

Split Evens/Odds Project Instructions

Split a list into two lists, one with even numbers and the other with odd numbers. Do this by manipulating the node pointers rather than by inserting or deleting nodes. The original list should be empty when the process is completed. Use the iterator to display the lists in the client program. Don't print them inside the class and don't use the member function **print** in your client program.

You will be supplied with the source code for the Linked List ADT (**linkedList.h** and **unorderedLinkedList.h**) as described in the slides on the Canvas page.

To accomplish this, derive the class **intLinkedList** from the class **unorderedLinkedList** (which is provided) using this as the header file:

```
class intLinkedList: public unorderedLinkedList<int> {
public:
    void splitEvensOddsList(intLinkedList &evensList,
                           intLinkedList &oddsList);
    // Function to rearrange the nodes of the linked list so
    // that evensList consists of even integers and oddsList
    // consists of odd integers.
    // Postcondition: evensList consists of even integers.
    // oddsList consists of odd integers.
    // The original list is empty.
    //
};
```

Write the definition of the function **splitEvensOddsList**. This function does not create any new nodes, it only rearranges the nodes of the original list so that nodes with even integers are in **evensList** and nodes with odd integers are in **oddsList**. The original list is empty when the function completes. Write a program that uses class **intLinkedList** to create a linked list of integers and then uses the function **splitEvensOddsList** to split the list into two sublists. The header files **linkedList.h** and **unorderedLinkedList.h** are supplied.

Your test program should produce output like this:

```
Enter integers ending with -999
34 62 21 10 15 90 66 53 7 120 88 36 90 11 17 24 10 -999

list: 34 62 21 10 15 90 66 53 7 120 88 36 90 11 17 24 10
evensList: 34 62 10 90 66 120 88 36 90 24 10
oddsList: 21 15 53 7 11 17
```

Your test program should use **iterators** to print the lists rather than the class print functions.

Workflow for the Split Evens-Odds Project

This is a standalone project. This project will not require branches. Create a project in the IDE of your choice and call it Split Evens-Odds Project. Add the provided linked list class files. Create the header file for your **intLinkedList** class. Make sure to create a repository on GitHub and commit your final changes before submitting the assignment. It is always a good idea to commit as you go along to avoid mishaps with your files.