Gender: Representation and Online Participation in StackOverflow

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http://www.rceno.com/RCENO/wp-content/uploads/2012/03/MenWorkingRoadSign.jpg

Context

- under-representation of women in STEM-related subjects
  - EU: “Science: It’s a girl thing!”
- less unbalanced representation of women in the use of Internet technologies
  - <5% of open-source developers are women

http://www.rceno.com/RCENO/wp-content/uploads/2012/03/MenWorkingRoadSign.jpg

Compare double to zero using epsilon

118

13

Today, I was looking through some C++ code (written by somebody else) and found this section:

```
double someValue = ...
if (someValue <  std::numeric_limits<double>::epsilon() &&
    someValue > -std::numeric_limits<double>::epsilon()) {
  someValue = 0.0;
}
```

I'm trying to figure out whether this even makes sense.

The documentation for `epsilon()` says:

> The function returns the difference between 1 and the smallest value greater than 1 that is representable [by a double].

Does this apply to 0 as well, i.e. `epsilon()` is the smallest value greater than 0? Or are there numbers between `0` and `0 + epsilon` that can be represented by a `double`?

If not, then isn't the comparison equivalent to `someValue == 0.0`?

c++ double

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asked **Dec 4 at 8:41**

Sebastian Krysmanski
1,046 ●1 ●2 ●21
88% accept rate

11 +1 for good find, good research and good question – Krishnabhadra Dec 4 at 8:44

3 The epsilon around 1 will most likely be much higher than that around 0, so there will probably be values between 0 and 0+epsilon_at_1. I guess the author of this section wanted to use something small, but he didn't want to use a magic constant, so he just used this essentially arbitrary value. – enobayram Dec 4 at 8:53

-1e-20 and +1e-20?

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answered **Dec 4 at 8:50**

cababunga
1,682 ●3 ●8

Except for zero, I don't think that there are values between -1e-20 and +1e-20. But just because I think this doesn't make it true. – Sebastian Krysmanski Dec 4 at 8:52

@SebastianKrysmanski: it's not true, there are lots of floating-point values between 0 and `epsilon`. Because it's *floating* point, not fixed point. – Steve Jessop Dec 4 at 8:53

The smallest representable value that is distinct from zero is limited by number of bits allocated to represent exponent. So if double has 11 bit exponent, the smallest number would be 1e-1023. – cababunga Dec 4 at 9:07

add comment

1

With IEEE floating-point, between the smallest non-zero positive value and the smallest non-zero negative value, there exist two values: positive zero and negative zero. Testing whether a value is between the smallest non-zero values is equivalent to testing for equality with zero; the assignment, however, may have an effect, since it would change a negative zero to a positive zero.

It would be conceivable that a floating-point format might have three values between the smallest finite positive and negative values: positive infinitesimal, unsigned zero, and negative infinitesimal. I am not familiar with any floating-point formats that in fact work that way, but such a behavior would be perfectly reasonable and arguably better than that of IEEE (perhaps not enough better to be worth adding extra hardware to support it, but mathematically 1/(1/INF), 1/(-1/INF), and 1/(1-1) should represent three distinct cases illustrating three different zeroes). I don't know whether any C standard would mandate that signed infinitesimals, if they exist, would have to compare equal to zero. If they do not, code like the above could usefully ensure that e.g. dividing a number repeatedly by two would eventually yield zero rather than being stuck on "infinitesimal".

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answered **Dec 4 at 16:05**

supercat
12.4k ●12 ●25

Isn't "1/(1-1)" (from your example) infinity rather than zero? – Sebastian Krysmanski Dec 5 at 8:34

The quantities (1-1), (1/INF), and (-1/INF) all represent zero, but dividing a positive number by each of them should in theory yield three different results (IEEE math regards the first two as identical). – supercat Dec 5 at 14:22

http://meta.stackoverflow.com/q/30411/182512

"I know a lot of female programmers, and I know there are a good number of them out there.

But I don't recall ever having one of my questions answered by, nor have I ever answered a question by a female programmer here at Stack Overflow. [...]

Why aren't there more of them participating, both with questions and answers?

What can Stack Overflow do to persuade female programmers to participate more?"

http://meta.stackoverflow.com/q/30411/182512

Answer from a female user:

http://meta.stackoverflow.com/a/30555/182512

Answer from a female user:

"This isn't the first time I've thought of [why] my question/answer ratio on SO is DEPLORABLE. The answer is there is NO appeal for me in answering questions. [...]

I WILL answer if I am on and happen to see a question that I know the answer to. However, I don't go looking for them, really.

I think the answer is it doesn't entertain me and I don't find much fulfillment in it."

http://meta.stackoverflow.com/a/30555/182512

What is the participation rate of women in StackOverflow?

Do men and women contribute equally?

What is the participation rate of women in StackOverflow?

How to identify gender?

Do men and women contribute equally?

