Raja Durai M
May 2021 - Jun 2021
Trichy, India.

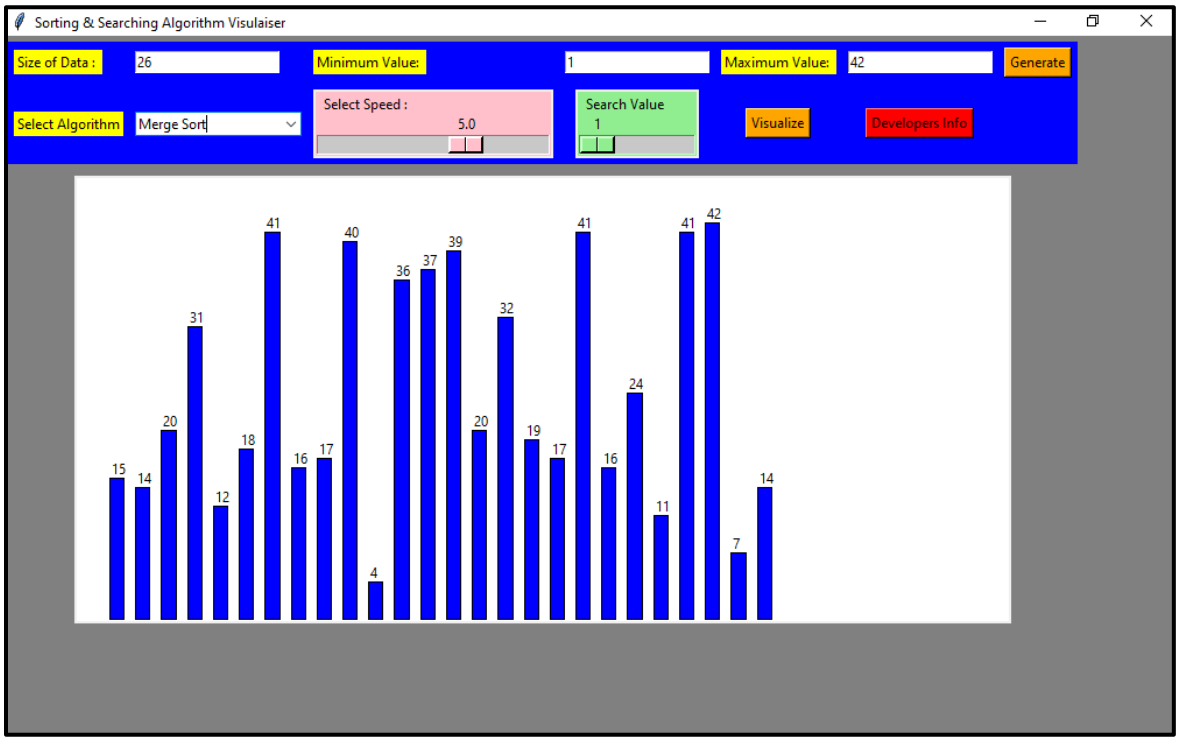
Sorting & Searching Visualizer

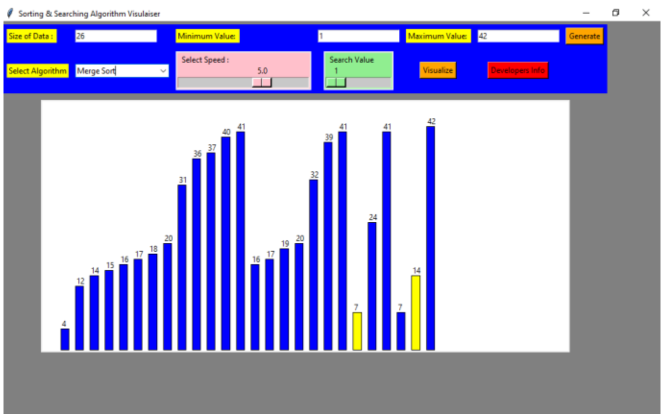
Project Overview

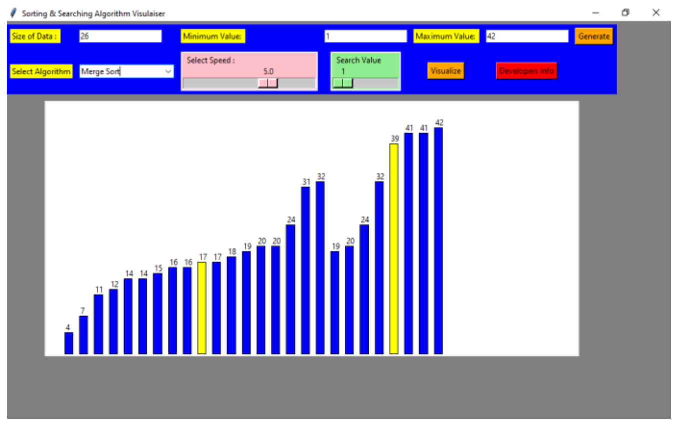
- ✓ Devised a dynamic **Python Tkinter GUI** to visualize sorting & searching algorithms.
- ✓ Implemented 7 primary searching & sorting algorithms, including Merge Sort, Quick Sort Insertion Sort and Binary Search and displayed data in a normalized bar graph structure.

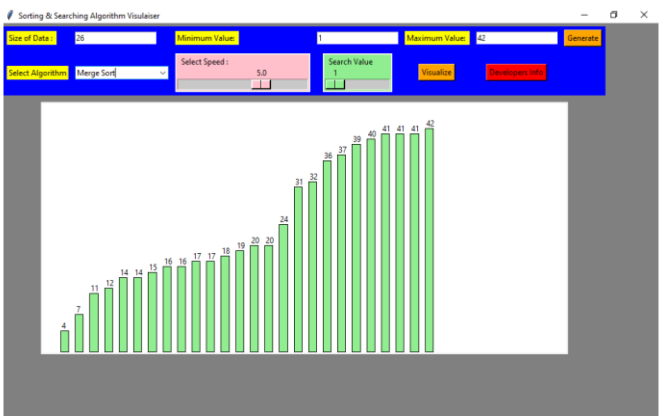
Accomplishments

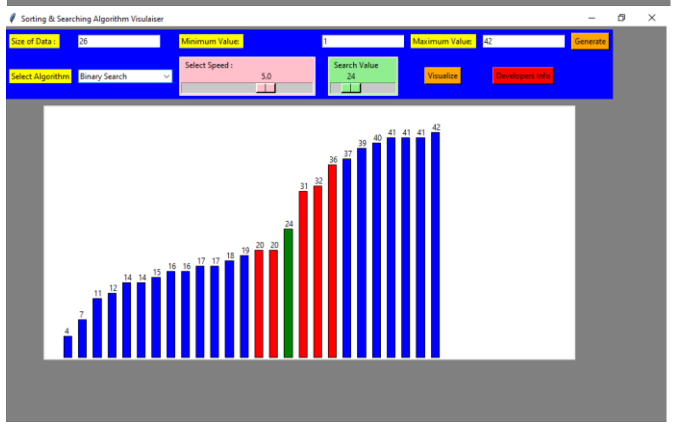
- **USER INTERFACE**
  - ✓ Size of data, min & max value, Algorithm, Speed, Search Value(if Searching Algorithm) are taken from the user using the text box and drop-down list box .
  - ✓ Generate button is provided to generate random data in accordance with the user input.
  - ✓ Users can know about the developers by using the developer info button.
- **DATA DISPLAY**
  - ✓ Once the user clicks 'generate', random data is generated in the form of a bar graph.
  - ✓ By clicking RUN, the user can visualize the corresponding algorithm selected, and the speed of the simulation can be controlled using the speed scale.











Observations

- Initially, all the bars are set to blue, and once the algorithm starts executing the data.
- Data that is currently involved are displayed in yellow colour.
- Once the sorting is in progress, all the bars gradually changes to light green colour, and at the end, all changes to green colour, denoting the sorting algorithm, is finished.
- If a searching algorithm is chosen, if the displayed data is not sorted, then first Merge Sort is executed snd then the corresponding searching algorithm is executed, and the search value is highlighted green in colour.

Conclusion

- ✓ The entire project is done in Python with the help of Tkinter for a better user interface.
- ✓ Each algorithm is implemented in a separate Python file and used inside the main file during execution.
- ✓ Images of the project are included above for reference.