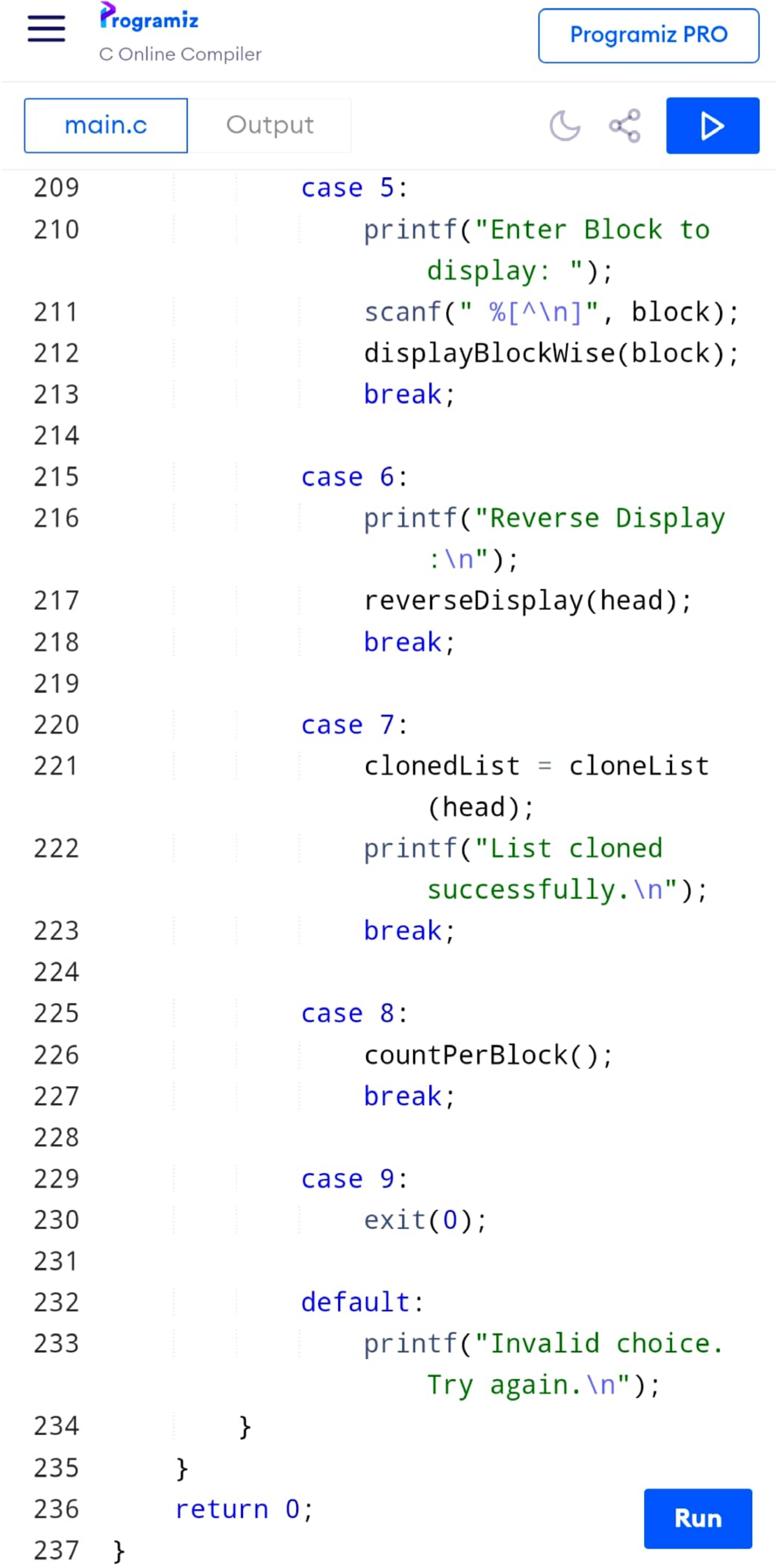
```c
    }
    printf("Block A: %d students\n", countA);
    printf("Block B: %d students\n", countB);
    printf("Block C: %d students\n", countC);
    printf("Other Blocks: %d students\n", countOther);
}

int main() {
    int choice, room;
    char id[20], name[50], block[10];
    Student* clonedList = NULL;

    while (1) {
        printf("\n--- Student Hostel Allotment System ---\n");
        printf("1. Add New Allotment\n");
        printf("2. Remove Student\n");
        printf("3. Search by Name\n");
        printf("4. Search by Room Number\n");
        printf("5. Display Allotments Block-wise\n");
        printf("6. Reverse Display\n");
        printf("7. Clone List\n");
        printf("8. Count Students per Block\n");
        printf("9. Exit\n");
```



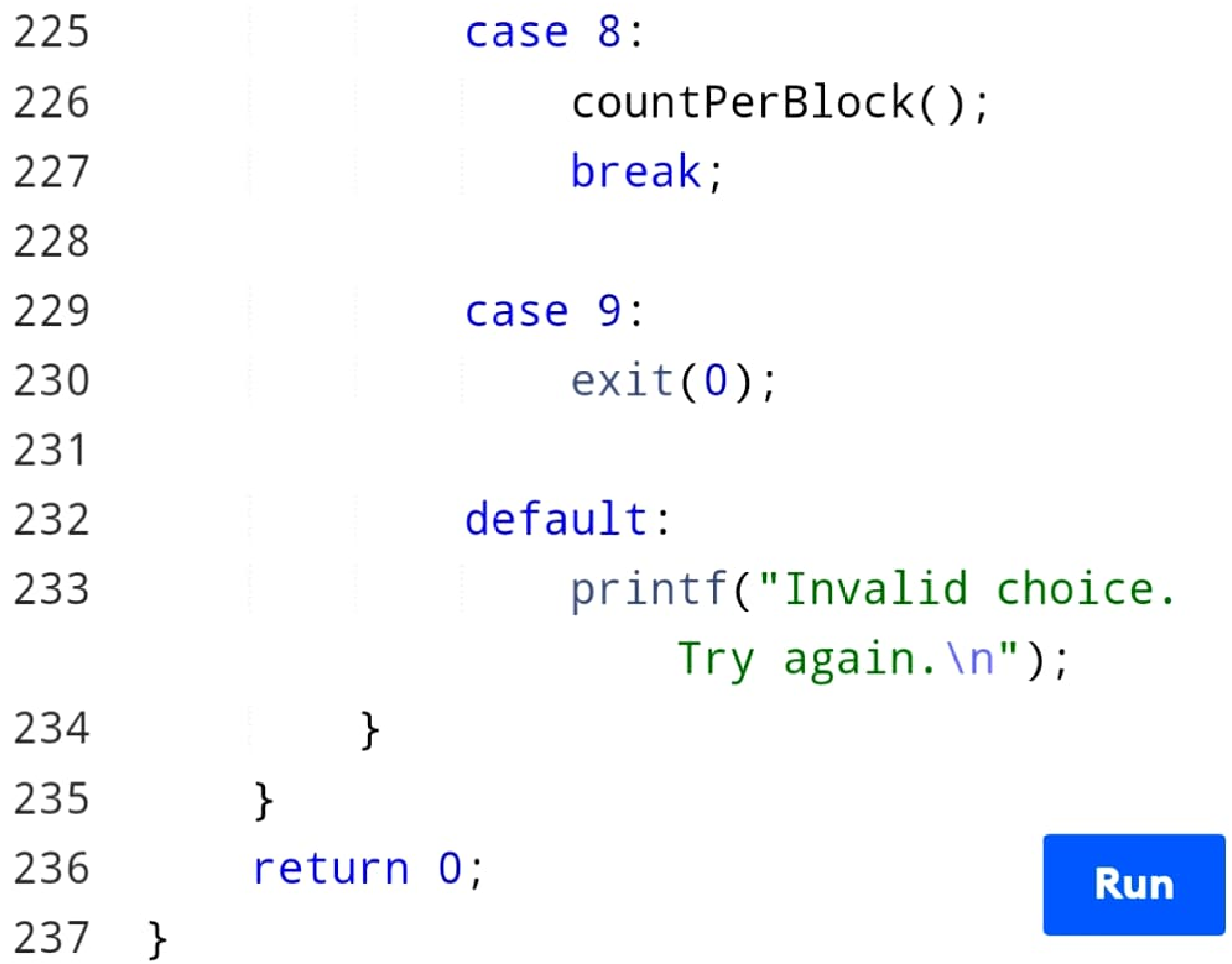
```c
        printf("Enter your choice: ");
        scanf("%d", &choice);

        switch(choice) {
            case 1:
                printf("Enter Student ID: ");
                scanf(" %[^\n]", id);

                printf("Enter Name: ");
                scanf(" %[^\n]", name);

                printf("Enter Room Number: ");
                scanf("%d", &room);

                printf("Enter Block: ");
                scanf(" %[^\n]", block);

                addAllotment(id, name, room, block);