Sara Chipps

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reputation

●5 ●26 ●78

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website sarajchipps.com
location New York, NY
age 21

visits

member for 4 years, 3 months
seen yesterday

stats

profile views 7,281

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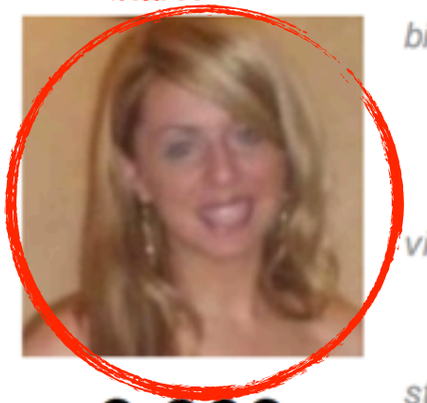

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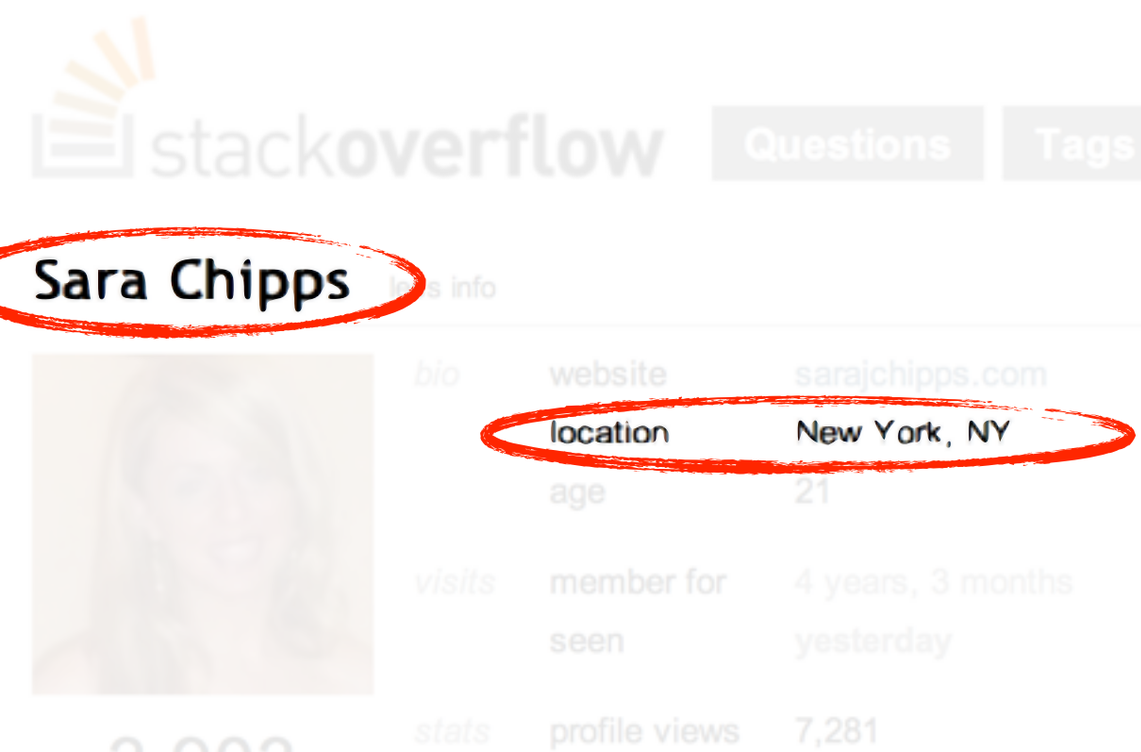

(Sara, USA): female

(Andrea, Italy): male; (Andrea, Germany): female

(Bogdan,): male

(Anna Akhmat*ova*, Russia): female

(Andrea Demirović , Montenegro): unknown

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GIRL DEVELOPER

In which I answer all

This blog post has been in t

Please don't linkbait this, or

Many people I meet ask m
women in technology, but w
be offended by. Often men
backlash, I think that fear ca

Frankly, the internet is thrivir

I put together the followin
advantageous to put it here,

I think the reason why we
outline below.

You will notice I stay away f
such generalizations imply t
be able to do better. I don't th

Diversity leads to better pr
As illustrated in the Cornell
diversity improves performar
building a better internet, a
Building a better internet is
think we can all agree this is

(source: http://web.mit.edu/c

The internet is the largest
Right now the architecture f
asian males. You've heard
yet know how this will affect

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```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
        "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" id="typepad-standard" xmlns:fb="http://www.facebook.com/2008/fbml">
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        <meta name="generator" content="http://www.typepad.com/" />


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                  ga.src = ('https:' == document.location.protocol ? 'https://ssl' : 'http://www') + '.google-analytics.com/ga.js';
                  var s = document.getElementsByTagName('script')[0]; s.parentNode.insertBefore(ga, s);
                })();
        </script>


