LINKED LIST: LAB 1

CSC248: FUNDAMENTALS OF DATA STRUCTURES

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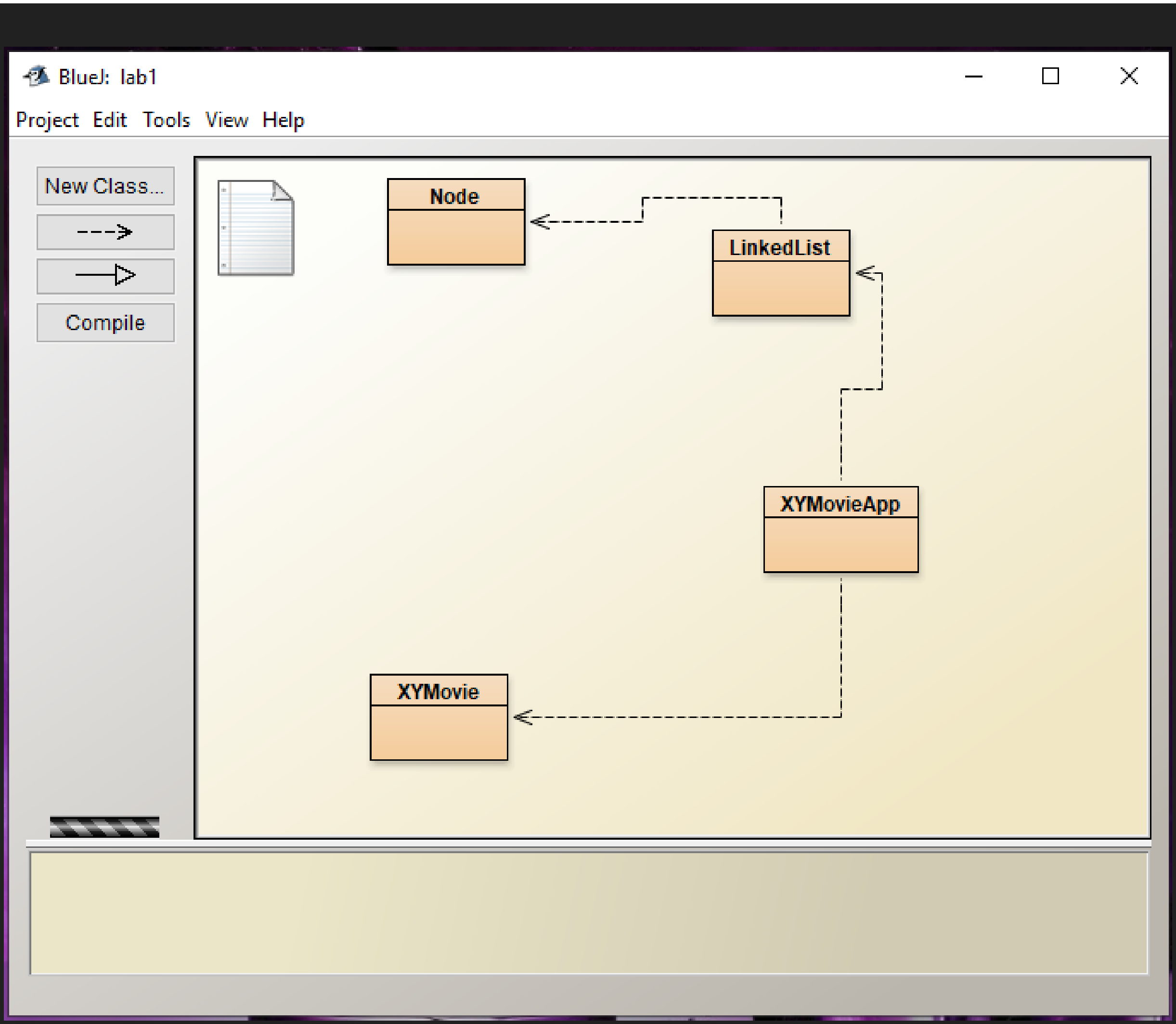
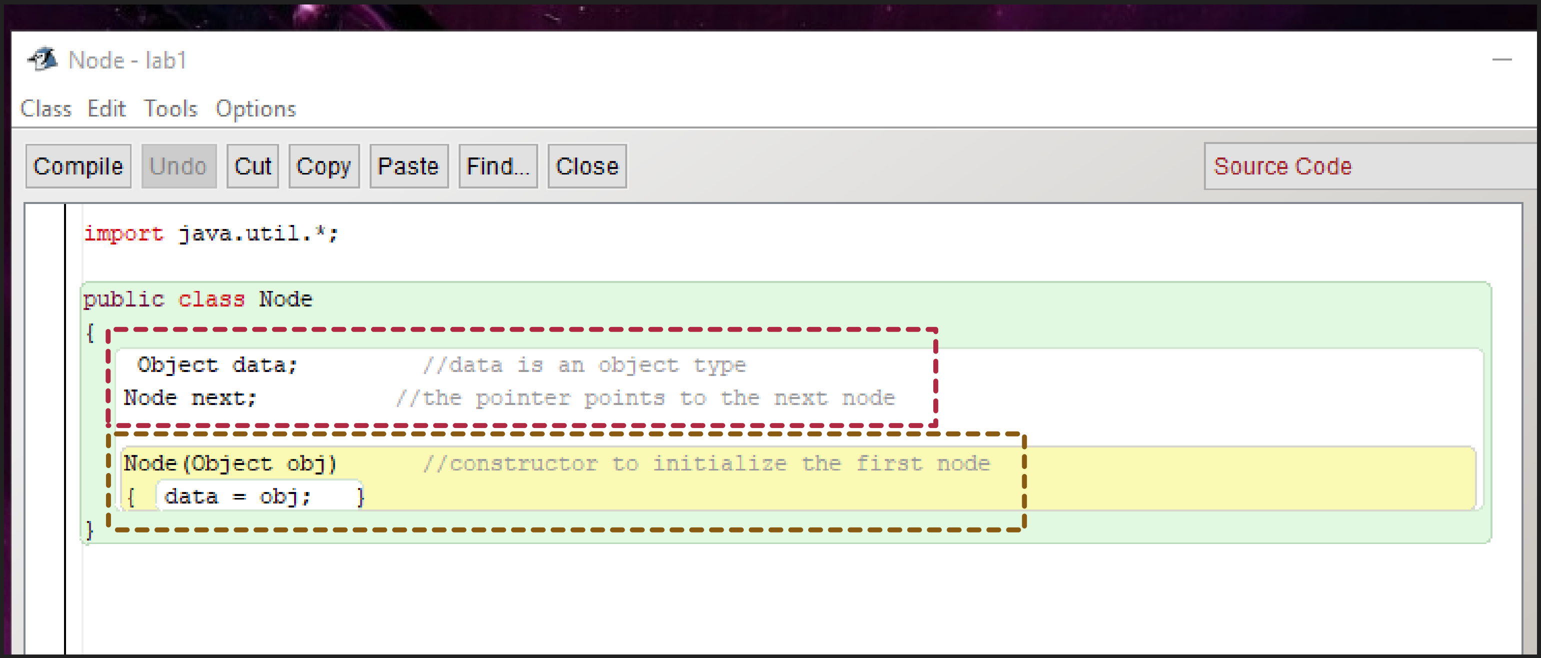

