Scala programming exercise

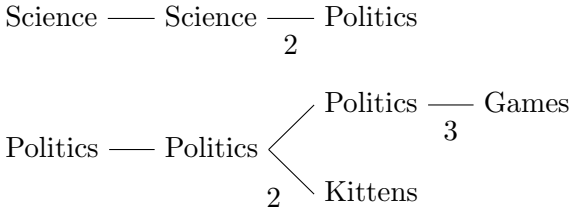
Recently you visited a used book store and have found an amazing essay on time management. Apparently, the more effectively you manage your own time, the more successful you will be in life. Completely convinced by the book's data-driven methodology, you decide to monitor your daily activities and optimize your whole day for considerable fun and profit.

You spend a lot of time reading scientific articles every day — but among other important activities, you also prioritize watching YouTube videos about kittens. The essay says that context-switching between different activities like these takes a lot of mental effort, so you decide to keep an eye on those context switches by automatically analyzing your browsing activity.

Problem statement. Suppose you had been reading articles on DNA sequencing and then unexpectedly you were suddenly looking at a video about cheetahs chasing laser pointers. Every day you want to detect the biggest context switch and make a note about it in your diary. This is going to be easy, because your browser keeps a JSON log of events, with the events representing article views. Each event has a unique `article_id`, a `category` describing the subject matter being viewed, and an optional `parent_id` which indicates that the event refers to some other page viewed earlier. Events are sorted by `timestamp` and there are no cycles between them. The connected components of the event graph are called sessions.

According to the self-help book, not every context switch is equally bad: It also depends on how long the interruption lasts. We call an event a transition if its category differs from its parent and define its transition weight as the number of preceding events whose category is the same. Further, the session weight is the maximum weight of all transitions in a session (or 0). The duration of a session is the largest elapsed time between any two events of that session.

Example. The following two sessions have weight 2 and 3, respectively.



Task. Write a program in the *Scala* language which reads a JSON file with events, finds a session of maximal weight, and prints its weight and duration. You can submit the program as a single file, or as a git repository, etc. Attached to this problem statement you can find an example of a JSON input file to parse. Its entries look like this (-1 means no parent):

```
{"timestamp":1505229545, "article_id":10, "parent_id":9, "category":"Fashion"}
```

There is no example of the expected output, and you are encouraged to write your own test cases to ensure that your program works. If parts of the problem statement appear unclear, choose an interpretation which appears reasonable to you, and document those assumptions.