

GUI Bloopers Chapter 7

Responsiveness Bloopers

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Responsive Software

- Does not have to do with speed
- Affirms the user's inputs immediately
- Estimates the length of operations
- Manages queued tasks well
- Performs tasks in the background
- Anticipates the user's requests



Source: GUI Bloopers 2.0

**What happens when these
principles aren't followed?**












1. Responsiveness is not the Same as Performance

Fast software ≠ responsive software



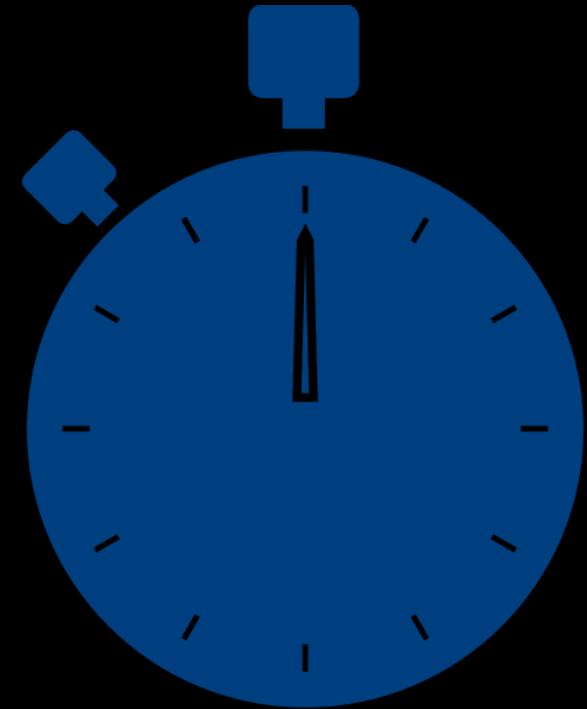
<https://steamcommunity.com/sharedfiles/filedetails/?id=1135291181>

2. Processing Resources are Always Limited

Name	Status	15% CPU	39% Memory	1% Disk	0% Network	3% GPU	GPU engine
Apps (9)							
>  Windows Explorer		0.3%	81.9 MB	0 MB/s	0 Mbps	0%	
>  Task Manager		0.4%	33.6 MB	0 MB/s	0 Mbps	0%	
>  Steam Client WebHelper (7)		2.9%	675.4 MB	0.1 MB/s	0 Mbps	1.0%	GPU 0 - 3D
>  Steam		1.3%	91.8 MB	0.1 MB/s	0.1 Mbps	0%	
>  Spotify (32 bit) (6)		0%	159.6 MB	0.1 MB/s	0 Mbps	0%	GPU 1 - 3D
>  Snipping Tool		0.4%	3.9 MB	0 MB/s	0 Mbps	0%	
>  PowerPoint		0%	124.3 MB	0 MB/s	0 Mbps	0%	GPU 1 - 3D
>  Google Chrome (10)		0%	966.1 MB	0 MB/s	0 Mbps	0%	GPU 0 - 3D
>  Discord Canary (32 bit) (4)		5.8%	718.7 MB	0 MB/s	0 Mbps	0%	

3. The user interface is a real-time interface

- 0.1 seconds – Cause and effect
 - Button changes color
- 1 second – Initial response
 - Loading wheel appears
- 10 seconds – Unit task time constant
 - Give a time update on the length of an operation



