Introduction to Java Programming

TIEI 2021-2022

CS Department ***Project report***

Fill in this report and turn it in together with all your Java source files.

Team members

Name (in English): Zhu Yaqiao student ID: 2021229038

Name (in English): Zhao Yihan student ID: 2021229033

YOUKU link to your video clip:

https://v.youku.com/v_show/id_XNTgzNjEyOTAwOA==.html

How many lines of code do you have in your project (don't count empty line or line with only curly brackets)?

about 330 lines

How many classes did you define in your program apart from the provided supporting classes?

One class Huffman node

How many methods did you define in your program?

18 methods

How much time did you spend working on this project (please detail for each team member)?

Our group spent a total of 5 days (4 hours a day for finishing the project) to complete this project. In the five days, each member of the group spent five days, including Pre-preparation (learning of java class library, familiarity with huffman coding algorithm, etc.), coding stage, debugging stage, testing stage, of course, if there is any problem, we can discuss it at any time.

Zhu Yaqiao：5 days in total, 20 hours

Zhao Yihan：5 days in total, 20 hours

How did you share the work (explain clearly who did what and how you managed to combine the work of all team members)?

The first part: We carefully checked the requirements of this project, and marked some details; after that, we first thought about the idea of the algorithm, roughly drew pseudocode, and inquired about the javaAPI to facilitate later coding; everyone has own ideas, we exchange ideas with each other, point out the loopholes in each other's ideas, remove the dross and take the essence; finally discuss a set of general ideas, and then enter the coding stage.

The second part: We are responsible for different modules, and the modules completed by each person will be listed below.

The third part: Test the robustness of the code and adjust the readability of the code. We test the pre-compressed and compressed files given by the teacher respectively.

Specific division of labor:

Zhu Yaqiao: Linearization of huffman tree, conversion of digital base, uncompression file (read the file by bytes, use the linearized code to construct the huffman code, traverse the encoded bytes and decode the huffman code, write the bytes into decompressed files), test code, write documentation, record video

Zhao Yihan: Writing input and output classes, compressing files (reading files by bytes, counting the weights of file characters, using algorithms to construct optimal huffman trees, constructing huffman codes, encoding files, and writing bytes into compressed files as required) , test code, write documentation, record video

Did you find the project (each team member select choice):

very easy – rather easy – average difficulty – rather difficult - difficult – very difficult

very easy – rather easy – average difficulty – rather difficult - difficult – very difficult

What was the easiest part in this project (each team member must answer)?

Zhu Yaqiao: Constructing Huffman coding through Huffman tree

Zhao Yihan: Read the file by byte and count the character weights

What was the most difficult part in this project (each team member must answer)?

Zhu Yaqiao: Linearization of Huffman Trees and Solution Linearization

Zhao Yihan: Linearization of Huffman Tree and Solution Linearization

Do you think the material you learned during class was sufficient to make the project? Explain your answer (each team member must answer)!

Zhu Yaqiao: It is useful. The learning of the decision tree is very useful for the linearization of the huffman tree and the construction of the huffman tree through the linearized code. Of course, other knowledge of learning java is also the foundation of the project I completed.

Zhao Yihan: Useful, as small as function construction, java map, list and other data types, logical statements, etc.; as large as file input and output streams, tree construction, recursive algorithm and hash algorithm.

Please give your feeling about that project (was it useful, interesting, necessary,..). Each team member must answer:

Zhu Yaqiao: Useful, I can apply some of the content I learned this semester to real scenarios, that is, I have reviewed knowledge points, such as Huffman tree, decision tree, Array List and pre-order traversal, etc., which has enabled me to learn more about Java. full of interest.

Zhao Yihan: useful, through the writing of this project, I learned about the general framework format of an engineering project: MVC, and realized the compression and decompression of files by writing Huffman coding, presumably some of the previous compression software used the Huffman method, At present, in the process of writing, I constantly think about how to implement algorithm ideas with code and constantly fix bugs, which are all valuable experiences for me.