

13. Write a C program to implement Queue operations such as ENQUEUE, DEQUEUE and Display

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#include <stdio.h>

#define SIZE 5

int queue[SIZE];

int front = -1, rear = -1;

void enqueue(int value) {
    if (rear == SIZE - 1) {
        printf("\nQueue is Full (Overflow)\n");
    } else {
        if (front == -1) front = 0;
        queue[++rear] = value;
        printf("\nInserted %d into queue\n", value);
    }
}

void dequeue() {
    if (front == -1 || front > rear) {
        printf("\nQueue is Empty (Underflow)\n");
    } else {
        printf("\nDeleted %d from queue\n", queue[front]);
        front++;
    }
}

void display() {
    if (front == -1 || front > rear) {
        printf("\nQueue is Empty\n");
    } else {
        printf("\nQueue elements are: ");
        for (int i = front; i <= rear; i++) {
            printf("%d ", queue[i]);
        }
    }
}
```

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    }

    printf("\n");
}

}

int main() {
    int choice, value;
    while (1) {
        printf("\n---- Queue Menu ----");
        printf("\n1. ENQUEUE");
        printf("\n2. DEQUEUE");
        printf("\n3. DISPLAY");
        printf("\n4. EXIT");
        printf("\nEnter your choice: ");
        scanf("%d", &choice);
        switch (choice) {
            case 1:
                printf("Enter value to insert: ");
                scanf("%d", &value);
                enqueue(value);
                break;
            case 2:
                dequeue();
                break;
            case 3:
                display();
                break;
            case 4:
                return 0;
            default:
                printf("\nInvalid Choice!\n");
        }
    }
}

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}

return 0;

}

```

main.c	Run	Output
<pre> 1 #include <stdio.h> 2 #define SIZE 5 3 int queue[SIZE]; 4 int front = -1, rear = -1; 5 void enqueue(int value) { 6 if (rear == SIZE - 1) { 7 printf("\nQueue is Full (Overflow)\n"); 8 } else { 9 if (front == -1) front = 0; 10 queue[++rear] = value; 11 printf("\nInserted %d into queue\n", value); 12 } 13 } 14 void dequeue() { 15 if (front == -1 front > rear) { 16 printf("\nQueue is Empty (Underflow)\n"); 17 } else { 18 printf("\nDeleted %d from queue\n", queue[front]); 19 front++; 20 } 21 } 22 void display() { 23 if (front == -1 front > rear) { 24 printf("\nQueue is Empty\n"); 25 } else { 26 printf("\nQueue elements are: "); 27 for (int i = front; i <= rear; i++) { 28 printf("%d ", queue[i]); </pre>	Run	<pre> ---- Queue Menu ---- 1. ENQUEUE 2. DEQUEUE 3. DISPLAY 4. EXIT Enter your choice: 1 Enter value to insert: 23 Inserted 23 into queue ---- Queue Menu ---- 1. ENQUEUE 2. DEQUEUE 3. DISPLAY 4. EXIT Enter your choice: 3 Queue elements are: 23 ---- Queue Menu ---- 1. ENQUEUE 2. DEQUEUE 3. DISPLAY 4. EXIT Enter your choice: </pre>