

# Hash, Hash, Hashtag

## Summary

In this problem your job is to identify the most popular hashtag appearing in a set of posts. We will present you with 3 variants of the problem, each with a different definition of how we measure popularity of a hashtag. The input will consist of a list of posts with their respective timestamps. Each post will be expressed in 2 lines of input - the first line will consist of a timestamp of the post - an integer from  $[0, 1440)$  identifying the minute of the day in which the post appeared online followed by a line that will consist of the post's content - a space-delimited line of text. A hashtag is defined as any token which begins with a # after an empty space.

Below, we provide 3 variants of the problem - Easy, Medium and Hard. We encourage you to solve them in order as you may be able to reuse some parts of your solutions as you move on to harder problems.

### SAMPLE INPUT (FOR ALL VARIANTS)

```
80
This #post has hashtag #b 5 times, #b #b #b #b

0
This is a #post

60
This #post has hashtags #a #b and #c

220
This is for the time #window

200
This #post again has hashtag #b 3 times #b #b but happens in a time #window

210
This #post is for the time #window

220
This is for the time #window

240
Now in this time #window people like talking about windows

20
This is another #post where I say how #happy I am
```

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## Easy

Find the hashtag with the most appearances across all posts. Your output should consist of a single line consisting of the hashtag in question.

### SAMPLE OUTPUT

In the example input, **#b** is the most common hashtag in all posts. It appears 9 times in total.

```
#b
```

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## Medium

Find the hashtag that appears in the largest number of posts (note that a single post can have repeated hashtags).

### SAMPLE OUTPUT

In the example input, **#post** is the hashtag that appears in most posts. It appears 6 times in 6 **different posts**. And even though **#b** appears 9 times, it only appears in 3 different posts.

```
#post
```

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## Hard

Find the most trending hashtag of the day. This means, the hashtag that was mentioned in the highest amount of posts in any window of 60 consecutive minutes.

### SAMPLE OUTPUT

In the example input, **#window** is the hashtag that appears in most posts in 60 consecutive minutes. This is, if we take the posts from the instant **200 until 259**, **#window** appears 5 times in this timeframe. While **#post** still appears on more posts overall, they are more spaced in time and it doesn't appear more than 2 times in a 60 minute period (instant **0 until 59**).

```
#window
```

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## Input

You will find the actual input to all variants of the problem in the relevant Dropbox folder. Since all variants have the same input, you can reuse the same `input.txt` file for all the variants.