

Re: More of an Algorithms question

Source: <http://sci.tech-archive.net/Archive/sci.math/2005-11/msg02333.html>

- *From:* quasi <quasi@xxxxxxxx>
 - *Date:* Thu, 17 Nov 2005 12:15:12 -0500
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On Thu, 17 Nov 2005 15:07:58 GMT, cri@xxxxxxxx (Richard Harter) wrote:

>On 15 Nov 2005 14:55:51 -0800, "Filter" <filtermedialtd@xxxxxxxx>
>wrote:
>
>>
>>Hi,
>>
>>How can I prove that no Algorithm can compress every file of length
>> 10^6 ?
>
>However there is an algorithm that will losslessly compress every file
>of length 10^6 except one.
>

I don't believe that.

The pigeonhole principle applies easily to invalidate such a claim ...

Let $n=10^6$.

There are 2^n possible files with n bits, but only $2^{(n-1)}$ files with $n-1$ bits. Hence, at most half the files can be compressed.

quasi

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- *Follow-Ups:*
 - ◆ **[Re: More of an Algorithms question](#)**
◇ *From:* Dave Seaman
- *References:*
 - ◆ **[More of an Algorithms question](#)**
◇ *From:* Filter
 - ◆ **[Re: More of an Algorithms question](#)**
◇ *From:* Richard Harter

Re: More of an Algorithms question

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