BlueJ: lab1
Project Edit Tools View Help
New Class...
Compile
Node
LinkedList
XYMovieApp
XYMovie

CLASS NODE

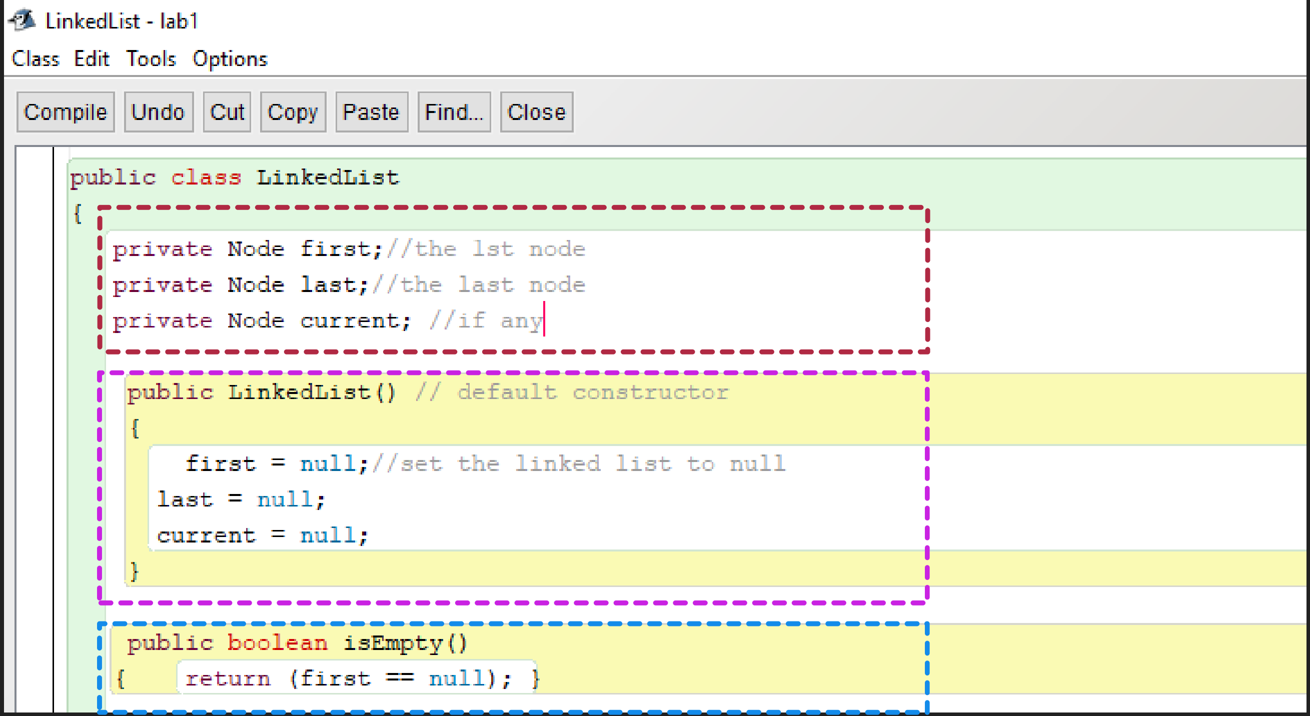


```
import java.util.*;

public class Node
{
   Object data;          //data is an object type
  Node next;           //the pointer points to the next node

  Node(Object obj)       //constructor to initialize the first node
  {  data = obj;    }
}
```

