

Assignment no. 1

Data Structures and Algorithms Lab

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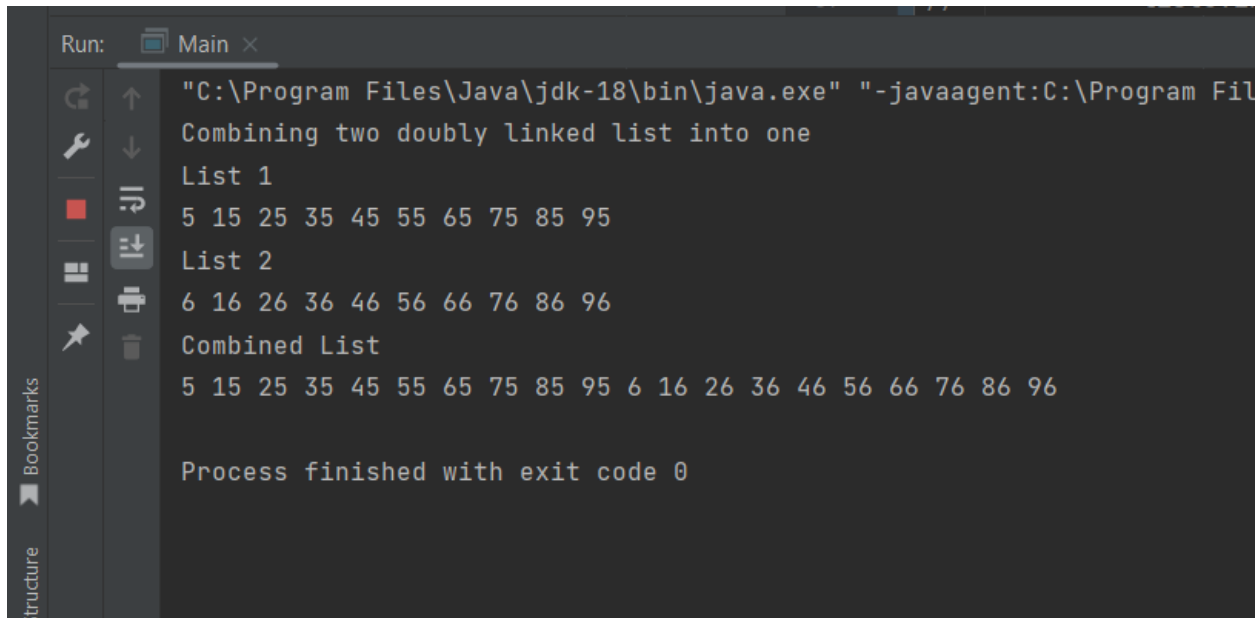
Class: BSCS 3C1

Implement method to join 2 doubly linked list.

Method Code:

```
public void combineTwoLists(DoublyLinkedList list1,  
DoublyLinkedList list2) {  
    list1.tail.next = list2.head;  
    list2.head.prev = list1.tail;  
    list1.tail = list2.tail;  
}
```

Output



The screenshot shows a Java IDE's Run console. The title bar says "Run: Main x". The console output is as follows:

```
"C:\Program Files\Java\jdk-18\bin\java.exe" "-javaagent:C:\Program Fil
Combining two doubly linked list into one
List 1
5 15 25 35 45 55 65 75 85 95
List 2
6 16 26 36 46 56 66 76 86 96
Combined List
5 15 25 35 45 55 65 75 85 95 6 16 26 36 46 56 66 76 86 96

Process finished with exit code 0
```

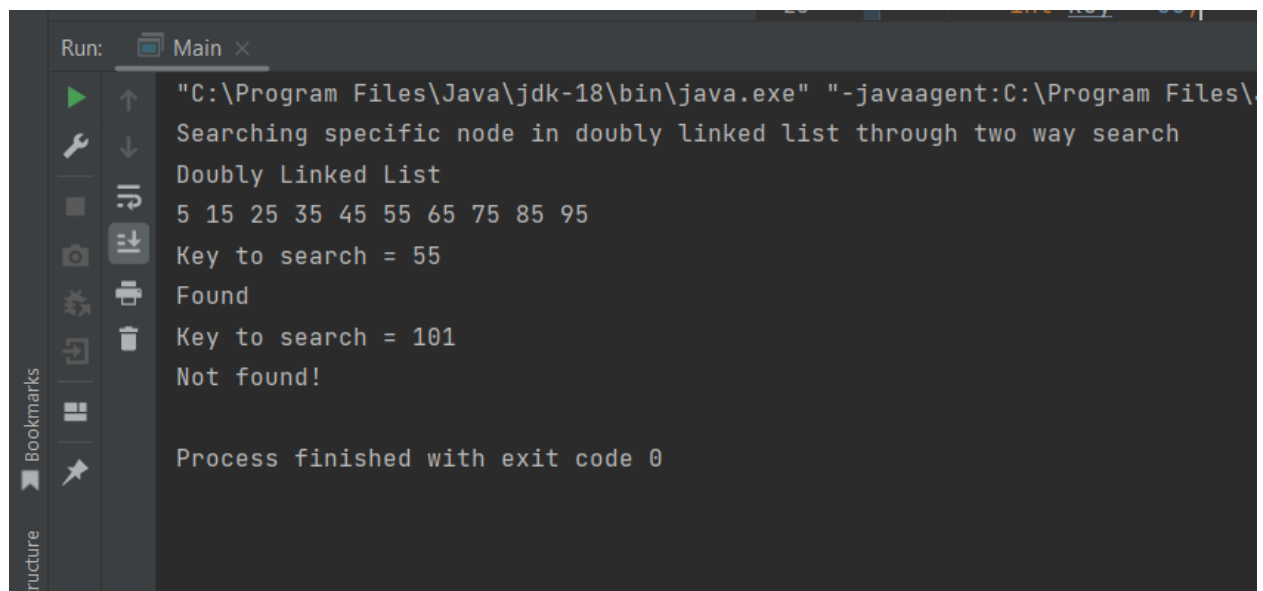
Implement two way search on doubly linked list.

Method Code:

```
public boolean twoWaySearch(int key) {
    if (key == head.data) {
        return true;
    } else if (key == tail.data) {
        return true;
    } else {
        DoublyNode currentHead = head.next;
        DoublyNode currentTail = tail.prev;
        while ((currentHead != currentTail) && (currentHead.prev
!= currentTail.next) && (currentHead.prev != currentTail))
        {
            if (key == currentHead.data || key ==
currentTail.data) {
                return true;
            }
            currentHead = currentHead.next;
            currentTail = currentTail.prev;
        }
    }
    return false;
}
```

```
        }
        currentHead = currentHead.next;
        currentTail = currentTail.prev;
    }
    if (key == currentHead.data || key == currentTail.data)
    {
        return true;
    }
}
return false;
}
```

Output



The screenshot shows the Run console of a Java IDE. The output text is as follows:

```
Run: Main x
"C:\Program Files\Java\jdk-18\bin\java.exe" "-javaagent:C:\Program Files\
Searching specific node in doubly linked list through two way search
Doubly Linked List
5 15 25 35 45 55 65 75 85 95
Key to search = 55
Found
Key to search = 101
Not found!

Process finished with exit code 0
```

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