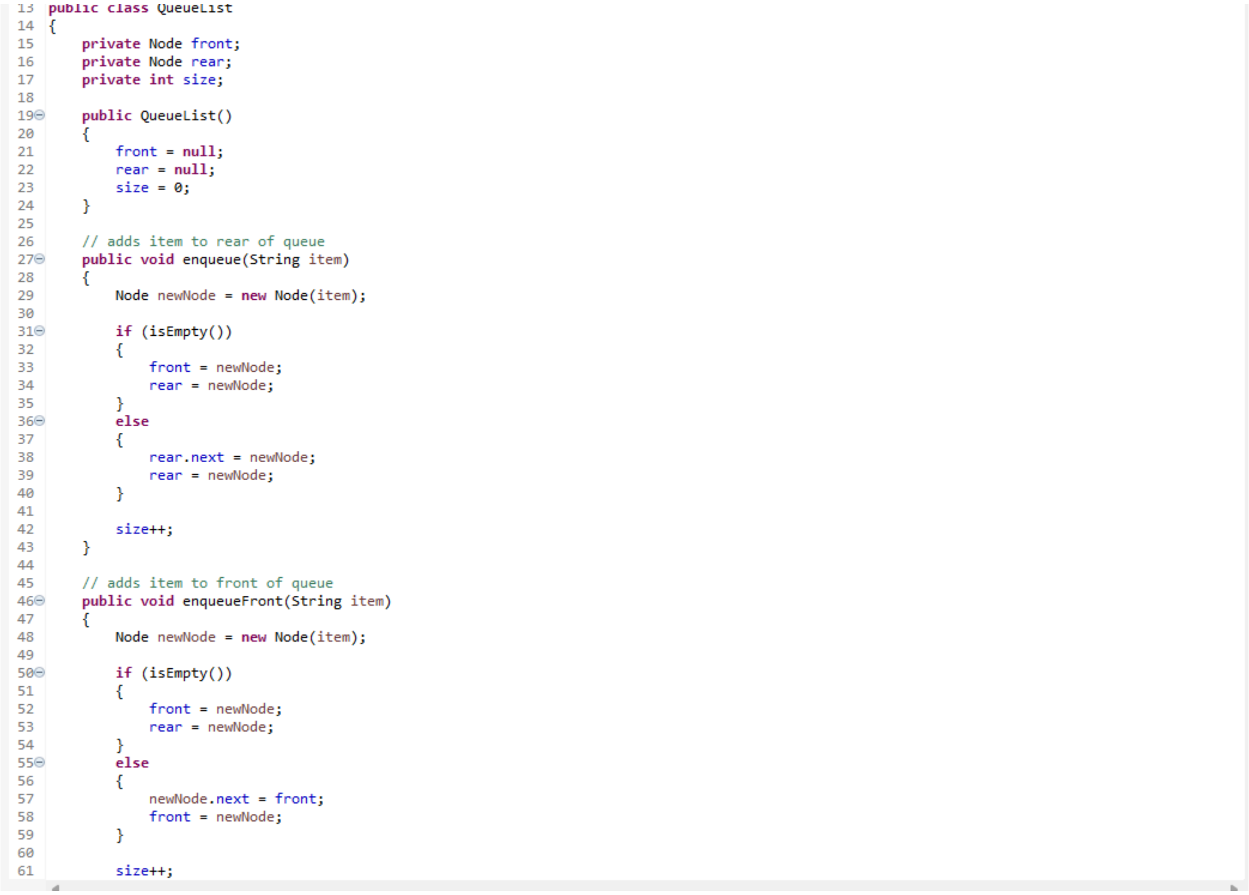
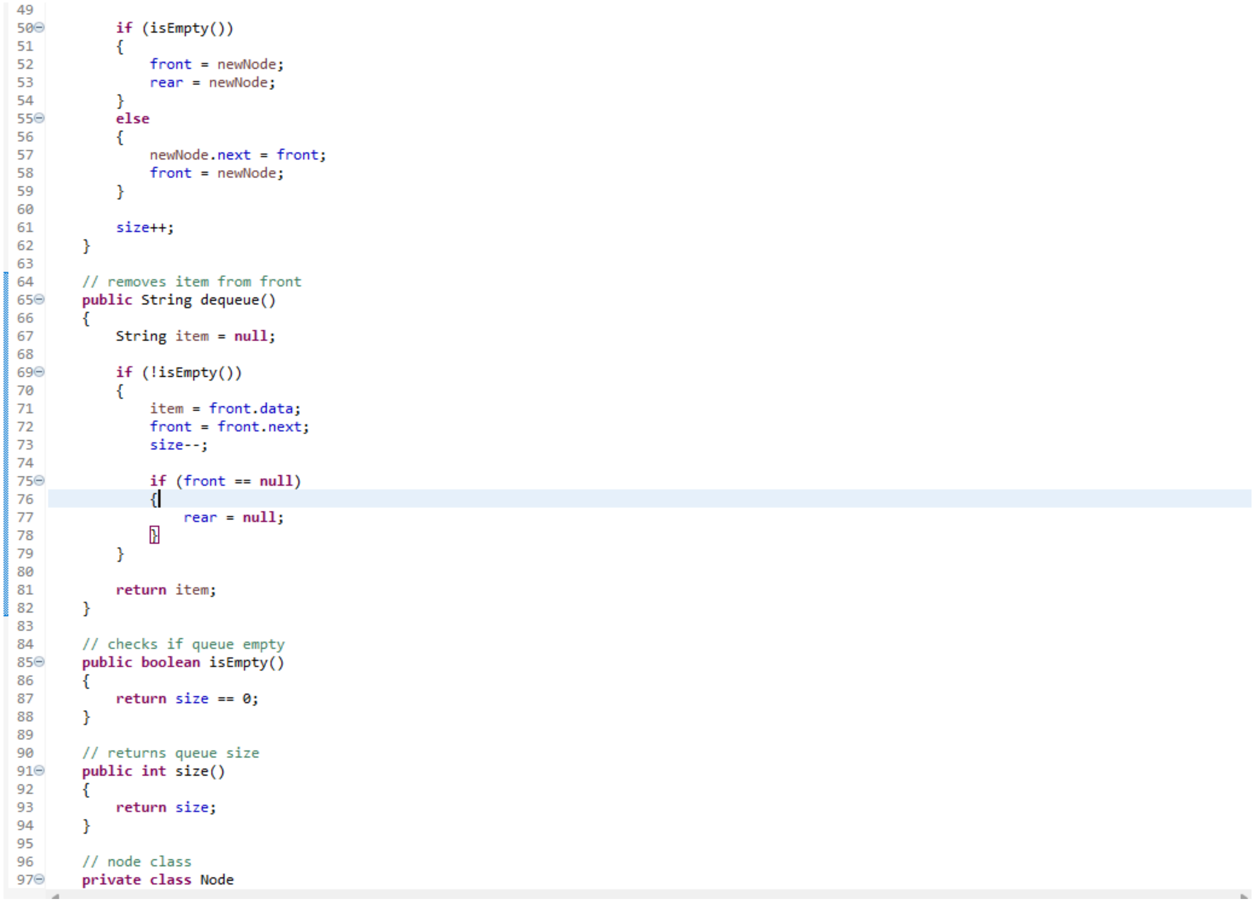
Credit
3110
Assignment
E4QueueList