CLASS LINKEDLIST

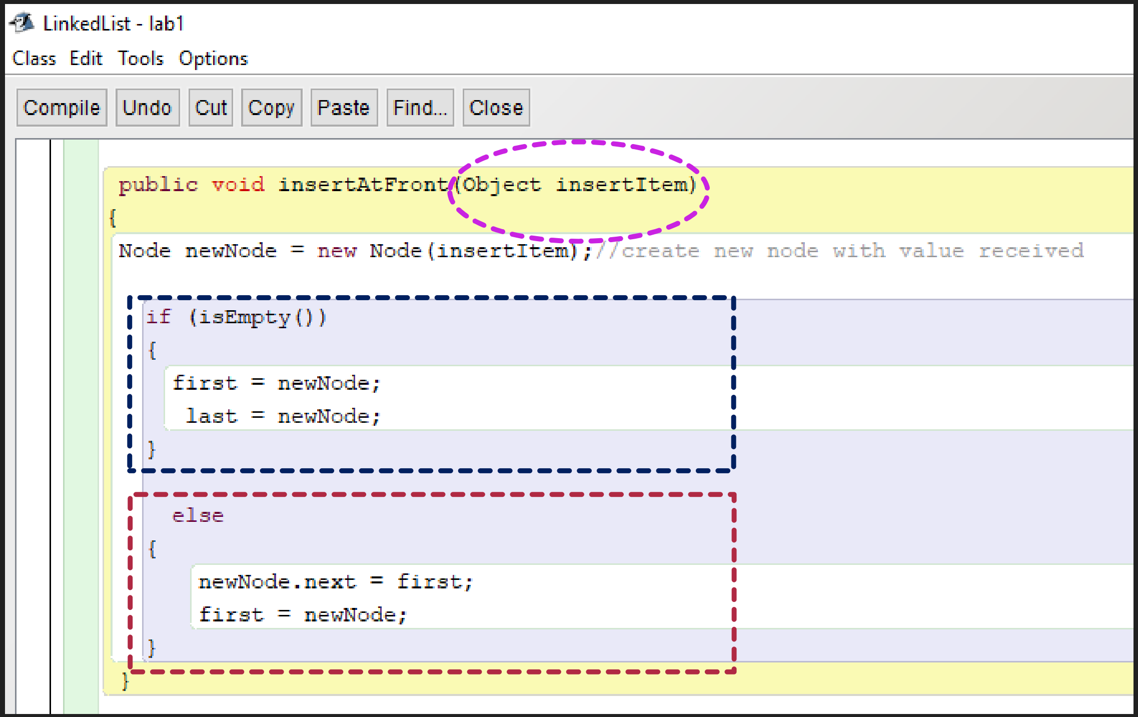


```
public class LinkedList
{
  private Node first;//the 1st node
  private Node last;//the last node
  private Node current; //if any

   public LinkedList() // default constructor
   {
       first = null;//set the linked list to null
     last = null;
     current = null;
   }

   public boolean isEmpty()
  {    return (first == null); }
```

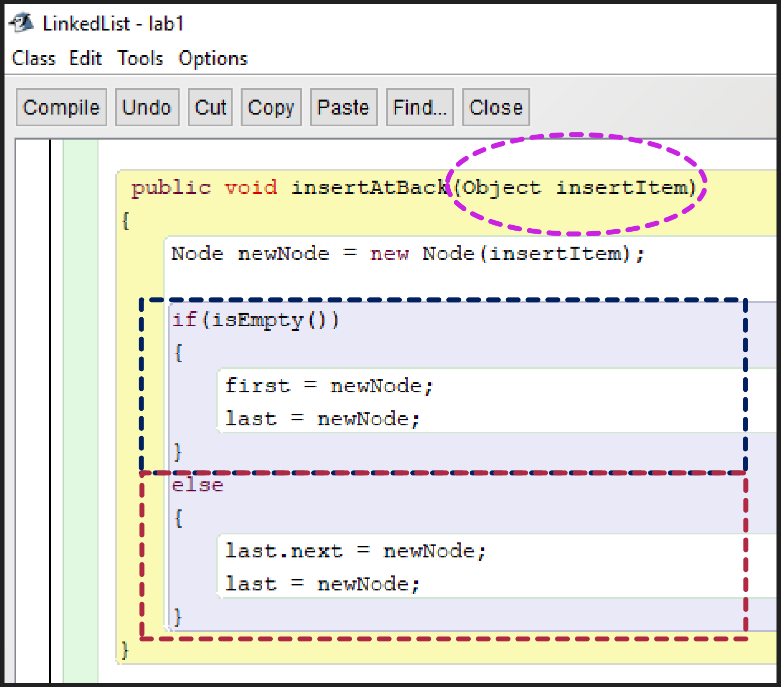
CLASS LINKEDLIST



```
public void insertAtFront(Object insertItem)
{
Node newNode = new Node(insertItem);//create new node with value received

  if (isEmpty())
  {
    first = newNode;
     last = newNode;
  }
    else
  {
      newNode.next = first;
      first = newNode;
  }
 }
```

