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

struct Node {
    int data;
    struct Node* next;
};

struct Node* head = NULL;

void push(int value) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = head;
    head = newNode;
}

int pop() {
    if (head == NULL) return -1;
    struct Node* temp = head;
    int val = temp->data;
    head = head->next;
    free(temp);
    return val;
}

void enqueue(int value) {
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->next = NULL;

    if (head == NULL) {
        head = newNode;
        return;
    }
    struct Node* temp = head;
    while (temp->next != NULL)
        temp = temp->next;
    temp->next = newNode;
}

int dequeue() {
    if (head == NULL) return -1;
    struct Node* temp = head;
    int val = temp->data;
    head = head->next;
    free(temp);
    return val;
}

void display() {

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if (head == NULL) {
    printf("List is empty!\n");
    return;
}

struct Node* temp = head;
printf("Linked List: ");
while (temp != NULL) {
    printf("%d -> ", temp->data);
    temp = temp->next;
}
printf("NULL\n");
}

int main() {
    int choice, value;

    while (1) {
        printf("\n1. Push (Stack)\n");
        printf("2. Pop (Stack)\n");
        printf("3. Enqueue (Queue)\n");
        printf("4. Dequeue (Queue)\n");
        printf("5. Display\n");
        printf("6. Exit\n");
        printf("Enter choice: ");
        scanf("%d", &choice);

        switch (choice) {
            case 1:
                printf("Enter value: ");
                scanf("%d", &value);
                push(value);
                printf("Pushed %d onto stack\n", value);
                break;

            case 2:
                value = pop();
                if (value == -1)
                    printf("Stack is empty!\n");
                else
                    printf("Popped %d from stack\n", value);
                break;

            case 3:
                printf("Enter value: ");
                scanf("%d", &value);
                enqueue(value);
                printf("Enqueued %d\n", value);
                break;

            case 4:

```

```
    value = dequeue();
    if (value == -1)
        printf("Queue is empty!\n");
    else
        printf("Dequeued %d\n", value);
    break;

case 5:
    display();
    break;

case 6:
    exit(0);

default:
    printf("Invalid choice!\n");
}
}

return 0;
}
```

```
1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit
Enter choice: 1
Enter value: 12
Pushed 12 onto stack
```

```
1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit
Enter choice: 1
Enter value: 13
Pushed 13 onto stack
```

```
1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit
Enter choice: 2
Popped 13 from stack
```

```
1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit
Enter choice: 3
Enter value: 14
Enqueued 14
```

1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit

Enter choice: 3

Enter value: 15

Enqueued 15

1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit

Enter choice: 4

Dequeued 12

1. Push (Stack)
2. Pop (Stack)
3. Enqueue (Queue)
4. Dequeue (Queue)
5. Display
6. Exit

Enter choice: 5

Linked List: 14 -> 15 -> NULL