                break;

            case 2:
                printf("Enter Student ID to remove: ");
                scanf(" %[^\n]", id);
                removeStudent(id);
                break;
```



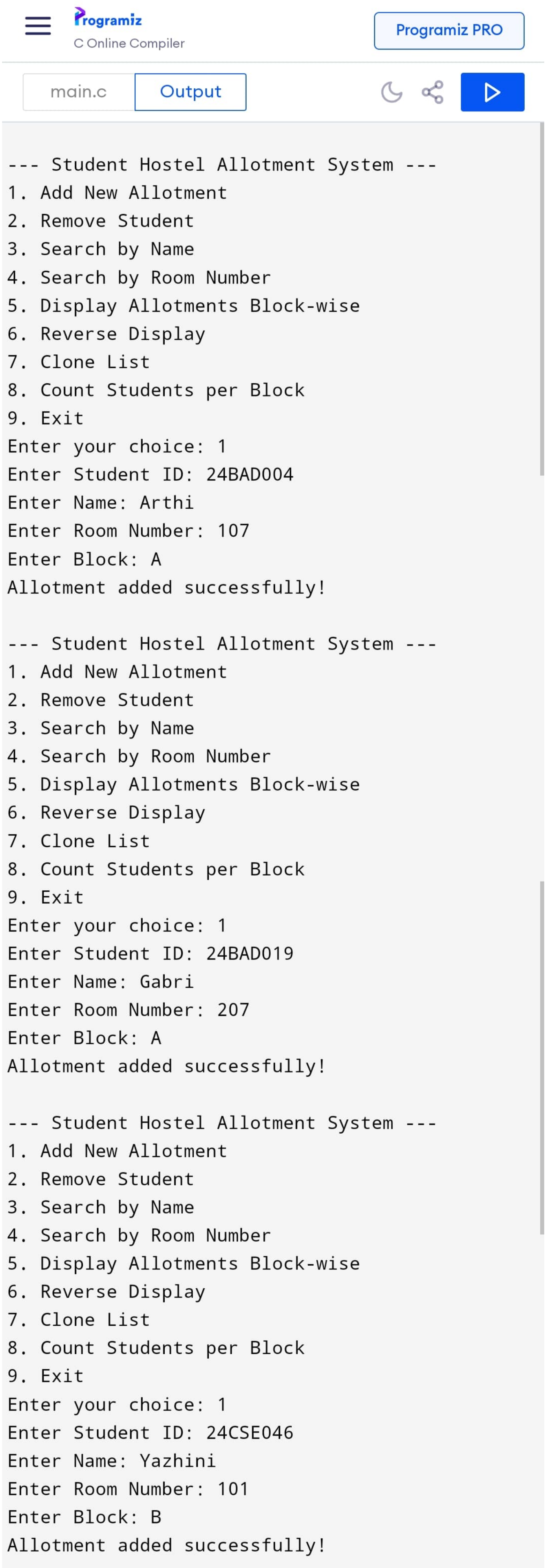
```c
            case 3:
                printf("Enter Name to search: ");
                scanf(" %[^\n]", name);
                searchByName(name);
                break;

            case 4:
                printf("Enter Room Number to search: ");
                scanf("%d", &room);
                searchByRoom(room);
                break;

            case 5:
                printf("Enter Block to display: ");
                scanf(" %[^\n]", block);
                displayBlockWise(block);
                break;

            case 6:
                printf("Reverse Display:\n");
                reverseDisplay(head);
                break;

            case 7:
                clonedList = cloneList(head);
                printf("List cloned successfully.\n");
                break;
```



```c
            case 5:
                printf("Enter Block to display: ");
                scanf(" %[^\n]", block);
                displayBlockWise(block);
                break;

            case 6:
                printf("Reverse Display :\n");
                reverseDisplay(head);
                break;

