

The IEEE Xplore Application Programming Interface (API) is an efficient data delivery vehicle for content indexing/discovery as well as text and data mining of IEEE metadata content of academic publications. Loading a database/repository using the content delivered by the IEEE API can be subsequently used to draw domain/subject relationships, data analytics, and various other use cases for researchers. To learn more about the IEEE Xplore API please visit [developer.ieee.org](#) and register for an API key. All participants of the IEEEExtreme 12.0 competition will have access to the IEEE API during and after the competition, for a limited period of time, to discover its research utility potential.

A useful metric commonly associated with academic publishing is the [h-index](#). An author with an index of h has published h papers each of which has been cited in other papers at least h times.

For this challenge, write a program that reads a set of N entries from the Xplore database, in a JSON format, and prints ALL author names followed by the their ***h-index***. The authors should be raked by ***h-index*** and by alphabetical order in case of an ***h-index*** tie.

Standard input

The input will consist of an integer N , followed by N lines with a single article entry in each line in a JSON format.

Each entry will follow a format described in the Xplore API website: [developer.ieee.org/docs/read/Metadata_API_responses](#)

Standard output

Print the authors ranked by their ***h-index*** followed by a space and by the ***h-index*** itself. The authors should be ranked alphabetically if there are ties.

Constraints and notes

- $2 \leq N \leq 10000$

Input
<pre>10 {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Echo"}, {"author_order": 2,"affiliation": "", "full_name": "Bravo"}, {"author_order": 3,"affiliation": "", "full_name": "Alfa"}]}, "title": "Article Title 1", "article_number": "1", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 9, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Charlie"}, {"author_order": 2,"affiliation": "", "full_name": "Bravo"}]}, "title": "Article Title 2", "article_number": "2", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 9, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Echo"}, {"author_order": 2,"affiliation": "", "full_name": "Delta"}, {"author_order": 3,"affiliation": "", "full_name": "Alfa"}, {"author_order": 4,"affiliation": "", "full_name": "Charlie"}]}, "title": "Article Title 3", "article_number": "3", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 4, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Charlie"}]}, "title": "Article Title 4", "article_number": "4", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 9, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Charlie"}, {"author_order": 2,"affiliation": "", "full_name": "Echo"}, {"author_order": 3,"affiliation": "", "full_name": "Alfa"}]}, "title": "Article Title 5", "article_number": "5", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 5, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Charlie"}, {"author_order": 2,"affiliation": "", "full_name": "Echo"}]}, "title": "Article Title 6", "article_number": "6", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 6, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Delta"}]}, "title": "Article Title 7", "article_number": "7", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 4, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Charlie"}]}, "title": "Article Title 8", "article_number": "8", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 9, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Delta"}, {"author_order": 2,"affiliation": "", "full_name": "Charlie"}]}, "title": "Article Title 9", "article_number": "9", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 4, "publisher": "IEEE"} {"authors": {"authors": [{"author_order": 1,"affiliation": "", "full_name": "Bravo"}, {"author_order": 2,"affiliation": "", "full_name": "Echo"}]}, "title": "Article Title 10", "article_number": "10", "publication_title": "Publication Title 1", "publication_number": "7", "citing_paper_count": 6, "publisher": "IEEE"}</pre>
Output
<pre>Charlie 5 Echo 4 Alfa 3 Bravo 3 Delta 3</pre>
Explanation

In this list, Charlie is the author of 7 papers: with `article_number` 2, 3, 4, 5, 6, 8, and 9. His papers have citation counts of 9, 4, 9, 5, 6, 9, and 4 respectively.

If we order his papers by citation count it will be: 9, 9, 9, 6, 5, 4, 4. Charlie's ***h-index*** is 5 Because he has 5 papers with at least 5 citations.

The same method is applied for Echo, Alfa, Bravo, and Delta. Because Alfa, Bravo, and Delta all have the same ***h-index*** they are listed alphabetically.