<http://www.clker.com/clipart-blue-stop-watch.html>

4. All delays are not equal: software need not do everything immediately

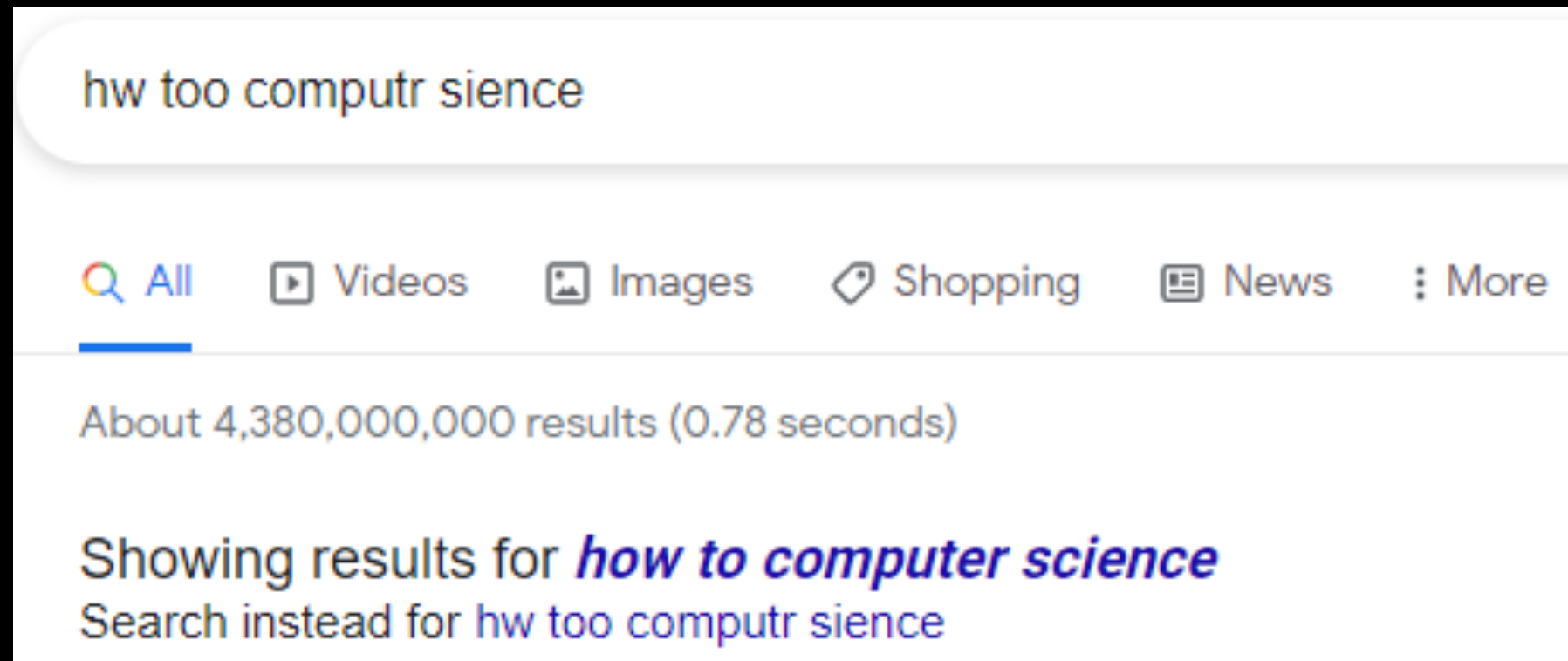
- Some tasks must be delayed in order to give feedback where it is needed.
- Sometimes having something work too fast can be untrustworthy.



5. Software need not do tasks in the order in which they were requested



6. Software need not do everything it was asked to do



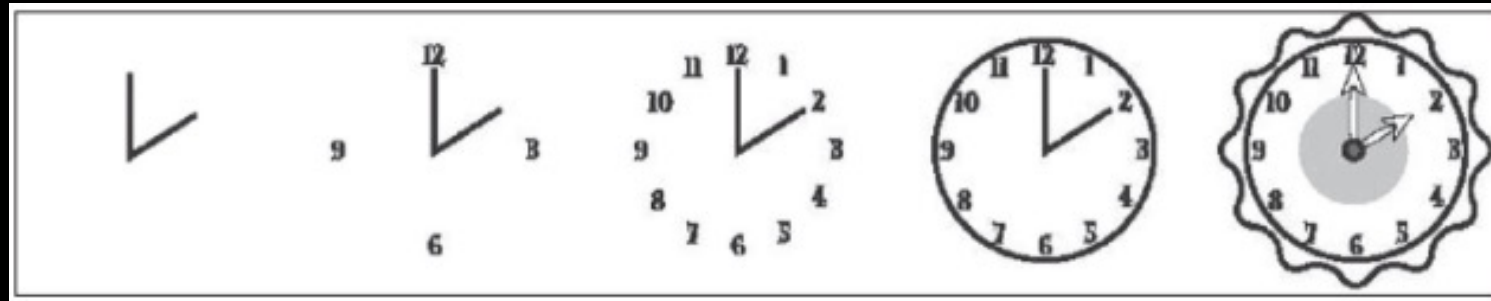
7. Human users are not computer programs

- People can't constantly sustain high rates of activity
- We do not constantly monitor our own inputs
- We pay attention to the feedback we receive

**How do we avoid breaking
the principles?**

Display Important Information First

- Usually important for when loading is slow
- First page loaded on a word document



Source: GUI Bloopers 2.0

Fake Heavyweight Computations

- Sometimes users require rapid adjustments to reach their goal
- Show simulated feedback while the real operations are completed in the background