            case 7:
                clonedList = cloneList(head);
                printf("List cloned successfully.\n");
                break;

            case 8:
                countPerBlock();
                break;

            case 9:
                exit(0);

            default:
                printf("Invalid choice. Try again.\n");
        }
    }
    return 0;
}
```



```c
            case 8:
                countPerBlock();
                break;

            case 9:
                exit(0);

            default:
                printf("Invalid choice. Try again.\n");
        }
    }
    return 0;
}
```



```
--- Student Hostel Allotment System ---
1. Add New Allotment
2. Remove Student
3. Search by Name
4. Search by Room Number
5. Display Allotments Block-wise
6. Reverse Display
7. Clone List
8. Count Students per Block
9. Exit
Enter your choice: 1
Enter Student ID: 24BAD004
Enter Name: Arthi
Enter Room Number: 107
Enter Block: A
Allotment added successfully!

--- Student Hostel Allotment System ---
1. Add New Allotment
2. Remove Student
3. Search by Name
4. Search by Room Number
5. Display Allotments Block-wise
6. Reverse Display
7. Clone List
8. Count Students per Block
9. Exit
Enter your choice: 1
Enter Student ID: 24BAD019
Enter Name: Gabri
Enter Room Number: 207
Enter Block: A
Allotment added successfully!

