API Reference

Welcome to the API documentation for the **BelNytheraSeiche.WaveletMatrix** library. This library is organized into several key components that work together to provide powerful sequence and text analysis capabilities.

Below is an overview of the main classes and their roles.

Core Data Structures

These are the fundamental building blocks of the library.

- ### WaveletMatrixGeneric

  The main generic class for creating a Wavelet Matrix from any `IComparable<T>` sequence. It handles coordinate compression and provides a rich set of query APIs.

- ### WaveletMatrixCore

  The high-performance, non-generic engine that powers the `WaveletMatrixGeneric<T>`. It operates directly on integer sequences.

- ### FischerHeunSparseTable

  Helper data structure used for answering Range Minimum/Maximum Queries (RMQ) in O(1) time, respectively. This is used internally by `LcpIndex`.

Text Analysis Components

These classes are specialized for advanced stringology and full-text search.

- ### SuffixArray

  The foundational class for most text analysis. It builds a Suffix Array and LCP Array from a given text, enabling fast substring searches.

- ### LcpIndex

  An index built on top of a `SuffixArray` that provides advanced O(1) LCP queries. This is the key to complex analyses like finding tandem repeats or calculating string complexity.

- ### FMIndex

  The high-level, all-in-one full-text search index. It combines the power of the `WaveletMatrix`, `SuffixArray`, and Burrows-Wheeler Transform to offer extremely fast pattern counting (`Count`) and

locating (`Locate`).

- ## BurrowsWheelerTransform

  A static utility class that performs the Burrows-Wheeler Transform, a key step in building the `FMIndex`.