CLASS LINKEDLIST



```
public void insertAtBack(Object insertItem)
{
    Node newNode = new Node(insertItem);

    if(isEmpty())
    {
        first = newNode;
        last = newNode;
    }
    else
    {
        last.next = newNode;
        last = newNode;
    }
}
```

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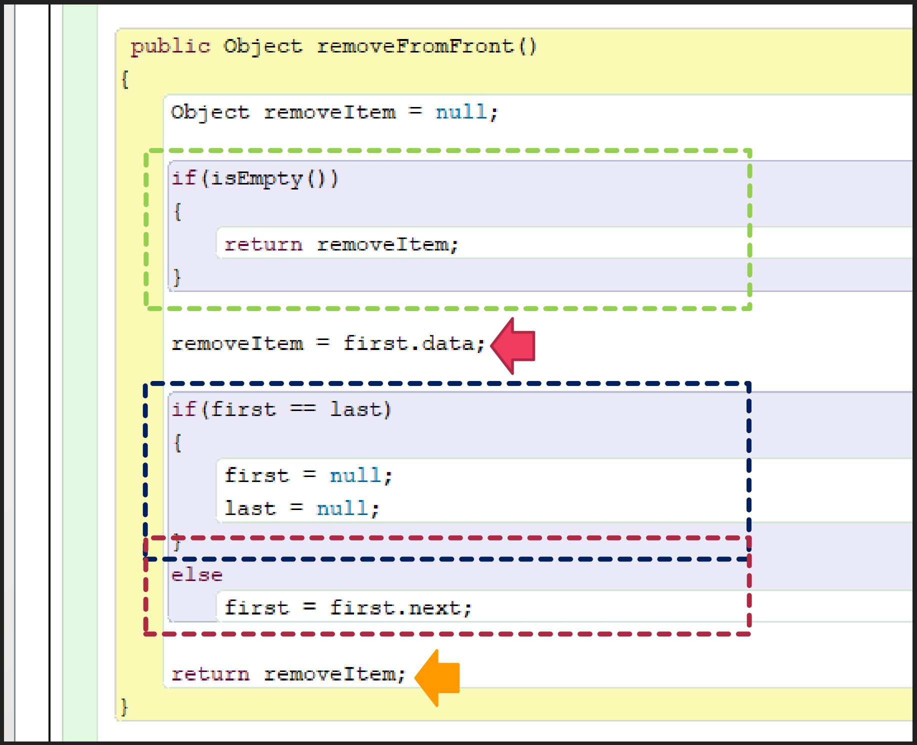
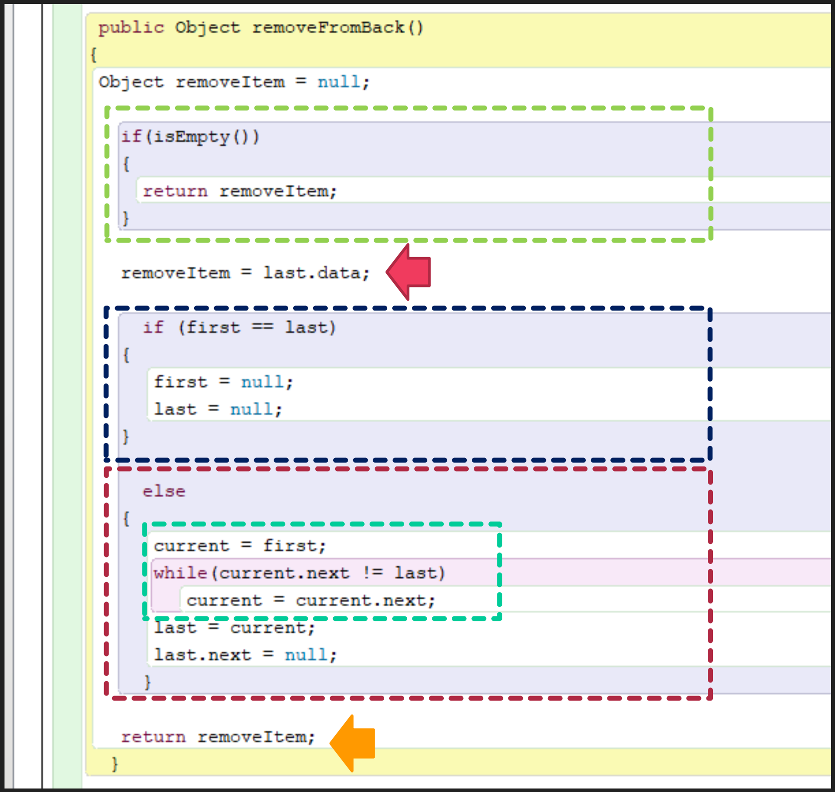
CLASS LINKEDLIST



