Node status reporting

Please make sure that you read all of these instructions as well as the "Code Evaluation Generic Rules".

A monitoring system receives status notifications from a number of nodes on a network. They arrive in a stream of data like this:

```
1508405807242 1508405807141 vader HELLO
1508405807340 1508405807350 luke HELLO
1508405807378 1508405807387 luke LOST vader
1508405807467 1508405807479 luke FOUND r2d2
1508405807468 1508405807480 luke LOST leia
1508405807512 1508405807400 vader LOST luke
1508405807560 1508405807504 vader HELLO
```

Each line represents a separate notification, of which there are three kinds: HELLO, LOST and FOUND. Each notification has a pair of millisecond-resolution time-stamps (representing the time since midnight on 1/1/1970). The first time-stamp is the time at which the notification was received by the monitoring system. The second time-stamp is time on the node at which it was generated. So, the line:

```
1508405807242 1508405807141 vader HELLO
```

is a message from the node `vader` saying that it is alive. It was sent at a time 1508405807141 (local to the node), and received at 1508405807242 (local to the monitoring system). Similarly the lines:

```
1508405807378 1508405807387 luke LOST vader
1508405807467 1508405807479 luke FOUND r2d2
```

are notifications from the node `luke` that it has detected that `vader` appears to be dead, but that `r2d2` is alive. Also, implicitly, `luke` must be alive in order to send the notification!

Your task is to write a program to generate a report on the latest status of all of the nodes that appear in the data. Your program will be run with a single command line argument, which will be the name of a file of these notification records, one per line, as shown above.

For every node you must print out a line, in the format shown below, indicating whether it is dead or alive, followed by the monitoring system's time-stamp of the event that it most recently received that indicates that status, and the details of what the event was. So the output for the input file above would look like this:

```
vader ALIVE 1508405807560 vader HELLO
luke ALIVE 1508405807468 luke LOST leia
r2d2 ALIVE 1508405807467 luke FOUND r2d2
leia DEAD 1508405807468 luke LOST leia
```

Do not output **any** other information unless you detect that the input data is malformed in some way, in which case your program should exit with an appropriate error message.

And one last thing …

The times on the nodes in the network are all synchronised to within less than 50 milliseconds of each other. Unfortunately, they are *not* synchronised with the monitoring system, and although they are sent in strict sequence from the nodes, there is no guarantee that the notifications from any node will arrive at the monitoring system in the same sequence. So, it may be that the result from processing the notifications is ambiguous and you can't be sure if a node is alive or dead. In such cases, you should show the status as UNKNOWN rather than DEAD or ALIVE and output a separate UNKNOWN line for each of the ambiguous notifications.