CHAPTER 4
ANALYSIS AND DESIGN

4.1 Analysis

The problem faced when working on this program is the problem when setting the X and Y coordinate points and the size of the object to be drawn using Canvas HTML5. The canvas size is also limited, so the linked list that will be drawn/visualize here is limited too. Thoroughness is needed to get the proportional position and size of the object.

Other difficulties in the work of this program is when implements sorting methods into Linked List. In the example contained in the journal article is only an illustration that applied to the Array. Therefore this visualization program is made from scratch.

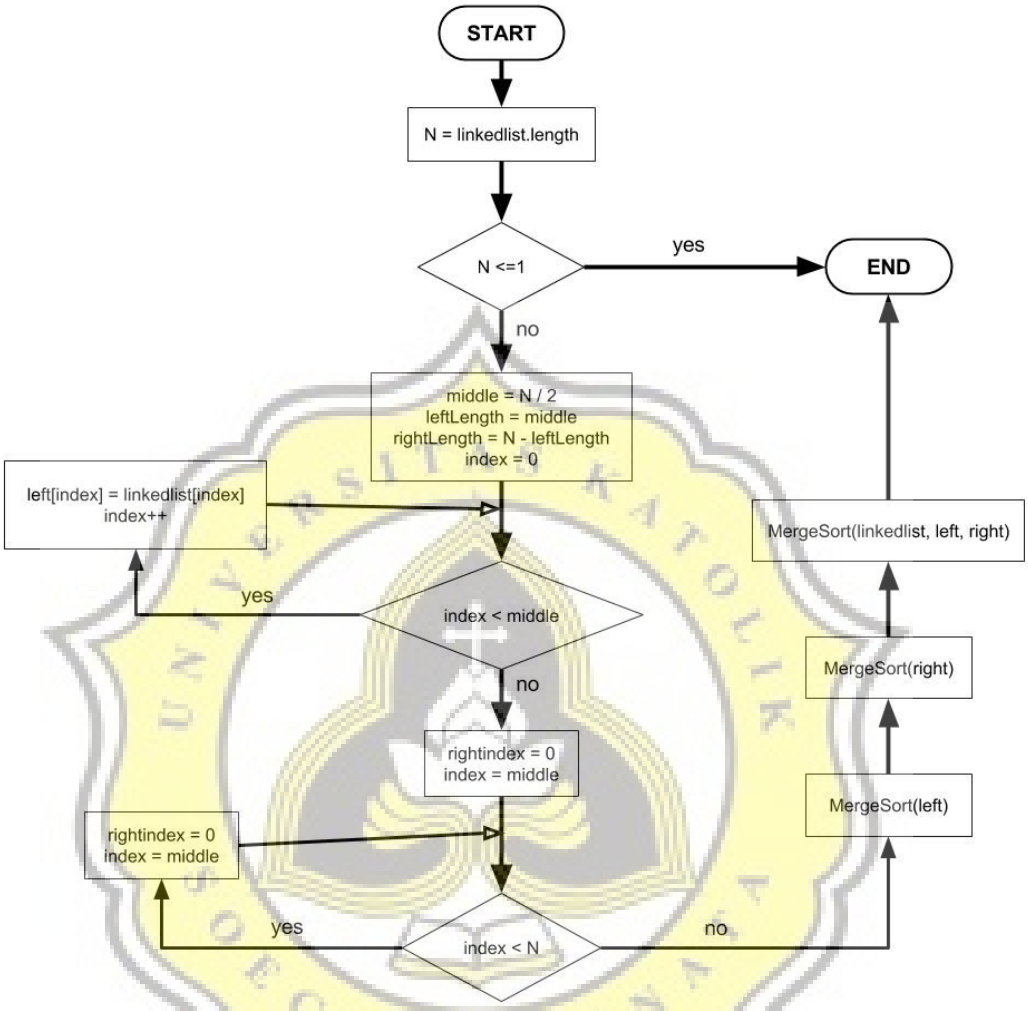

Illustration 4.1.1: Merge Sort Flowchart

The flowchart above is about Merge Sort sorting algorithm. That flowchart explains about the workings of the Merge Sort algorithm. This algorithm divide the linked list into the two same part, then sort the first and the second part, after that the linked list that have been divided is combined again with the sorted linked list data.