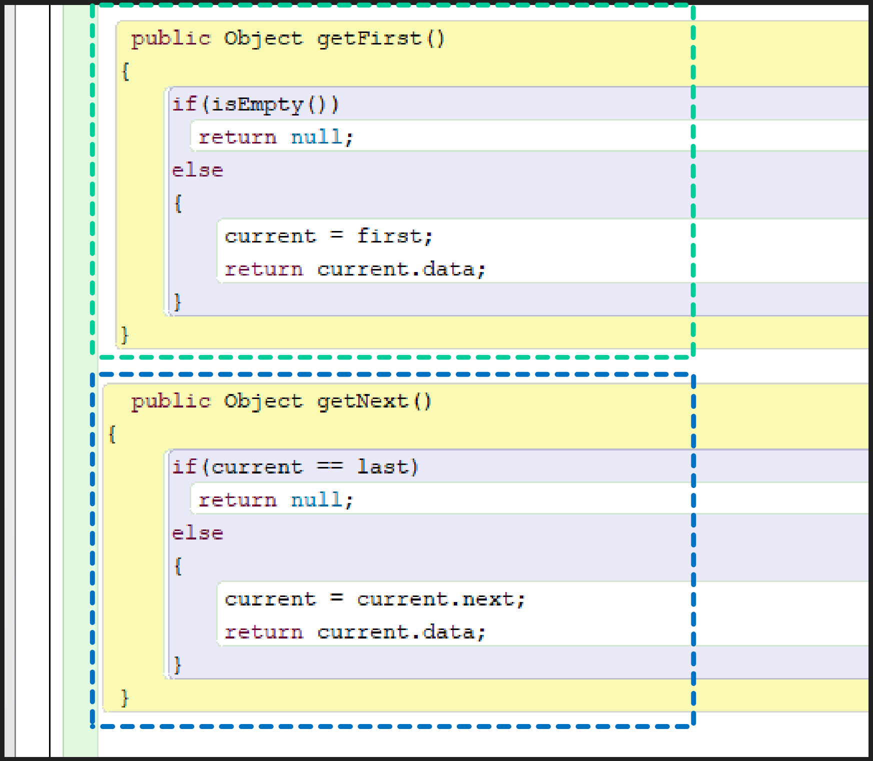
```
public Object removeFromFront()
{
    Object removeItem = null;

    if(isEmpty())
    {
        return removeItem;
    }

    removeItem = first.data;

    if(first == last)
    {
        first = null;
        last = null;
    }
    else
        first = first.next;

    return removeItem;
}
```

CLASS LINKEDLIST



```
public Object removeFromBack()
{
Object removeItem = null;
  if(isEmpty())
  {
    return removeItem;
  }

  removeItem = last.data;

    if (first == last)
  {
     first = null;
     last = null;
  }
    else
  {
     current = first;
     while(current.next != last)
        current = current.next;
     last = current;
     last.next = null;
    }

  return removeItem;
 }
```

CLASS LINKEDLIST



```
 public Object getFirst()
{
    if(isEmpty())
      return null;
    else
    {
        current = first;
        return current.data;
    }
}

 public Object getNext()
{
    if(current == last)
      return null;
    else
    {
        current = current.next;
        return current.data;
    }
}
```

END OF PART 1

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