Reddit threads

skmchosen1 • 7 anni fa

Abstraction is an essential skill, and you probably already do it when you program, but don't even realize it!

Abstraction is the notion of taking a complex system and modeling it in a way that's digestable. For instance, when you program, are you ever really thinking about the complex circuitry that makes your computer run? No, of course not! You just think about the program YOU want to write, and nothing else. You don't care about the implementation of the hardware you are writing software to run on, you just care about the code! Analogously, an electrical engineer building the logical design of a brand spankin' new CPU won't be thinking too hard about how electrons move through a circuit. They take for granted that physicists got building circuits right, and then use that knowledge to build computers.

So what's the lesson here? **Abstraction gets rid of extraneous details so we can build more complexity out of already complex objects.** It is an absolutely essential skill to have as an engineer, because it'll allow you to think in an organized way (as opposed to thinking about a bunch of details simultaneously).

How does this relate to programming? Well, if you write code with a bunch of global variables that are all interdependent and tightly coupled, you as a programmer are trying to manage a bunch of information simultaneously. As your code grows larger, it becomes impossible for any one human to be able to remember all the details (we are talking over tens of thousands or even more lines of code). Abstraction teaches us to **modularize** our code into logical components so that we can think about how these components interact, rather than how their implementations affect each other.

I could go on and on, but I hope this provides you some insight. Happy to continue discussing if you find this helpful!

Edit: I realize now that this was speaking of computer science in particular. But as software engineering and computer architecture (subsets of CS) are used here as examples of the power of abstraction, I think it's still valuable :). Still happy to discuss further

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MLNotW • 7 anni fa

Very well written summary with good examples

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[eliminato] • 7 anni fa

Yes, very valuable. I heave a sigh of relief and thank function & class wrapping every time I reuse a function I wrote!

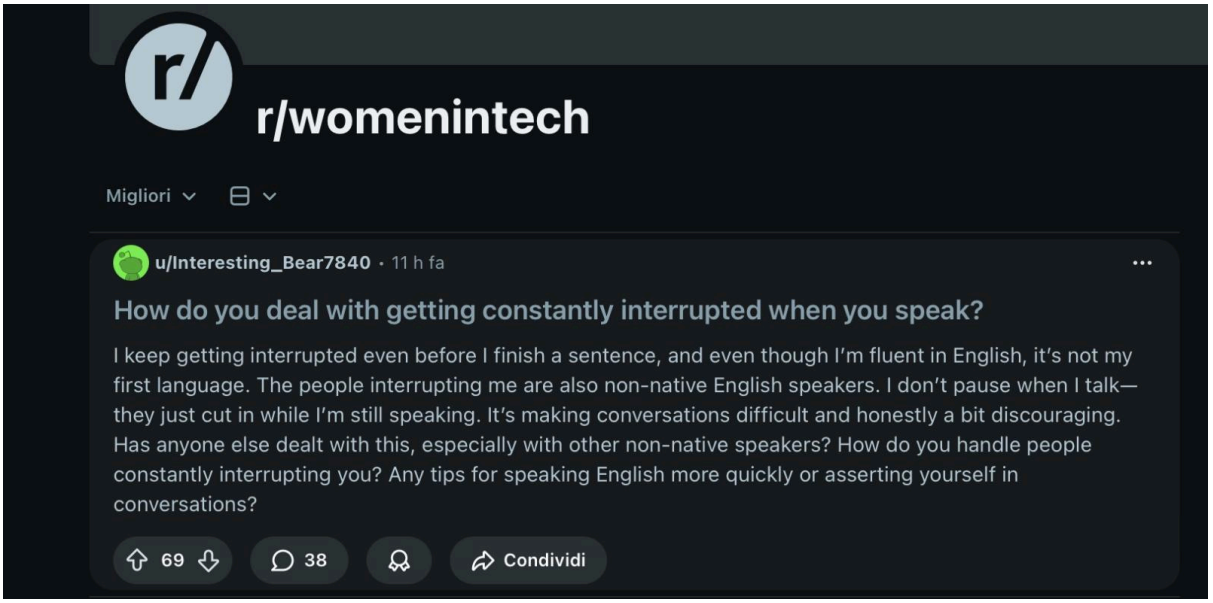
r/compsci • 7 anni fa
deybamayana

Abstraction and Computer Science: How much one affetcs the latter?