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href="http://www.typepad.com/services/rsd/6a0133f1bc6afb970b0133f1f92502970b" />
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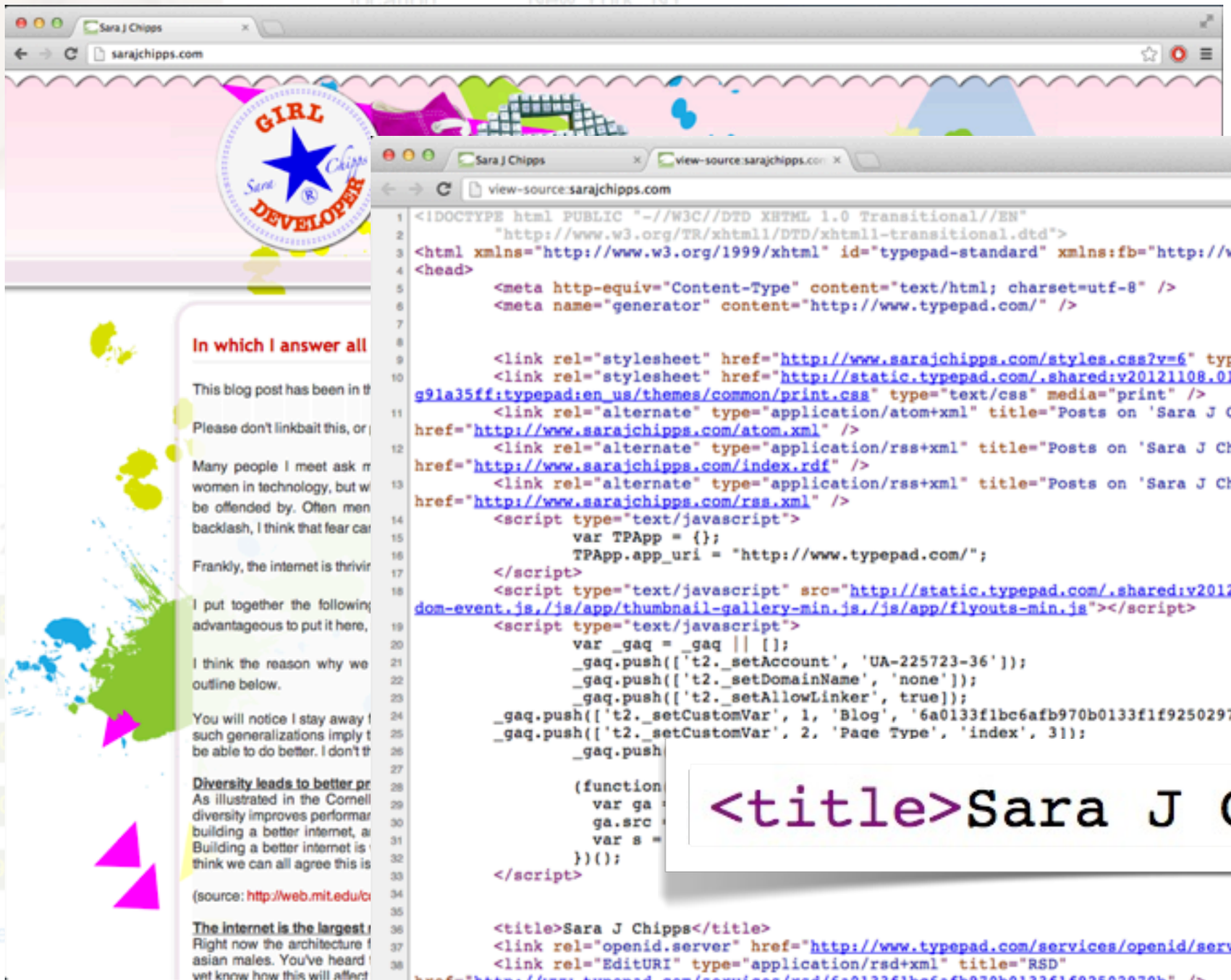

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(Tomalak Geret'kal, UK)

(user4106, -)

same email hash as George Washington

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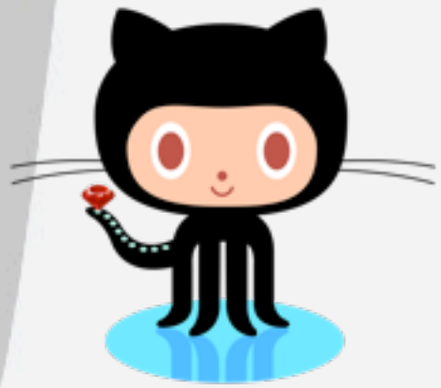

Are women underrepresented?

