BIG NUMBER CALCULATOR

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ANALYSIS:

- In this assignment we performed multiple operations on the Big Numbers implementing Single Linked List and Doubly Linked List.

- We also designed a GUI of a calculator so that the user finds it easy to perform the arithmetical calculations like Addition, Subtraction, Multiplication and also boolean operations like Greater than, Less than and Equals

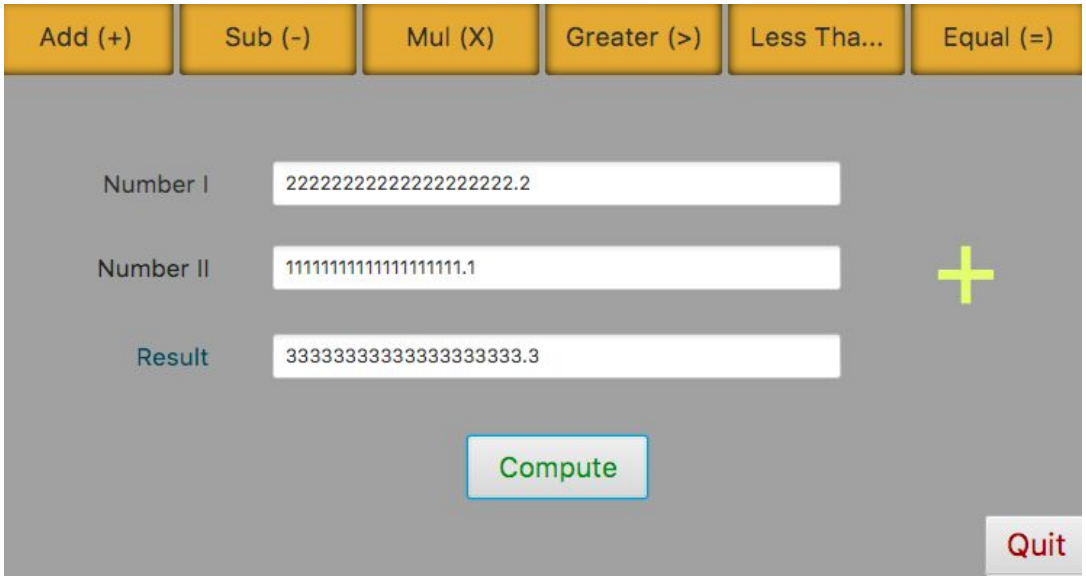
ISSUES FACED:

1. Storing Values in the LinkedList

2. To implement decimal point values

3. Performing the operations

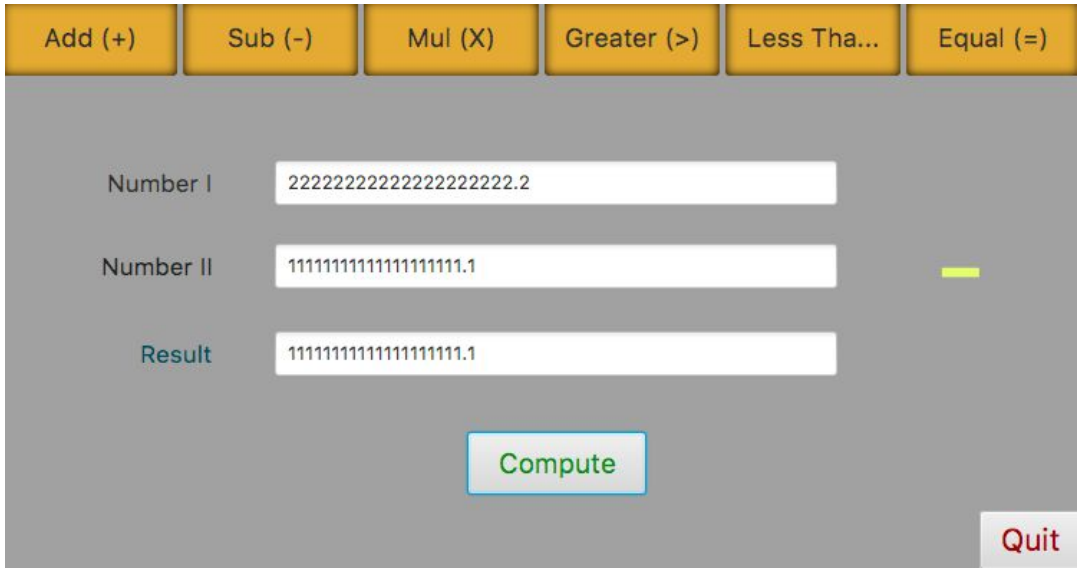
ADDITION:



Steps:

1. Read from the text field and store as String value
2. Use a for loop to parse all char in the string to a LinkedList
3. Find decimal position
4. Align the two LinkedList based on the decimal position
5. Add zeros to the shorter linkedlist
6. Perform the add operation
7. If the result of add is larger than 10, put the carrier on the former digit
8. Return the result as a LinkedList
9. Convert it to a String to show on the GUI

