# Preprocess Implementation

The purpose of PinYinUtils.java is to convert shuffled Chinese .txt file into pinyin String through pinyin4j library.

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Name is the class which contains the constructor which can input a String and output toString() method result with comparison method in Collator library.

文本

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Read the shuffled Chinese .txt file.

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Create a two-dimensional array which contains Chinese name and those pinyin names. This two-dimensional array can be both used in initializing arrays in sorting with Pinyin4j library and Collator library.

文本

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This class is a tool class which help sorting by MSD with collator library.

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**sortWithPinYin4j & sortWithCollator:**

**1.sort:**

Because we need to test the running time in converting and sorting, so we need to create a function that we can change the input parameter value to define the array length, then initializing the array and sort this array in pinyin order.

Then we have used the above mentioned sorting functions to sort name array in correct pinyin order.

**文本

中度可信度描述已自动生成**

**文本

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**benchmark:**

This package is gotten from the class repository, we can use Benchmark\_Timer class as a constructor to create any test objects in any benchmark main classes to test the running time in average, then print it in the console output.

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For example, this is a test driver function in sortWithPinYin4j package and DualPivotQuickSort class.

# Unit Test

#### Two different arrays’ running time is similar, it can prove the run() function in BenchmarkTimer.class is correct.

电脑萤幕的截图

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图形用户界面, 文本

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**Utils:**

This package got from the class repository, so the test result is correct, as we could prove it since Assignment2.

**sortWithCollator & sortWithPinYin4j:**

Tests in these two packages show the correctness in implementing each sort. First, we use different Chinese names to test the sorting algorithms. Second, we use Chinses words with same last name and different first names, Chinese names which last names have different tones to test the algorithm.

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