Nahin Kumar Dey
UTA ID:1002204142

USER MANUAL

1. This user manual provides instructions for using the Sorting Algorithm Comparison Tool. This tool allows users to compare the runtime performance of various sorting algorithms using a graphical user interface (GUI).

2. Getting Started

- Ensure you have Python installed on your system. You can download Python from the official website: Python.org.
- Download the provided Python script (sorting_algorithm_comparison.py) to your local machine.

3. Running the Application

- Open a terminal or command prompt on your computer.
- Navigate to the directory where the Python script (sorting_algorithm_comparison.py) is saved.
- Run the script by executing the following command.
- *python sorting_algorithm_comparison.py*
- This will launch the Sorting Algorithm Comparison Tool GUI.

4. Using the GUI

- Once the GUI is launched, you will see a window titled "Sorting Algorithm Comparison".
- The window contains the following elements:

    a. Algorithm Selection Dropdown: This dropdown allows you to select one or more sorting algorithms to compare. Initially, it contains a single dropdown with options for different sorting algorithms.
    b. Add Algorithm Button: Clicking this button adds another dropdown to select additional sorting algorithms for comparison.
    c. Input Size Entry: Here, you can enter the size of the input data that will be used for sorting. Enter a numerical value representing the size of the input data.
    d. Run Algorithm(s) Button: Clicking this button will execute the selected sorting algorithms with the specified input size and display the runtime results.
    e. Runtime Results Label: This label will display the runtime results for the selected algorithms. The runtime for each algorithm will be shown in seconds.

5. Comparing Algorithms

- Follow these steps to compare sorting algorithms:
  a. Select one or more sorting algorithms from the dropdown(s) provided. You can choose from options like Merge Sort, Heap Sort, Quick Sort, etc.
  b. Enter the desired input size into the "Input Size" entry field.
  c. Click the "Run Algorithm(s)" button to execute the selected algorithms with the specified input size.
  d. After execution, the runtime results for each selected algorithm will be displayed in the "Runtime Results" section.

6. Adding More Algorithms

If you want to compare additional sorting algorithms, click the "Add Algorithm" button. This will add another dropdown for selecting additional algorithms.

7. Exiting the Application

To close the Sorting Algorithm Comparison Tool, simply close the GUI window by clicking the close button (usually an 'X' icon) on the window title bar.

References:

1. https://www.tutorialspoint.com/what-does-calling-tk-actually-do
2. https://stackoverflow.com/questions/1441134/tkinter-grid-geometry-manager-size-propagation-with-sticky
3. https://www.geeksforgeeks.org/python-creating-a-button-in-tkinter/
4. https://www.javatpoint.com/python-tkinter-button
5. https://www.tutorialspoint.com/python/tk_radiobutton.htm