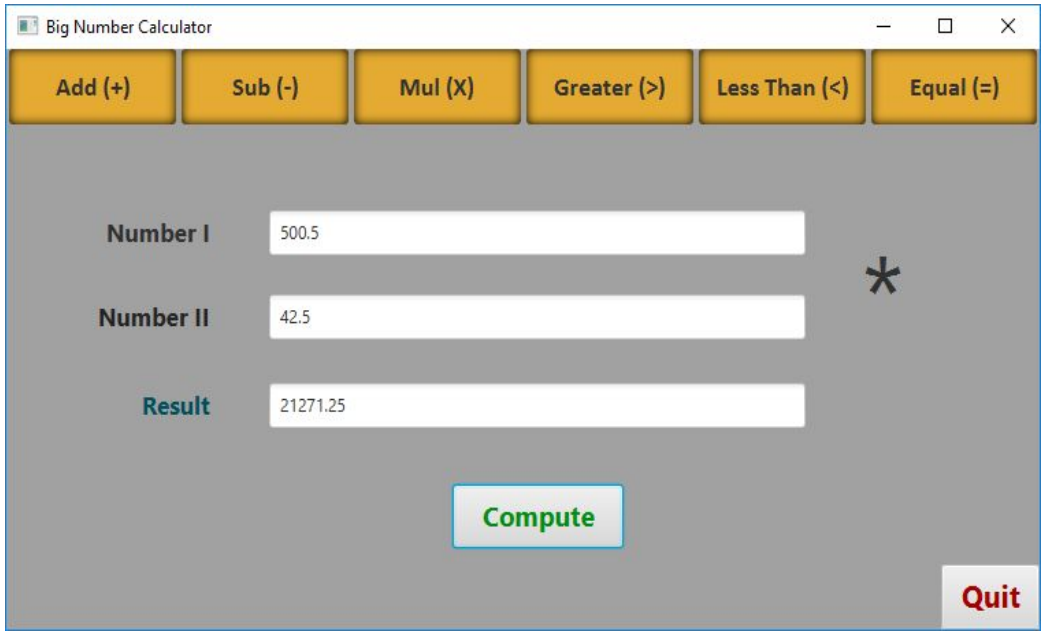
SUBTRACTION:



Steps:

1. Read from the text field and store as String value
2. Use a for loop to parse all char in the string to a LinkedList
3. Find decimal position
4. Align the two LinkedList based on the decimal position
5. Add zeros to the shorter linkedlist
6. Perform the minus operation
7. If the first digit is smaller than the second, add 10 to it and perform the operation
8. Return the result as a LinkedList
9. Convert it to a String to show on the GUI

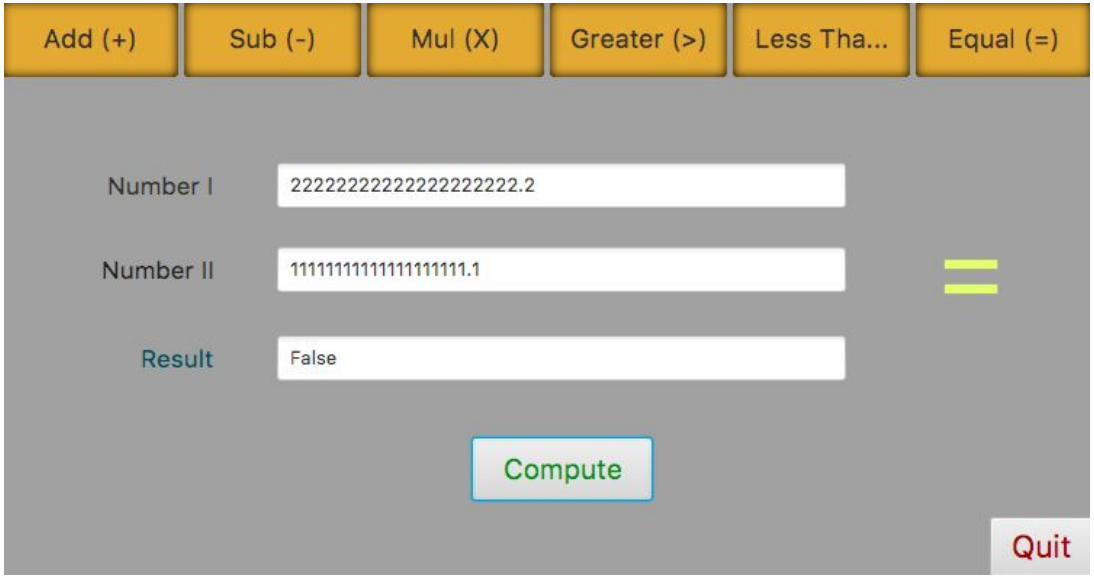
Multiplication



Steps:

