WILLIAMS SONOMA CODING CHALLENGE

PROBLEM STATEMENT

Given a collection of 5-digit ZIP code ranges (each range includes both their upper and lower bounds), provide an algorithm that produces the minimum number of ranges required to represent the same restrictions as the input.

OBJECT DECOMPOSITION

|  |  |  |
| --- | --- | --- |
| **Class Name** | **Functionality Description** | **Reusability Quotient** |
| Zipcode Processor | This is the main class of this solution, from where execution starts. It contains the high-level application flow, represented in terms of function calls. | N/A |
| Zipcode | This is the data structure of the Zipcode ranges. It contains fields and methods to perform operations on Zipcode Object. | N/A |
| Zipcode Comparator | This class contains the comparator logic to return the greater start value in given two ranges of zip codes. | This class can be reused to compare any two values and can be used in other projects as well. It can compare Numeric or String values and returns   * 1 if the value being compared is smaller * -1 if the value being compared is larger |
| Zipcode Util | This class is the main part of this project and contains many reusable methods. It contains code for reading the input CSV file, sorting, and merging the ranges within the file. | Methods defined in this class provide sort and merge functionalities. To reuse this functionality, please import this class into your project and instantiate the ZipcodeUtil object, and then all the methods inside the object can be referenced as per necessity. |

SOLUTION FLOWCHART

Diagram

Description automatically generated

EXECUTION INSTRUCTIONS

* Clone the repository
* Import the project into your Eclipse or a preferred IDE
* Run the class ZipcodeProcessor as java application
* To test with more inputs, please upload the input as csv file to the resources folder and refer to the corresponding file name in ZipcodeProcessor.java

SAMPLE OUTPUT

Case1

Initial Zipcode List

94133,94133

94200,94299

94600,94699

Merged Zipcode List

94133,94133

94200,94299

94600,94699

Graphical user interface, text, application

Description automatically generated

Case2

Initial Zipcode List

94133,94133

94200,94299

94226,94399

Merged Zipcode List

94133,94133

94200,94399

Graphical user interface, text, application

Description automatically generated