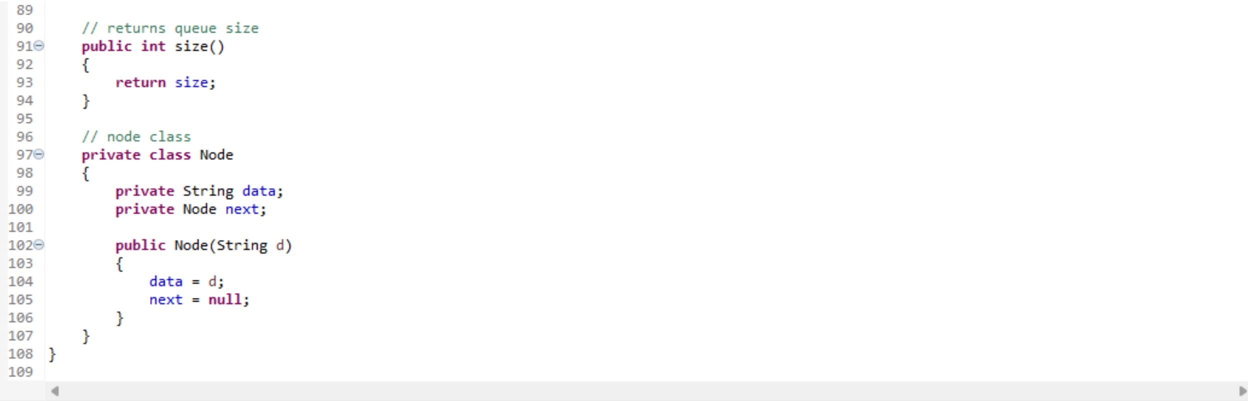
How has your program changed from planning to coding to now? Please explain?