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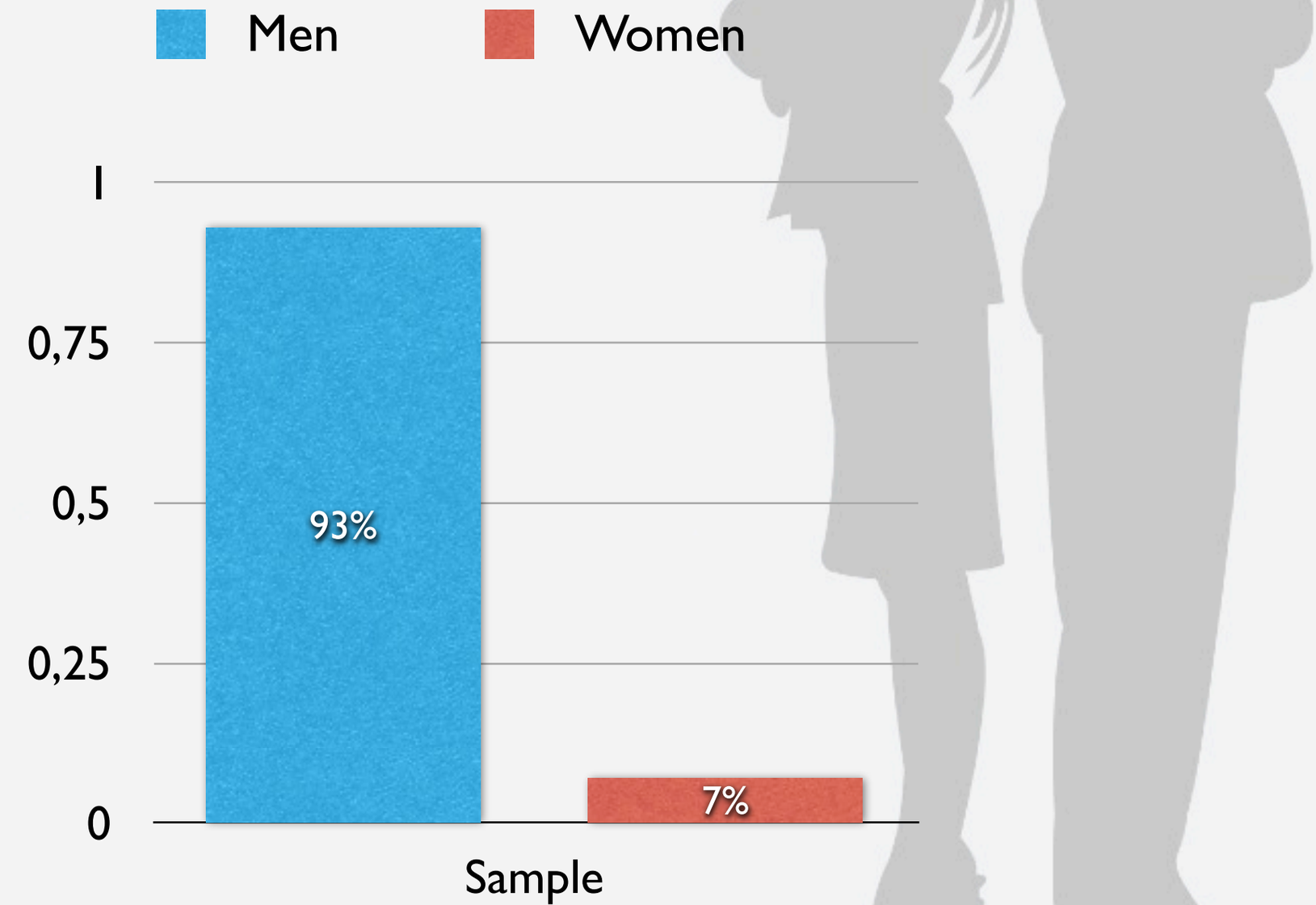
1-5% of open source developers are women

