

Algorithm to determine thread "hotness"

Asked 16 years ago Modified 14 years, 8 months ago Viewed 2k times



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I'm trying to come up with a way to determine how "hot" certain threads are in a forum. What criteria would you use and why? How would these come together to give a hotness score?



The criteria I'm thinking of include:

- how many replies
- how long since the last reply
- average time between replies

The problems this algorithm must solve:

- A thread which has 500 replies is clearly hot, unless the last reply was over a year ago.
- A thread with 500 replies that was replied to a second ago is clearly hot, unless it's taken 4 years to reach 500 replies.
- A thread with 15 replies in the last 4 minutes is really hot!

Any ideas, thoughts or complete solutions out there?

algorithm

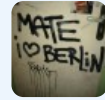
forum

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asked Dec 19, 2008 at 14:45



nickf

546k ● 198 ● 658 ● 725

this might be what you are looking for:

stackoverflow.com/questions/32397/popularity-algorithm

– kemiller2002 Dec 19, 2008 at 14:48

7 Answers

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Jeff Atwood has [a nice question](#) about this with a ton of information on other "hot" algorithms. I suggest using one of those and adapting it to your liking.



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answered Dec 19, 2008 at 14:51



EndangeredMassa

17.5k ● 8 ● 56 ● 80



1

Simplest algorithm: If there have been greater than X replies since Y, it is hot.

If you prefer something that scales, just count how many replies since time y. More replies means more hotness.



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answered Dec 19, 2008 at 14:49

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Brian

25.8k ● 18 ● 86 ● 178



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I was thinking you could probably model it with diminishing waves here, using amplitude (or root mean square) to measure hotness. As time goes, the wave diminishes, and so a late reply will only cause a little stir.



In practice, I think this requires a lot of calculation. You could make good use of caching to speed up the calculation.



Just my two cents.

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answered Dec 19, 2008 at 14:48

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csl

11.3k ● 5 ● 63 ● 91



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In short I've found logarithmic decay of "hotness" to be the most natural.



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answered Dec 19, 2008 at 14:50

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Robert Gould

69.7k ● 61 ● 191 ● 275





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Thanks to those who posted the links to the other questions/answers. Unfortunately, those equations take a lot more things into consideration than what's possible with my setup (eg: voting, reputation of author, etc)

After playing around with it, I've come up with this equation which I'll use for the time being:

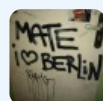
```
log10($numOfReplies * 20000 /
pow($timeSinceLastPost, 1.3))
```

It still could use some work. For example, if there's a really really popular but old thread, it'll be low on the hotness, but if one person replies to it that'll put it right back to the top for a few days/weeks.

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answered Dec 19, 2008 at 16:16



nickf

546k ● 198 ● 658 ● 725



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Why not just use a sort of exponential decay model.

Hotness of thread = $\sum (k^{(\text{time since posting})})$ for all posts. This has the advantage of being really easy to update and calculate. You'd have to play around with k and your unit of time measurement (k should be < 1 , but fairly close to it)

Current hotness = hotness at time of last post * $k^{(\text{time since last post})}$.

Hotness after new post = current hotness + 1

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answered Dec 19, 2008 at 16:33

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Yuliy

17.7k ● 6 ● 43 ● 47



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One thing you should pay some attention to is whether people might want to "game" the algorithm in order to make/keep their threads "hot". Actually, you can pretty much assume that they will.



The minimum you should do to discourage this is to only consider replies from different people.



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answered Apr 16, 2010 at 5:44

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Michael Borgwardt

346k ● 80 ● 486 ● 722