

Quiz 4

Subject: Collections & File I/O

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Due Date: 11.12.2022 23:00

Introduction

Within the context of this quiz, you are going to gain experience on using different collections (dictionary, list and their functions) as well as on using File I/O. The scenario of this work is receiving a message which is split into multiple packets and transferred over the Internet. Packets are not received in order in which they are sent.

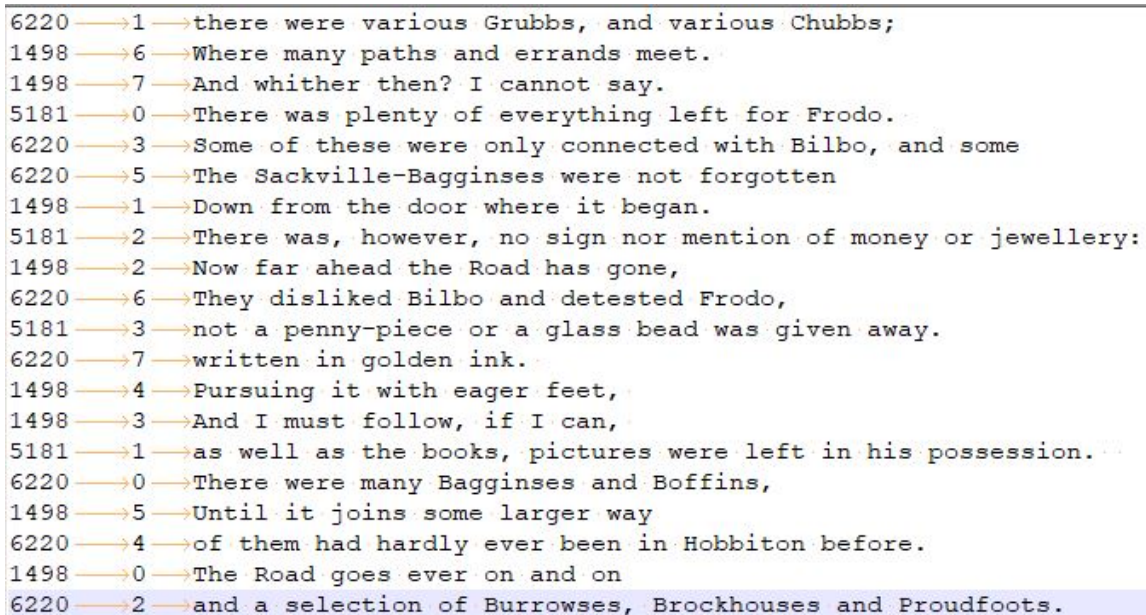
Your program must read the input file, sort the packets and write the completed messages to an output file. You will not print output to terminal, you just have to write it into output file which is given as system argument (outputFile.txt).

As you see from the input format, each line of input represents a single packet. each line is formatted as given below:

X (tab) Y (tab) message part

X represents message ID, Y represents packet ID. It is guaranteed that there will be no duplicate packets or message IDs.

Example Input:

The image shows a screenshot of a text file containing 20 lines of input data. Each line represents a packet and is formatted as 'message ID', 'packet ID', and 'message part'. The message ID is on the left, followed by a tab, then the packet ID, another tab, and finally the message part. The packets are not in order. The message being reconstructed is a paragraph from 'The Hobbit'. The last line of the input, '6220 → 2 → and a selection of Burrowses, Brockhouses and Proudfoots.', is highlighted in blue.

```
6220 → 1 → there were various Grubbs, and various Chubbs;
1498 → 6 → Where many paths and errands meet.
1498 → 7 → And whither then? I cannot say.
5181 → 0 → There was plenty of everything left for Frodo.
6220 → 3 → Some of these were only connected with Bilbo, and some
6220 → 5 → The Sackville-Bagginses were not forgotten
1498 → 1 → Down from the door where it began.
5181 → 2 → There was, however, no sign nor mention of money or jewellery:
1498 → 2 → Now far ahead the Road has gone,
6220 → 6 → They disliked Bilbo and detested Frodo,
5181 → 3 → not a penny-piece or a glass bead was given away.
6220 → 7 → written in golden ink.
1498 → 4 → Pursuing it with eager feet,
1498 → 3 → And I must follow, if I can,
5181 → 1 → as well as the books, pictures were left in his possession.
6220 → 0 → There were many Bagginses and Boffins,
1498 → 5 → Until it joins some larger way
6220 → 4 → of them had hardly ever been in Hobbiton before.
1498 → 0 → The Road goes ever on and on
6220 → 2 → and a selection of Burrowses, Brockhouses and Proudfoots.
```

Figure 1: An example of input file

As you see from the output format, each line is formatted as given below:

Message (tab) number

X (tab) Y (tab) message part

(number denotes 1,2,3,etc.)

Example Output:

```
Message>1
1498 →0 →The Road goes ever on and on
1498 →1 →Down from the door where it began.
1498 →2 →Now far ahead the Road has gone,
1498 →3 →And I must follow, if I can,
1498 →4 →Pursuing it with eager feet,
1498 →5 →Until it joins some larger way
1498 →6 →Where many paths and errands meet.
1498 →7 →And whither then? I cannot say.
Message>2
5181 →0 →There was plenty of everything left for Frodo.
5181 →1 →as well as the books, pictures were left in his possession.
5181 →2 →There was, however, no sign nor mention of money or jewellery:
5181 →3 →not a penny-piece or a glass bead was given away.
Message>3
6220 →0 →There were many Bagginses and Boffins,
6220 →1 →there were various Grubbs, and various Chubbs;
6220 →2 →and a selection of Burrowses, Brockhouses and Proudfoots.
6220 →3 →Some of these were only connected with Bilbo, and some
6220 →4 →of them had hardly ever been in Hobbiton before.
6220 →5 →The Sackville-Bagginses were not forgotten
6220 →6 →They disliked Bilbo and detested Frodo,
6220 →7 →written in golden ink.
```

Figure 2: An example of output file

The order of command-line arguments should be provided as follows:

```
python3 quiz4.py inputFile.txt outputFile.txt
```

P.S. The name of the input file and output file will be "inputFile.txt" and "outputFile.txt", respectively. Compilation problems caused by incorrect filenames are at your own responsibility. Please, be careful about it.

Notes

- Do not miss the submission deadline! Use the GitHub.
- Test your code with the input and respective output files prior to submission on dev server.
- Save all your work until the quiz is graded.
- You can ask your questions via Piazza and you are supposed to be aware of everything discussed on Piazza.
- You must submit your work (must be "**quiz4.py**") with the file hierarchy as stated below.

→ <quiz4.py>