

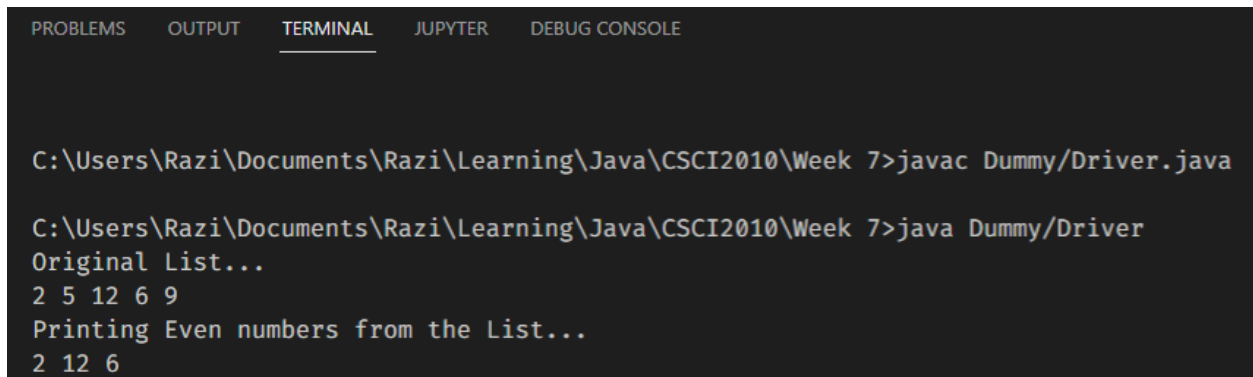


Academic Year	2022
Semester	<input checked="" type="checkbox"/> Fall <input type="checkbox"/> Winter <input type="checkbox"/> Summer
Course Code - Name	CSCI 2010U – Data Structures
Instructor	Dr. Razi Iqbal
Assessment	Exercise 5

Question 1 (Basic)

This exercise tests your knowledge of LinkedLists in Java.

Write a Java program that creates a class `LinkedList` with some initial methods like `insert` and `print` as done in the lecture. Create a new function in this class `printEven()` that would only print the even numbers from this list. Use the `main` method in the `Driver` class to generate an output shown below:



```
PROBLEMS  OUTPUT  TERMINAL  JUPYTER  DEBUG CONSOLE

C:\Users\Razi\Documents\Razi\Learning\Java\CSCI2010\Week 7>javac Dummy/Driver.java

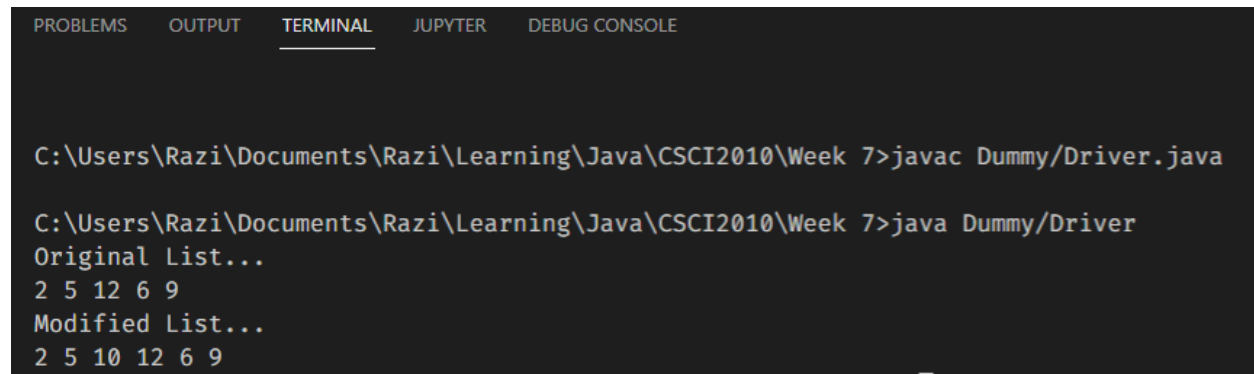
C:\Users\Razi\Documents\Razi\Learning\Java\CSCI2010\Week 7>java Dummy/Driver
Original List...
2 5 12 6 9
Printing Even numbers from the List...
2 12 6
```

Try to run the program using commands in terminal to get more practice.

