The provided code is a C# console application named `NameSort` that sorts a list of names from a text file and writes the sorted list to a new text file.

Here's a documentation of the code:

1. \*\*NameSorter Class\*\*

- The `NameSorter` class is the main class of the application.

- The `Main` method creates an instance of the `NameSorter` class, which triggers the constructor.

2. \*\*Constructor\*\*

- The constructor performs the following tasks:

- Retrieves the path of the input text file (`UnSortedNames.txt`) located in the project directory.

- Reads the unsorted names from the input file using `File.ReadAllLines`.

- Calls the `SortNames` method to sort the names.

- Calls the `PrintNames` method to print the sorted names to the console.

- Calls the `WriteNamesToFile` method to write the sorted names to a new text file (`sorted-names-list.txt`).

3. \*\*SortNames Method\*\*

- This method takes an array of unsorted names as input.

- It sorts the names based on the last name (the part after the last space) using `OrderBy`.

- If two names have the same last name, it sorts them alphabetically using `ThenBy`.

- The sorted names are returned as a `List<string>`.

4. \*\*PrintNames Method\*\*

- This method takes a `List<string>` of names as input.

- It iterates through the list and prints each name to the console using `Console.WriteLine`.

5. \*\*WriteNamesToFile Method\*\*

- This static method takes a `List<string>` of names as input.

- It retrieves the path of the output text file (`sorted-names-list.txt`) located in the project directory.

- It writes the sorted names to the output file using `File.WriteAllLines`.

- Alternatively, it demonstrates how to achieve the same result using `StreamWriter`.

The application expects an input text file named `UnSortedNames.txt` to be present in the project directory, containing a list of unsorted names (one name per line). When executed, it sorts the names alphabetically by last name, prints the sorted names to the console, and writes the sorted names to a new text file named `sorted-names-list.txt` in the project directory.