```java
public class QueueList
{
    private Node front;
    private Node rear;
    private int size;

    public QueueList()
    {
        front = null;
        rear = null;
        size = 0;
    }

    // adds item to rear of queue
    public void enqueue(String item)
    {
        Node newNode = new Node(item);

        if (isEmpty())
        {
            front = newNode;
            rear = newNode;
        }
        else
        {
            rear.next = newNode;
            rear = newNode;
        }

        size++;
    }

    // adds item to front of queue
    public void enqueueFront(String item)
    {
        Node newNode = new Node(item);

        if (isEmpty())
        {
            front = newNode;
            rear = newNode;
        }
        else
        {
            newNode.next = front;
            front = newNode;
        }

        size++;
```

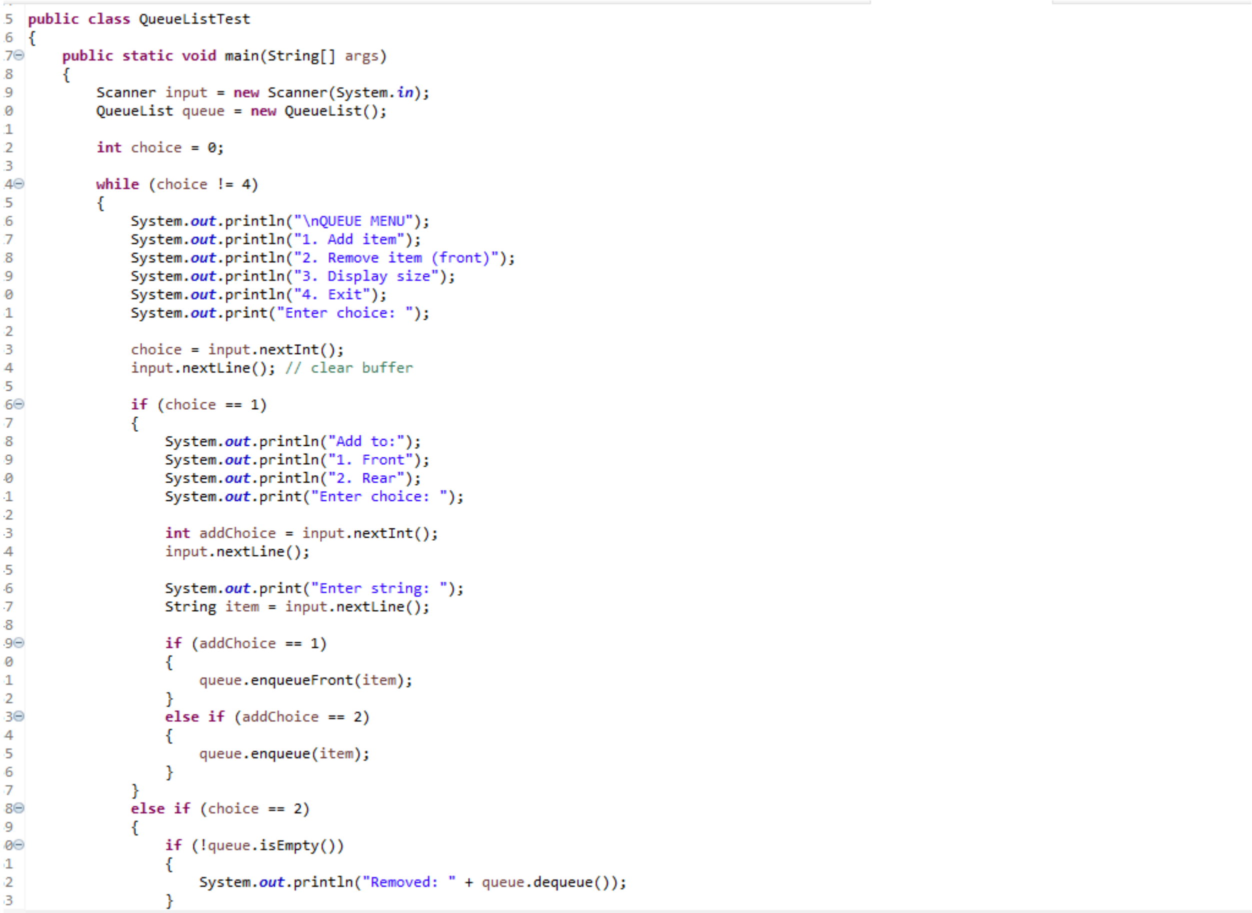


```java

        if (isEmpty())
        {
            front = newNode;
            rear = newNode;
        }
        else
        {
            newNode.next = front;
            front = newNode;
        }

        size++;
    }

    // removes item from front
    public String dequeue()
    {
        String item = null;

        if (!isEmpty())
        {
            item = front.data;
            front = front.next;
            size--;

            if (front == null)
            {
                rear = null;
            }
        }

        return item;
    }

    // checks if queue empty
    public boolean isEmpty()
    {
        return size == 0;
    }

    // returns queue size
    public int size()
    {
        return size;
    }

    // node class
    private class Node
```

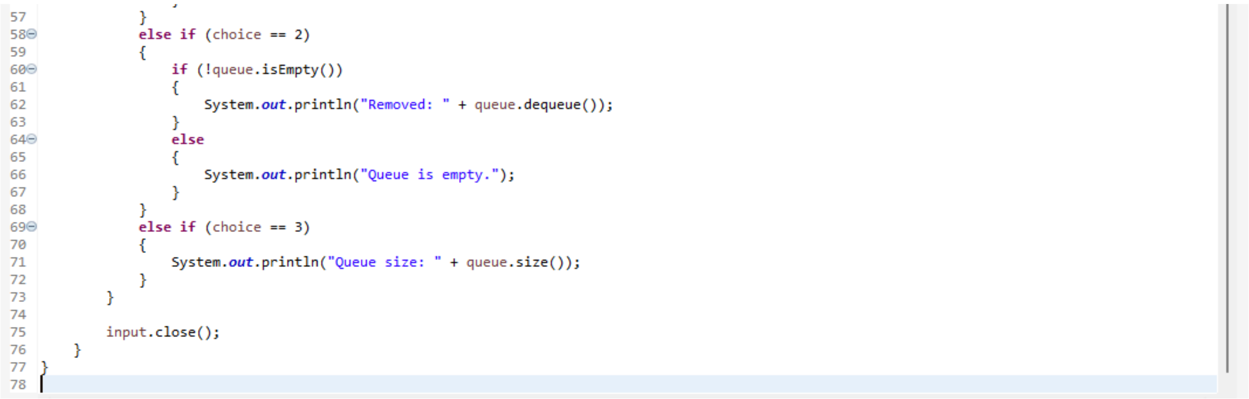


```java

    // returns queue size
    public int size()
    {
        return size;
    }

    // node class
    private class Node
```

```java
    {
        private String data;
        private Node next;

        public Node(String d)
        {
            data = d;
