

Programming Exercise 8

Objectives: File IO,
Collections in Python.

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Tasks

1. Within the context of this quiz, you will gain experience in using different collections (dictionary, list, and their functions) and in using File I/O.

The scenario of this work is receiving a message that is split into multiple packets and transferred over the Internet. The packets are not received in the 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.

As you can 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. Ensure that there will be no duplicate packets or message IDs.

Example input:

```
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.
```

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.
```

Note that the order of messages is not important when printing them.

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

```
python3 file_io.py inp.txt out.txt
```

2. Thank you for your effort to complete the first tasks given here. You can now leave the lab after you **turn off the computer** and **tidy up your working environment**.