28% female employees with computer and mathematical occupations



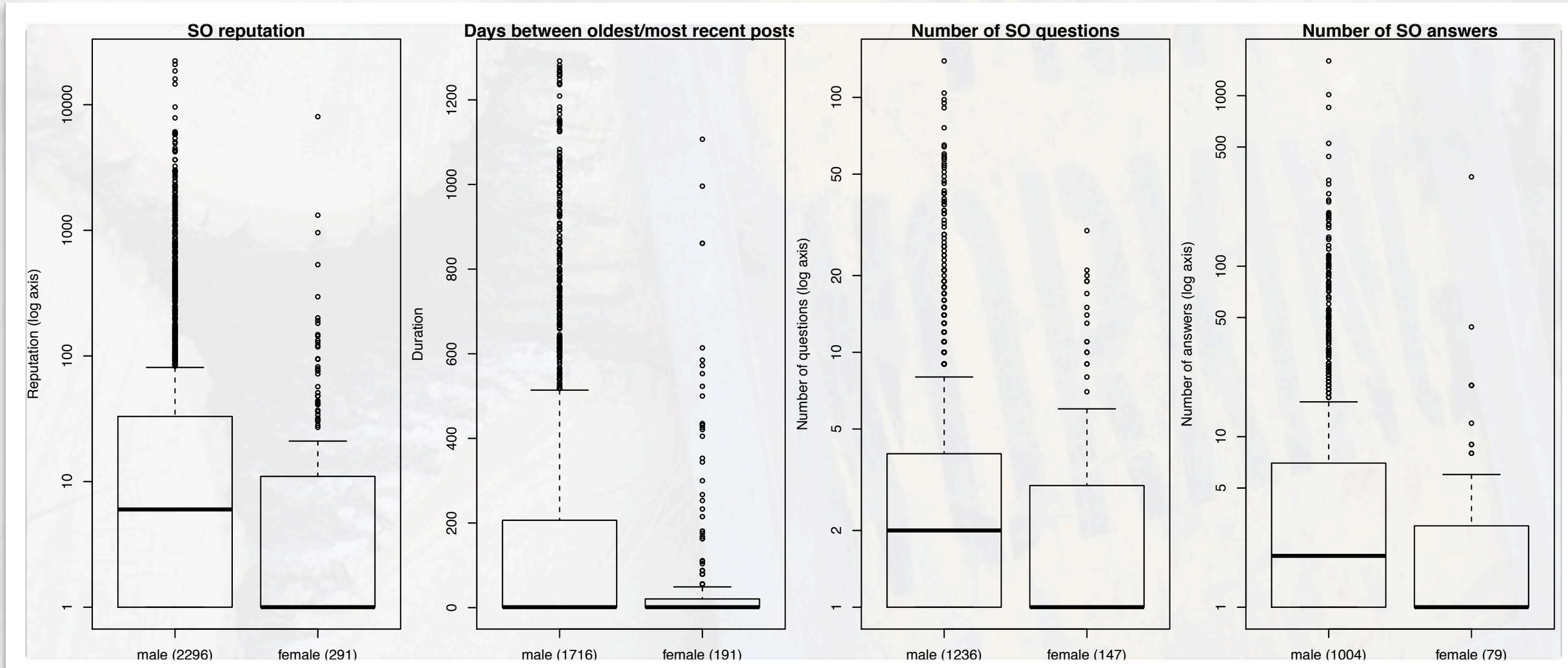
Do men and women contribute equally?

Mann-Whitney tests (95% confidence), e.g. reputation:

- H_0: women and men achieve similar levels of reputation

- H_1: men achieve higher reputation levels

Do men and women contribute equally?



reputation

duration

#questions

#answers

"I don't recall ever having one of my questions answered by a female programmer"

Female user: "There is NO appeal for me in answering questions, it doesn't entertain me"

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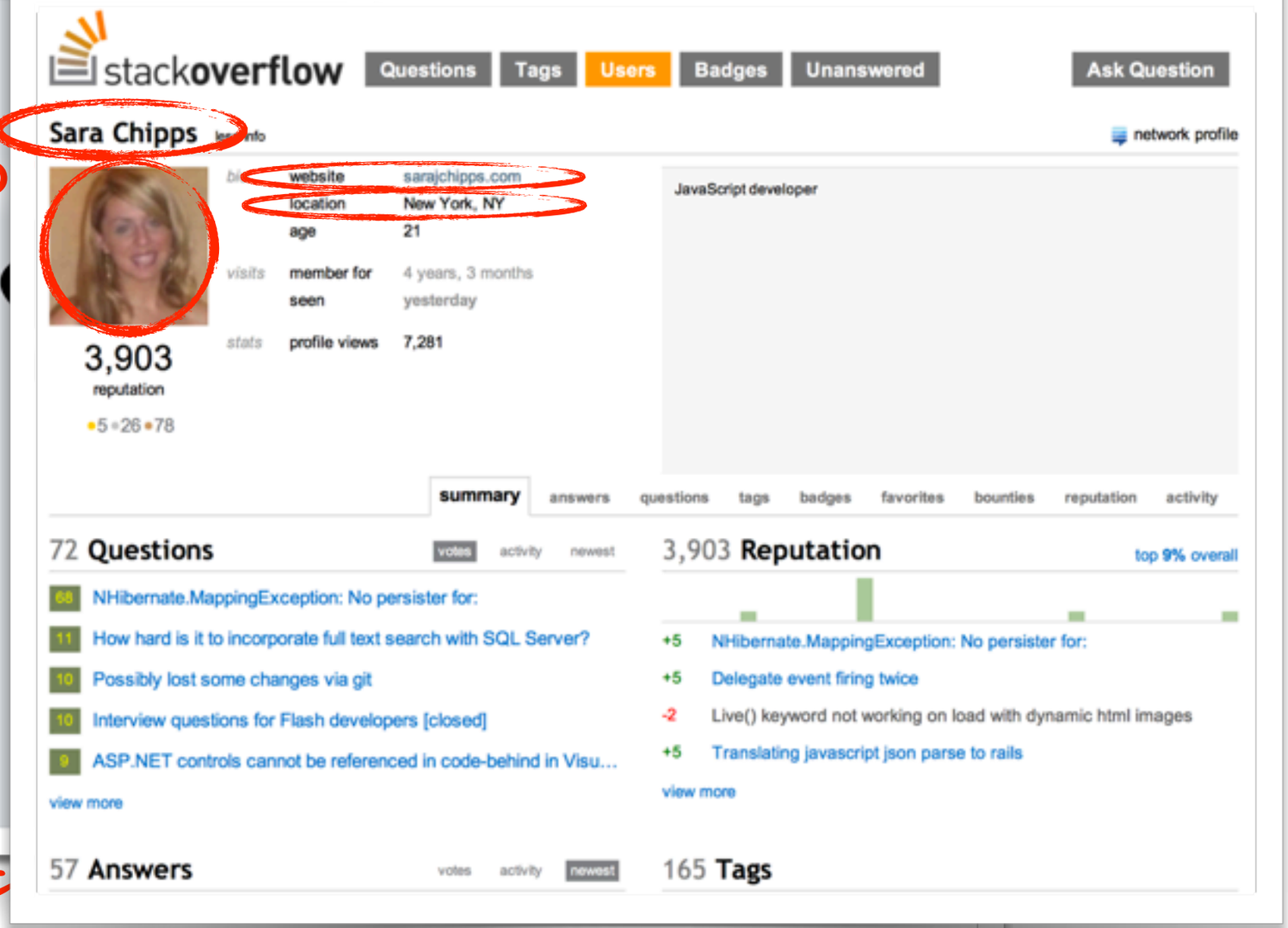