            next = null;
        }
    }
}

```



```java
public class QueueListTest
{
    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);
        QueueList queue = new QueueList();

        int choice = 0;

        while (choice != 4)
        {
            System.out.println("\nQUEUE MENU");
            System.out.println("1. Add item");
            System.out.println("2. Remove item (front)");
            System.out.println("3. Display size");
            System.out.println("4. Exit");
            System.out.print("Enter choice: ");

            choice = input.nextInt();
            input.nextLine(); // clear buffer

            if (choice == 1)
            {
                System.out.println("Add to:");
                System.out.println("1. Front");
                System.out.println("2. Rear");
                System.out.print("Enter choice: ");

                int addChoice = input.nextInt();
                input.nextLine();

                System.out.print("Enter string: ");
                String item = input.nextLine();

                if (addChoice == 1)
                {
                    queue.enqueueFront(item);
                }
                else if (addChoice == 2)
                {
                    queue.enqueue(item);
                }
            }
            else if (choice == 2)
            {
                if (!queue.isEmpty())
                {
                    System.out.println("Removed: " + queue.dequeue());
                }
```



```java
            }
            else if (choice == 2)
            {
                if (!queue.isEmpty())
                {
                    System.out.println("Removed: " + queue.dequeue());
                }
                else
                {
                    System.out.println("Queue is empty.");
                }
            }
            else if (choice == 3)
            {
                System.out.println("Queue size: " + queue.size());
            }
        }

        input.close();
    }
}
```