Technical Documentation of Linear Search Application in VB.NET

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Form1 Class

Private Fields

1. **filePath (Private String):** Stores the path of the file to be processed.
2. **targetElement (Private String):** Stores the target element to be searched in the ListView.
3. **considerCase (Private Boolean):** A flag indicating whether the search should be case-sensitive.
4. **speedVal (Private Integer):** Specifies the animation speed during item highlighting in milliseconds.

Methods

`NormalizeFloat(input As String) As String`

- **Description:** Normalizes the input string by attempting to parse it as a double and converting it back to a string.
- **Parameters:**
  - `input (String):` The input string to be normalized.
- **Returns:**
  - `String:` The normalized string.

`Form1_Load(sender As Object, e As EventArgs) Handles MyBase.Load`

- **Description:** Handles the form load event and initializes default settings.
- **Initialization:**
  - `considerCase:` Defaulted to `False`.
  - `speedVal:` Defaulted to `500`.
  - Adds animation speed options to ComboBox and sets the default selection to "Medium."

`LoadFileContent(filePath As String)`

- **Description:** Reads the content of the specified file and populates the ListView.
- **Parameters:**
  - `filePath (String):` The path of the file to be loaded.
- **File Reading:**
  - Uses a StreamReader to read the file line by line.
  - Normalizes float values using the `NormalizeFloat` method.
  - Populates the ListView with ListViewItem objects.

`ButtonSearch_Click(sender As Object, e As EventArgs) Handles ButtonSearch.Click`

- **Description:** Handles the button click event to initiate the search operation.

- **Validation:**
    - Checks if the file is empty and displays an error message if true.
    - Retrieves the target element from the TextBox and validates if it is empty.

wait(interval As Integer)

- **Description:** Waits for the specified interval using a custom wait mechanism.
- **Parameters:**
    - interval (Integer): The interval to wait in milliseconds.

HighlightItems()

- **Description:** Highlights items in the ListView based on the specified target element.
- **Search Algorithm:**
    - Iterates through ListView items.
    - Compares items with the target, considering case sensitivity.
    - Highlights items with animation and displays messages when the target is found or not.

HighlightItem(index As Integer, color As Color)

- **Description:** Highlights a specific item in the ListView with the specified color.
- **Parameters:**
    - index (Integer): The index of the item to be highlighted.
    - color (Color): The color to use for highlighting.

OpenFileDialog1_FileOk(sender As System.Object, e As System.ComponentModel.CancelEventArgs) Handles OpenFileDialog1.FileOk

- **Description:** Handles the file selection dialog event and loads file content when the dialog is closed.
- **File Loading:**
    - Calls LoadFileContent if a file is selected.

ButtonLoad_Click(sender As System.Object, e As System.EventArgs) Handles ButtonLoad.Click

- **Description:** Handles the button click event to open the file selection dialog.
- **Dialog Opening:**
    - Initiates the OpenFileDialog for file selection.

RadioButton1_CheckedChanged(sender As System.Object, e As System.EventArgs) Handles RadioButton1.CheckedChanged

- **Description:** Handles the RadioButton checked change event to update the case sensitivity setting.
- **Update Setting:**
    - Sets considerCase based on the RadioButton state.

ComboBox1_SelectedIndexChanged(sender As System.Object, e As System.EventArgs) Handles ComboBox1.SelectedIndexChanged

- **Description:** Handles the ComboBox selected index change event to update the animation speed setting.
- **Update Setting:**
    - Sets `speedVal` based on the selected ComboBox option.

Note

For more explanation regarding logics of each method, refer to inline documentation in the source code.