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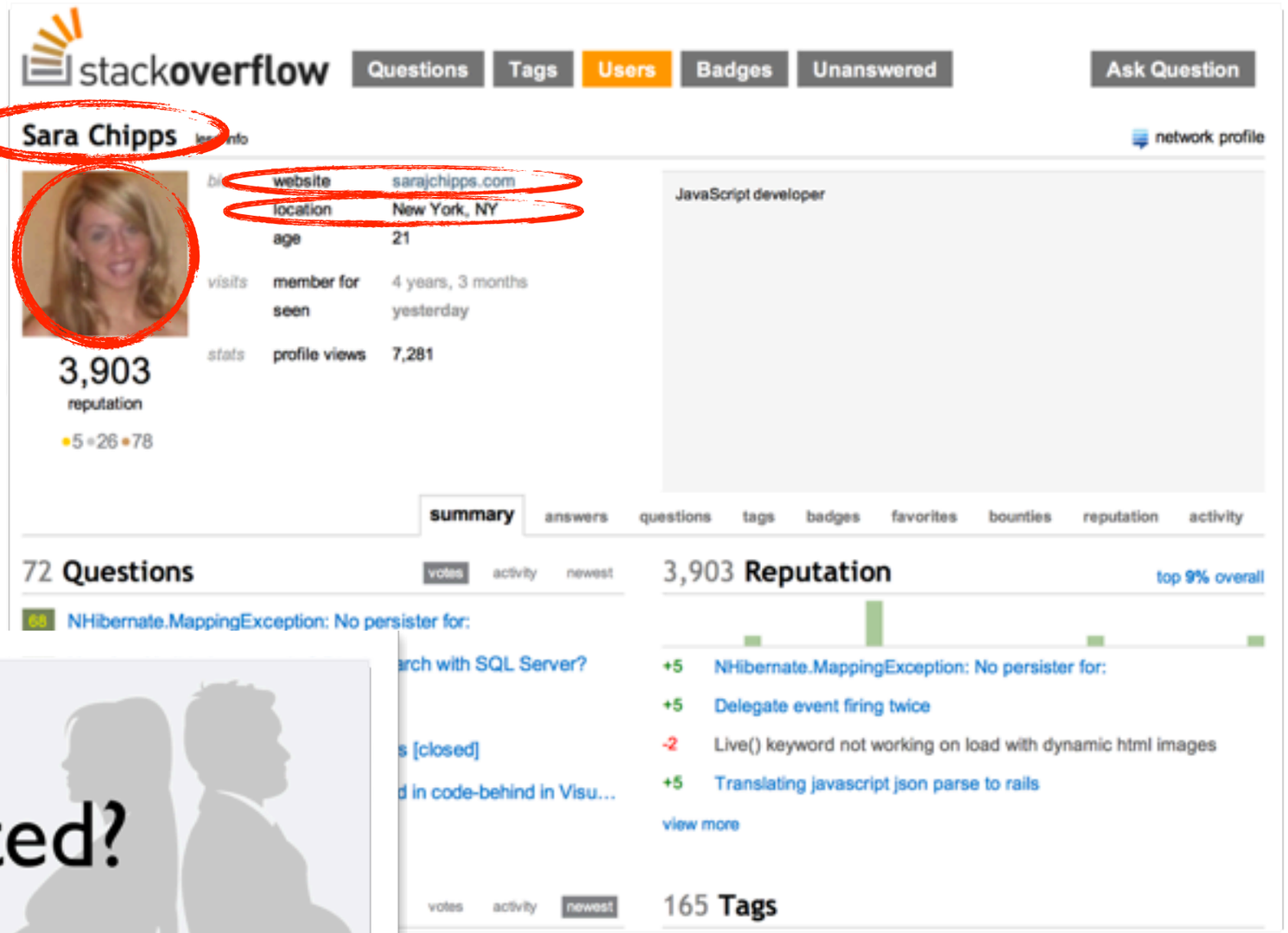