I am a freshman computer science major. I would like to know, based on your experiences in the field (given that the ability to think more abstractly is a tool that every computer scientist must have), how much abstraction helped you think and solve problems at hand? In addition, I would like to know your recommendations (books, lectures, and learning resources) to develop an essential skill in thinking more abstractly. Did a course on Proof writing, Analysis, and logic help you that much?

On a personal note: I would very much appreciate your views for this matter.

Thank you.



Conversation Summaries & Key Themes

1. Interruptions and Being Talked Over

- *Women often get **cut off mid-sentence**, especially by male or non-native colleagues.*
- *Speaking fluently in English doesn't prevent interruptions; it's about **perceived dominance**.*
- *Strategies women use:*
  - *Firmly saying "Let me finish."*
  - *Continuing to talk even when interrupted.*
  - *Using visual cues (hand gestures, eye contact).*
  - *Using online tools like "raise hand" in meetings.*
- *Effect: Hard to communicate ideas fully, leading to frustration and discouragement.*

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2. Subtle Disrespect and Micro-Aggressions

- ***Expertise ignored**: Male colleagues refuse to seek input from women even when women are subject matter experts.*

- ***Constant questioning****: Women's decisions and judgments are challenged more than men's.*
- ***Overconfidence bias****: Men confidently assert incorrect information; women can't take the same risk without reputational damage.*
- ***Blame-shifting*** *and "hot potato" behaviors create extra work for women.*
- ***Patronizing behavior****: Women treated like juniors or spoken to like children.*
- ***Appearance comments*** *and inappropriate remarks appear even when women are generally respected.*

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3. Gendered Power Dynamics

- *Male colleagues and managers sometimes see women as* ***threats to their hierarchy****.*
- *Women are* ***used as punching bags*** *by other women or managers asserting dominance.*
- *Female competition is sometimes reinforced by workplace culture, especially in male-dominated environments.*
- *Women are often* ***excluded from informal networks*** *or taken less seriously in meetings.*

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4. Lack of Recognition and Career Progression

- *Women spend years building roles, only to see men* ***fast-tracked*** *into leadership positions with less experience.*
- *Promises of promotion often* ***don't materialize****, despite demonstrated capability.*
- *Even when women achieve similar roles,* ***titles and advancement*** *lag behind male peers.*
- *Fast promotions of men highlight* ***systemic bias in evaluation and recognition****.*

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5. Emotional and Psychological Impact

- *Accumulated subtle behaviors lead to* ***frustration, fatigue, and imposter syndrome****.*

- *Seeing men rewarded faster can feel demoralizing even when in a supportive workplace.*
- *Women often **normalize micro-aggressions**, making them harder to challenge or report.*

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6. Cultural and Social Factors

- *Non-native English speakers may interrupt unintentionally, but **dominance behaviors** often underlie interruptions.*
- *Corporate culture sometimes **protects egos**, rewarding confidence over competence.*
- *Startup environments can **inflate titles** for men or reward speed of decision-making over sustained work.*

Overall Takeaways

Women in tech face a combination of:

1. ***Communication barriers** (interruptions, dismissal).*
2. ***Subtle sexism and micro-aggressions** (undermining expertise, patronizing behavior).*
3. ***Unequal recognition and promotion opportunities**.*
4. ***Cultural and social dynamics** that reinforce male dominance.*

*The cumulative effect is that women often need **extra effort, resilience, and strategic assertiveness** just to receive the same recognition men may get more easily.*