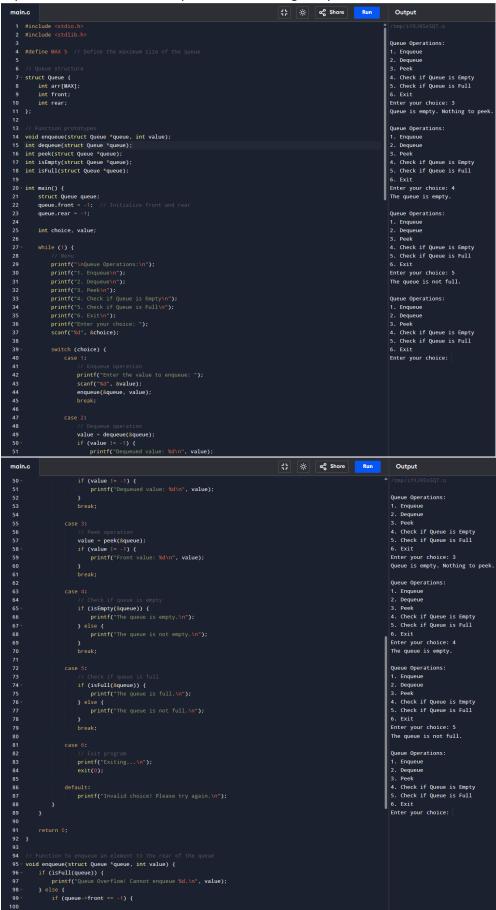
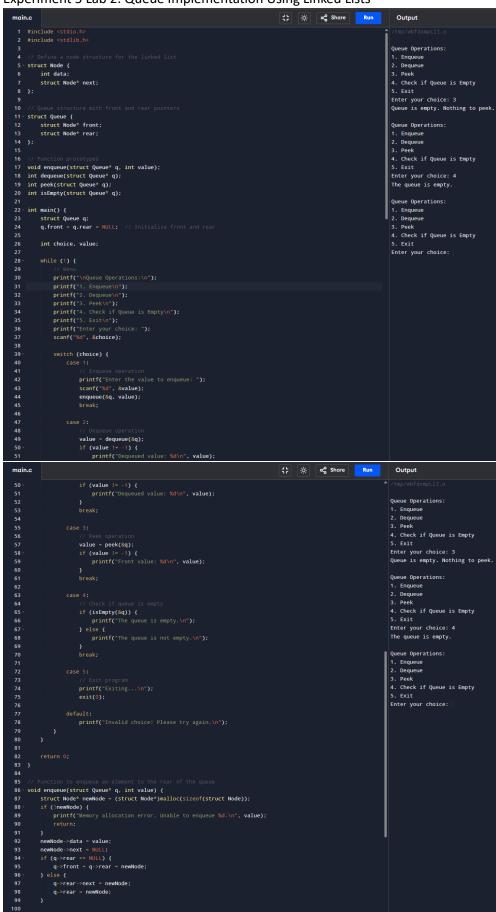
Experiment 5 Lab 1: Queue Implementation Using Arrays



```
Run
                                                                                         기는 🔆 🗬 Share
main.c
                                                                                                                                Output
 95 voiu enqueue(struct Queue ~queue, int vaiue) {
         if (isFull(queue)) {
    printf("Queue Overflow! Cannot enqueue %d.\n", value);
                                                                                                                              Oueue Operations:
                                                                                                                              1. Enqueue
          if (queue->front == -1) {
    queue->front = 0; // Set front to 0 if inserting the first element
                                                                                                                              2. Dequeue
100
                                                                                                                              3. Peek
                                                                                                                              4. Check if Queue is Empty
                                                                                                                              5. Check if Queue is Full
             queue->arr[queue->rear] = value;
                                                                                                                              Queue is empty. Nothing to peek
106 }
                                                                                                                              Queue Operations:
108  // Function to dequeue an element from the front of the queue
109 · int dequeue(struct Queue *queue) {
                                                                                                                              1. Enqueue
       if (isEmpty(queue)) {
    printf("Queue Underflow! Cannot dequeue.\n");
                                                                                                                             2. Dequeue
                                                                                                                              3. Peek
                                                                                                                              4. Check if Queue is Empty
                                                                                                                              5. Check if Queue is Full
         } else {
             int value = queue->arr[queue->front];
            if (queue->front == queue->rear) {
                                                                                                                              The queue is empty.
                 queue->front = -1;
queue->rear = -1;
                                                                                                                              Queue Operations:
                                                                                                                              1. Engueue
             queue->front++;
                                                                                                                             2. Dequeue
                                                                                                                              4. Check if Queue is Empty
             return value;
                                                                                                                              5. Check if Queue is Full
                                                                                                                              6. Exit
                                                                                                                              Enter your choice: 5
                                                                                                                              The queue is not full.
127 · int peek(struct Queue *queue) {
                                                                                                                              Queue Operations:
       if (isEmpty(queue)) {
                                                                                                                              1. Enqueue
           printf("Queue is empty. Nothing to peek.\n");
                                                                                                                            2. Dequeue
        } else {
         return queue->arr[queue->front];
}
                                                                                                                             4. Check if Queue is Empty
5. Check if Queue is Full
137 · int isEmpty(struct Queue *queue) {
142 · int isFull(struct Queue *queue) {
       return queue->rear == MAX - 1;
```

Experiment 5 Lab 2: Queue Implementation Using Linked Lists



```
main.c
                                                                                         ਜੰਸ 🔅 🗬 Share
                                                                                                                               Output
     void enqueue(struct Queue* q, int value) {
                                                                                                                             Queue Operations:
         struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
                                                                                                                              1. Enqueue
         if (!newNode) {
                                                                                                                             2. Dequeue
             printf("Memory allocation error. Unable to enqueue %d.\n", value);
                                                                                                                             3. Peek
                                                                                                                             4. Check if Queue is Empty
         newNode->data = value;
                                                                                                                              Enter your choice: 3
         newNode->next = NULL;
if (q->rear == NULL) {
                                                                                                                             Queue is empty. Nothing to peek
             q->front = q->rear = newNode;
                                                                                                                             Queue Operations:
                                                                                                                              1. Enqueue
            q->rear->next = newNode;
q->rear = newNode;
                                                                                                                             2. Dequeue
 98
                                                                                                                             3. Peek
                                                                                                                             4. Check if Queue is Empty
                                                                                                                             The queue is empty.
    int dequeue(struct Queue* q) {
                                                                                                                             Queue Operations:
        if (isEmpty(q)) {
          printf("Queue Underflow! Cannot dequeue.\n");
return -1;
                                                                                                                              1. Enqueue
                                                                                                                             2. Dequeue
                                                                                                                             3. Peek
                                                                                                                              4. Check if Queue is Empty
        struct Node* temp = q->front;
int dequeuedValue = temp->data;
q->front = q->front->next;
         free(temp);
         return dequeuedValue;
    int peek(struct Queue* q) {
       if (isEmpty(q)) {
          printf("Queue is empty. Nothing to peek.\n");
return -1;
return q->front == NULL;
131 · int isEmpty(struct Queue* q) {
```