Queue.h

```
#ifndef QUEUE_H
#define QUEUE_H

#include <iostream>
using namespace std;

template <class T>
class Node
{
public:
    T data;
    Node *next;
    Node(T data)
    {
        this->data = data;
        next = nullptr;
    }
};

template <class T>
class Queue
{
private:
    Node<T> *rear;
    Node<T> *front;
    int size;
    int capacity;

public:
    Queue(int capacity) : rear(nullptr), front(nullptr)
    {
        this->capacity = capacity;
        size = 0;
    }

    bool isEmpty()
    {
        return (rear == nullptr && front == nullptr);
    }

    bool isFull()
    {
        return (size == capacity);
    }

    void Put(T value)
    {
        Node<T> *newnode = new Node<T>(value);
        if (isFull())
        {
            cerr << "Cannot enqueue queue is full" << endl;
            delete newnode;
            return;
```

```
54          }
55          else if (isEmpty())
56          {
57              rear = front = newnode;
58          }
59          else
60          {
61              rear->next = newnode;
62              rear = newnode;
63              ++size;
64          }
65      }
66
67      void dequeue()
68      {
69          if (isEmpty())
70          {
71              cerr << "Queue is empty cannot dequeu." << endl;
72              return;
73          }
74          else if (rear == front)
75          {
76              rear = front = nullptr;
77          }
78          else
79          {
80              Node<T> *temp = front;
81              front = front->next;
82              delete temp;
83          }
84          --size;
85      }
86
87      T Get()
88      {
89          T value = front->data;
90          dequeue();
91          return value;
92      }
93  };
94  #endif
```