Question 2 (Intermediate)

This exercise tests your knowledge of LinkedLists in Java.

Write a Java program that creates a class `LinkedList` with some initial methods like `insert` and `print` as done in the lecture. Create a new function in this class `public void insertAfter(int number, int newNumber)` that takes in two integers as parameters. This function is expected to insert a number (`int newNumber`) in the `LinkedList` after a certain number (`int number`). So, basically, you'll search for a number in the `LinkedList` and if that number is found, you need to insert this `newNumber` after that number in the `LinkedList` which is a bit different from what we have been doing which is always inserting the element at the end of the list. Use the `main` method in the `Driver` class to generate an output shown below:



```
PROBLEMS  OUTPUT  TERMINAL  JUPYTER  DEBUG CONSOLE

C:\Users\Razi\Documents\Razi\Learning\Java\CSCI2010\Week 7>javac Dummy/Driver.java

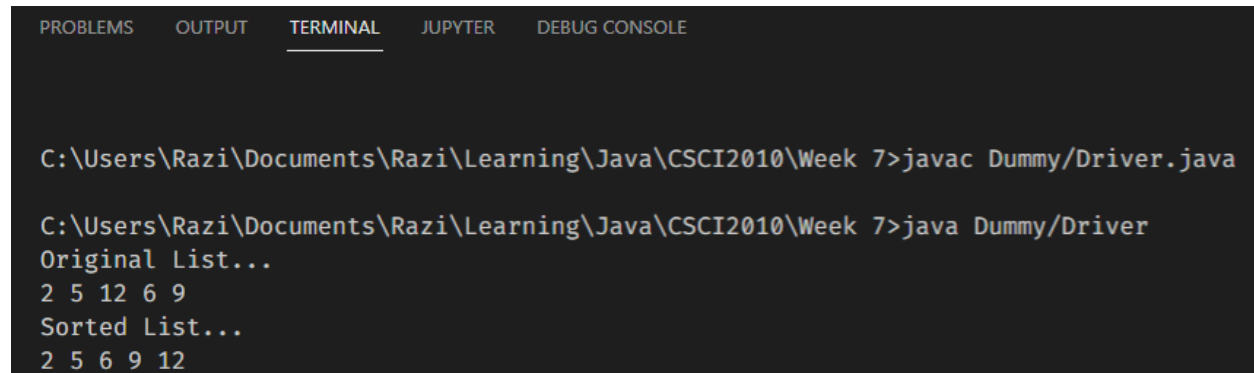
C:\Users\Razi\Documents\Razi\Learning\Java\CSCI2010\Week 7>java Dummy/Driver
Original List...
2 5 12 6 9
Modified List...
2 5 10 12 6 9
```

Try to run the program using commands in terminal to get more practice.

Question 3 (Advanced)

This exercise tests your knowledge of LinkedLists in Java.

Write a Java program that creates a class `LinkedList` with some initial methods like `insert` and `print` as done in the lecture. Create a new function in this class `public void sort()` that would sort the LinkedList nodes in ascending order. For this exercise, use Bubble Sort. Use the `main` method in the `Driver` class to generate an output shown below:



```
PROBLEMS  OUTPUT  TERMINAL  JUPYTER  DEBUG CONSOLE

C:\Users\Razi\Documents\Razi\Learning\Java\CSCI2010\Week 7>javac Dummy/Driver.java

C:\Users\Razi\Documents\Razi\Learning\Java\CSCI2010\Week 7>java Dummy/Driver
Original List...
2 5 12 6 9
Sorted List...
2 5 6 9 12
```

Try to run the program using commands in terminal to get more practice.