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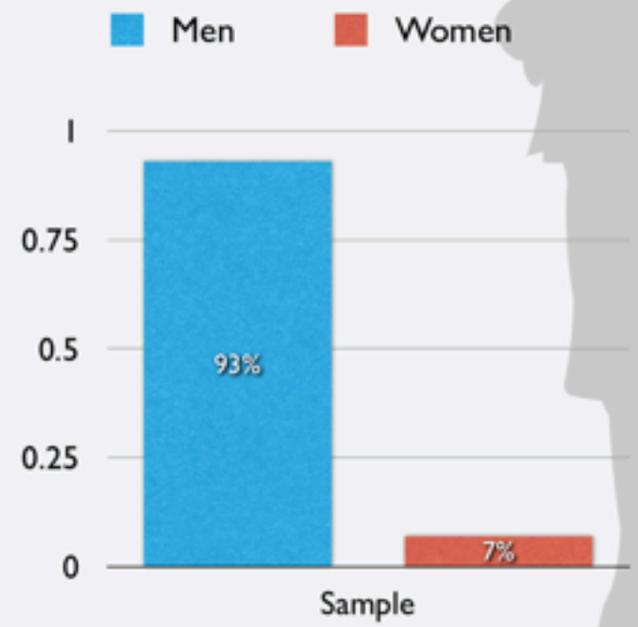

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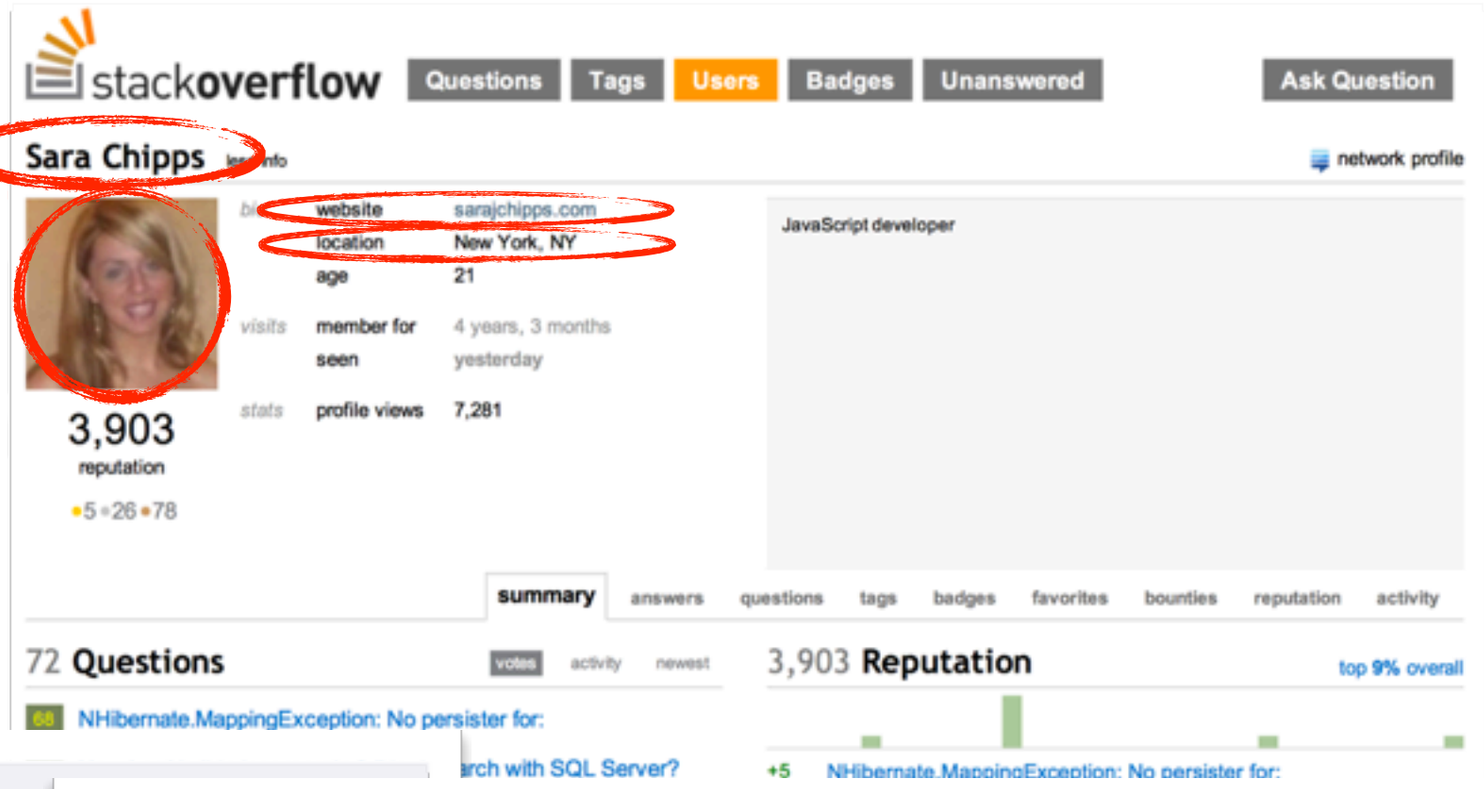