- Fill two linked lists
- Find decimal place, add one if needed
- Calculate how many integers come after both decimals, sum them
- Reverse both lists
- Perform Multiplication by iteration
- Perform Addition
- Reverse linked list
- Add back digits
- Set answer to textfield

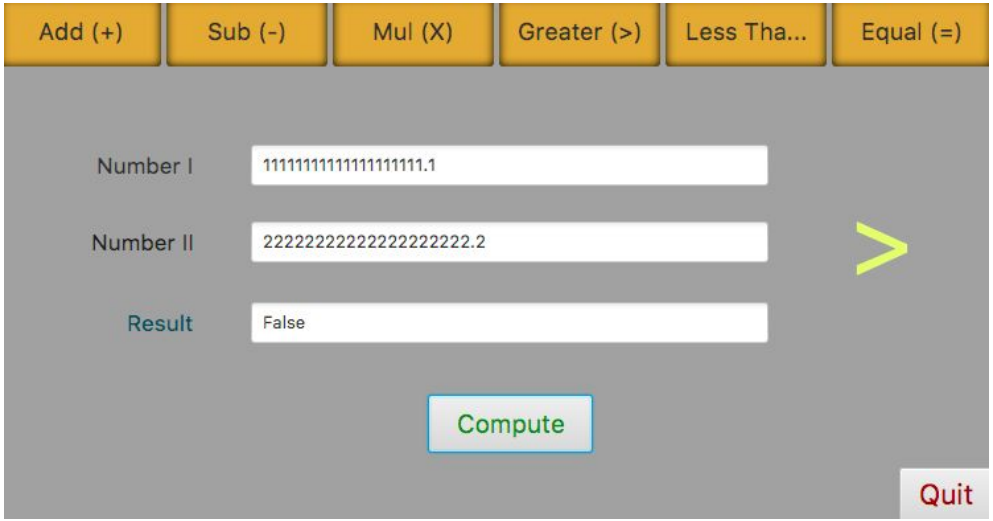
Equal



Steps:

1. Read from the text field and store as String value
2. Use a for loop to parse all char in the string to a LinkedList
3. Find decimal position
4. Align the two LinkedList based on the decimal position
5. Add zeros to the shorter linkedlist
6. Check each digit in the LinkedList is equal or not
7. Store the result, either “True” or “False” into a String
8. Show the String in GUI

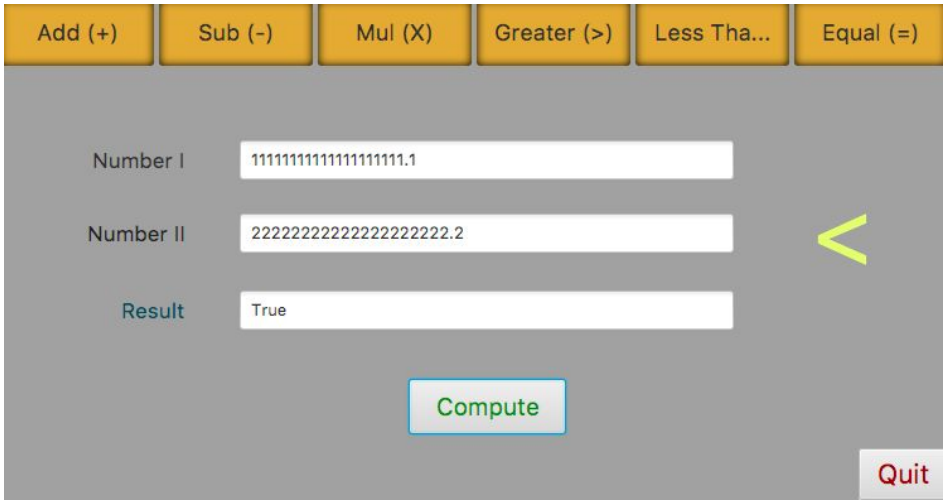
Greater than



Steps:

1. Read from the text field and store as String value
2. Use a for loop to parse all char in the string to a LinkedList
3. Find decimal position
4. Align the two LinkedList based on the decimal position
5. Add zeros to the shorter linkedlist
6. First check the decimal point: Decimal point position can tell us if it is greater
7. Then, if they have same decimal points, check each digit in the linkedlist.
8. Store the result, either “True” or “False” into a String

Less than



Steps:

1. Read from the text field and store as String value
2. Use a for loop to parse all char in the string to a linkedlist
3. Find decimal position
4. Align the two linkedlist based on the decimal position
5. Add zeros to the shorter linkedlist
6. First check the decimal point: Decimal point position can tell us if it is smaller
7. Then, if they have same decimal points, check each digit in the linkedlist.
8. Store the result, either “True” or “False” into a String

CONCLUSION

Successfully implemented operations on all the big number using Linked List

THANK YOU