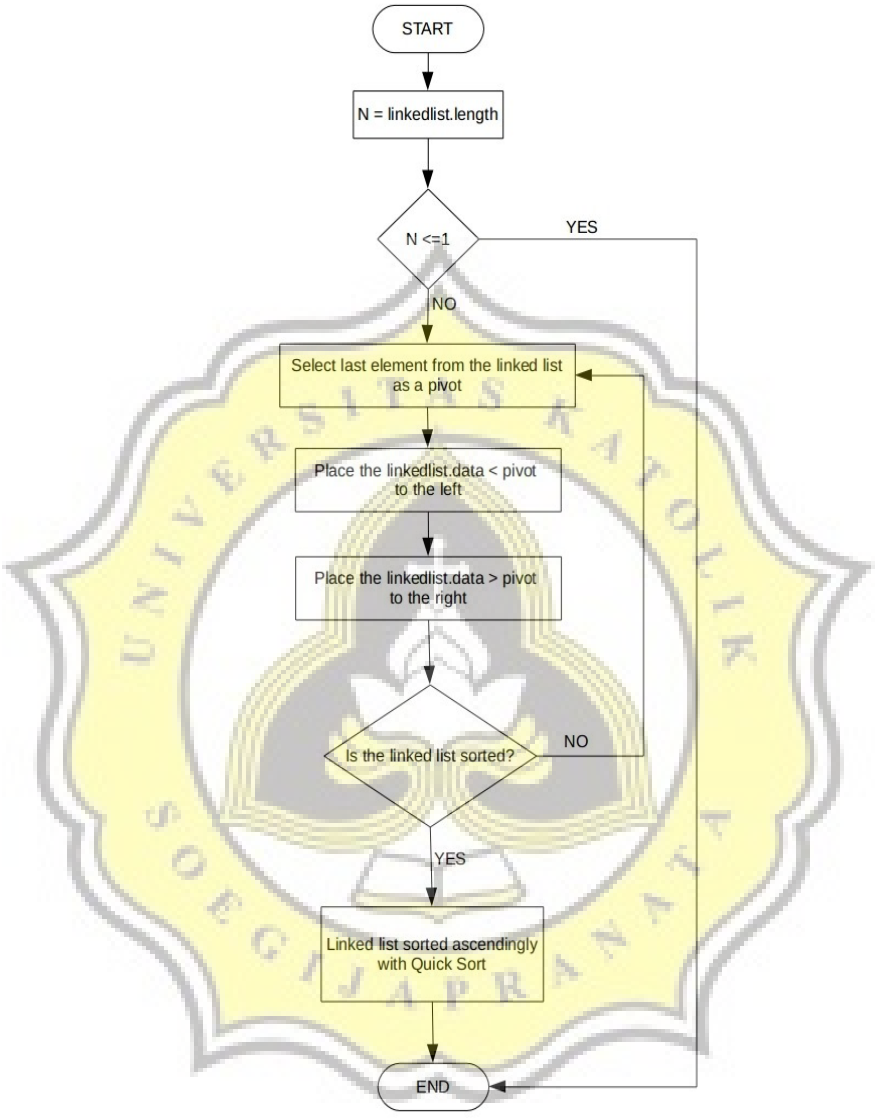

Illustration 4.1.2: Quick Sort Flowchart

This sorting algorithm almost the same as the Merge Sort, because using the divide and conquer method. First thing to do is set the last element of the data as a pivot. Next step is place the data that smaller than pivot value to the left and the greater value to the right. Then check the data, is it sorted yet or not. If not, repeat for set the last element again then placing the greater and smaller value again like before until the linked list is well sorted.

4.2 Design

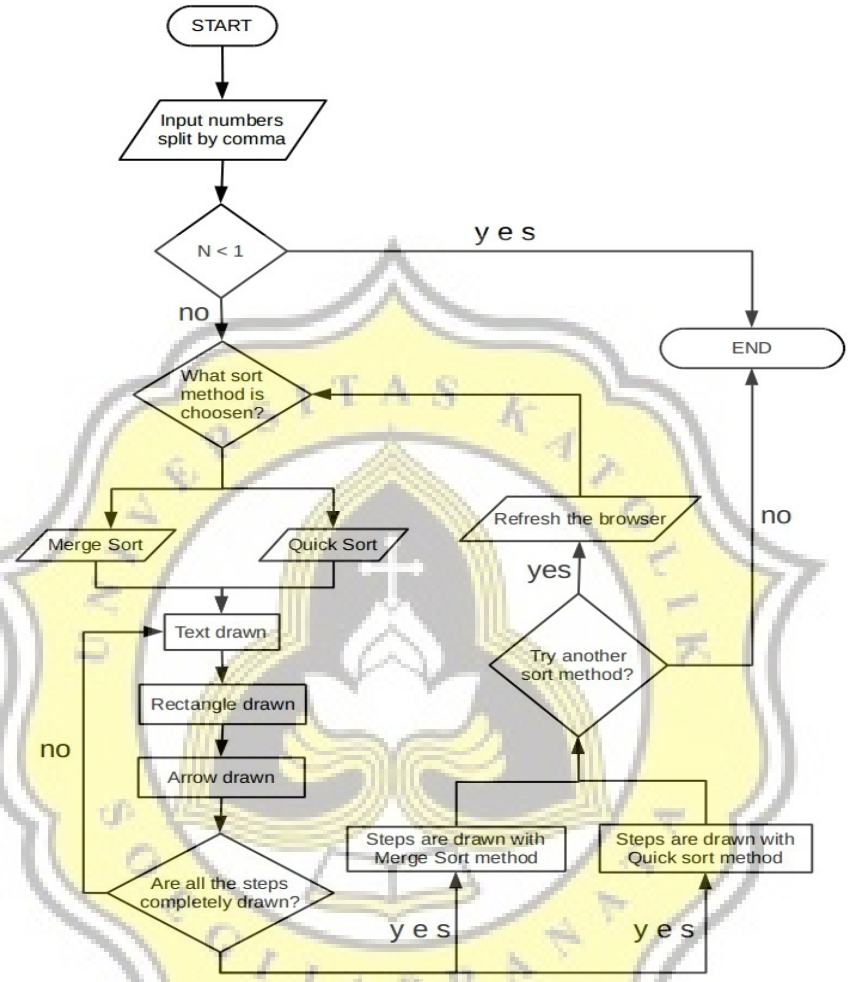

Illustration 4.2.1: Workings of the Program

The flowchart above explain about the workings of the program. Start with inputting the numbers that splitted by comma to the text field and then choose the sorting method that user desire. After clicking the sorting method button, the objects like texts, rectangles and arrows will be drawn inside the canvas. If the steps not yet completely drawn, drawing process will repeat until the visualization steps is truly drawn. After the visualization truly drawn, if user want to try another sort method, user can refresh the browser and then choose the another sort method with the same inputted data numbers.