Source: Spongebob Squarepants

Delaying Work and Working Ahead (Parallel Problem Solution)

- Work should be delegated based on priority.
- Delay tasks which do not require immediate feedback
 - Making a calendar event for a month from now
 - Searching for flights to Wooster for Thanksgiving
- Working ahead is good for likely requests
 - Calculating the cheapest flights before asking
 - Autocorrect searching for errors



<https://www.onewintersprings.com/dead-fish-event-timeline/>

Queue Optimization

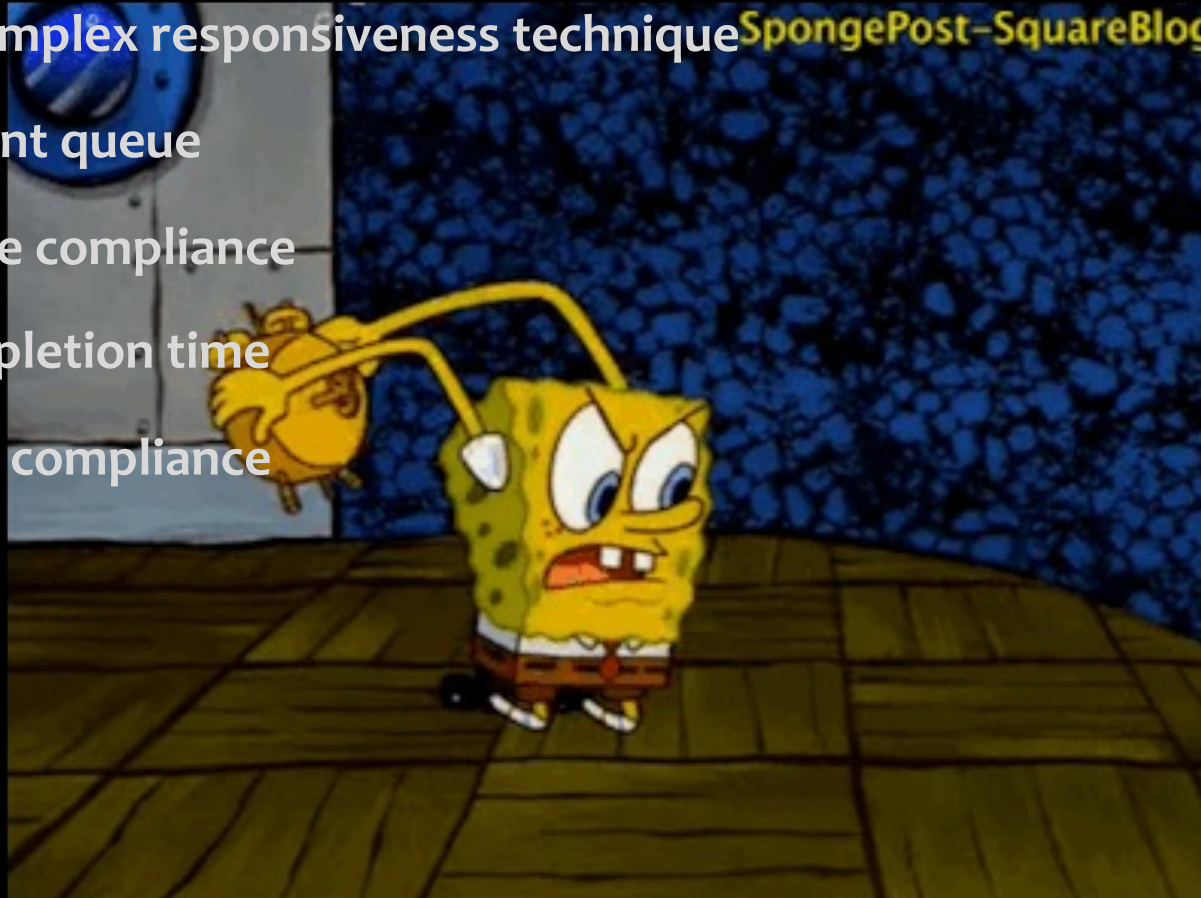
- Reordering processes
- Flushing useless tasks



<https://easyflow.tech/latest-trends-in-retail-queue-management/>

Dynamic Time Management

- The most complex responsiveness technique [SpongePost-SquareBlog](#)
- Monitor event queue
- Monitor time compliance
- Predict completion time
- Predict time compliance



<https://www.tumbex.com/spongepost-squareblog.tumblr/posts?tag=school>

Conclusion