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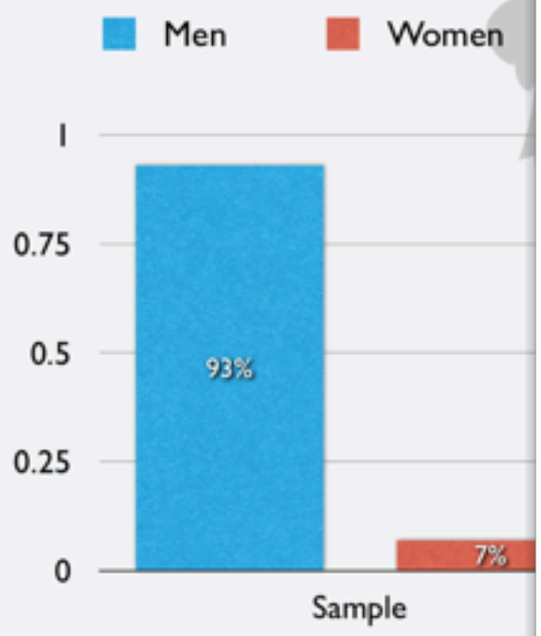

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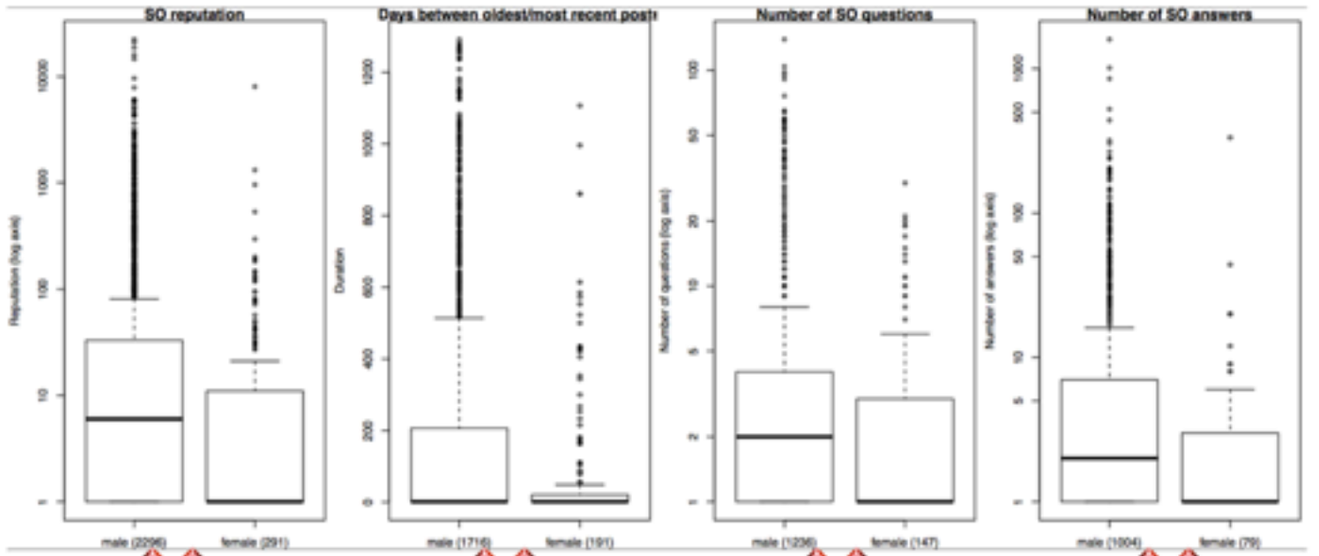

reputation duration #questions #answers