--- Student Hostel Allotment System ---
1. Add New Allotment
2. Remove Student
3. Search by Name
4. Search by Room Number
5. Display Allotments Block-wise
6. Reverse Display
7. Clone List
8. Count Students per Block
9. Exit
Enter your choice: 1
Enter Student ID: 24CSE046
Enter Name: Yazhini
Enter Room Number: 101
Enter Block: B
Allotment added successfully!
```

```
--- Student Hostel Allotment System ---
1. Add New Allotment
2. Remove Student
3. Search by Name
4. Search by Room Number
5. Display Allotments Block-wise
6. Reverse Display
7. Clone List
8. Count Students per Block
9. Exit
Enter your choice: 3
Enter Name to search: Gabri
Found: ID=24BAD019, Name=Gabri, Room=207, Block=A

--- Student Hostel Allotment System ---
1. Add New Allotment
2. Remove Student
3. Search by Name
4. Search by Room Number
5. Display Allotments Block-wise
6. Reverse Display
7. Clone List
8. Count Students per Block
9. Exit
Enter your choice: 4
Enter Room Number to search: 105
No student found in room 105.

--- Student Hostel Allotment System ---
1. Add New Allotment
2. Remove Student
3. Search by Name
4. Search by Room Number
5. Display Allotments Block-wise
6. Reverse Display
7. Clone List
8. Count Students per Block
9. Exit
Enter your choice: 5
Enter Block to display: A
Students in Block A:
ID=24BAD004, Name=Arthi, Room=107
ID=24BAD019, Name=Gabri, Room=207
```