

# Announcements

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## Midterm info:

- Midterm info, including what room you should go to, is available here: <https://piazza.com/class/jqr7hfmf4v74e?cid=2136>.
- Exam is 8 - 10 PM, tonight.
- Use Piazza for questions, or email [cs61b@berkeley.edu](mailto:cs61b@berkeley.edu) if you don't get a response fast enough.
  - Please email us ASAP if you are expected alternative accommodations of any kind and haven't heard back from us.
- Midterm covers everything up to and including 2/15 (iterators, iteration, toString, equals).

# CS61B

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## Lecture 12:

- Programming in the Real World
- Review

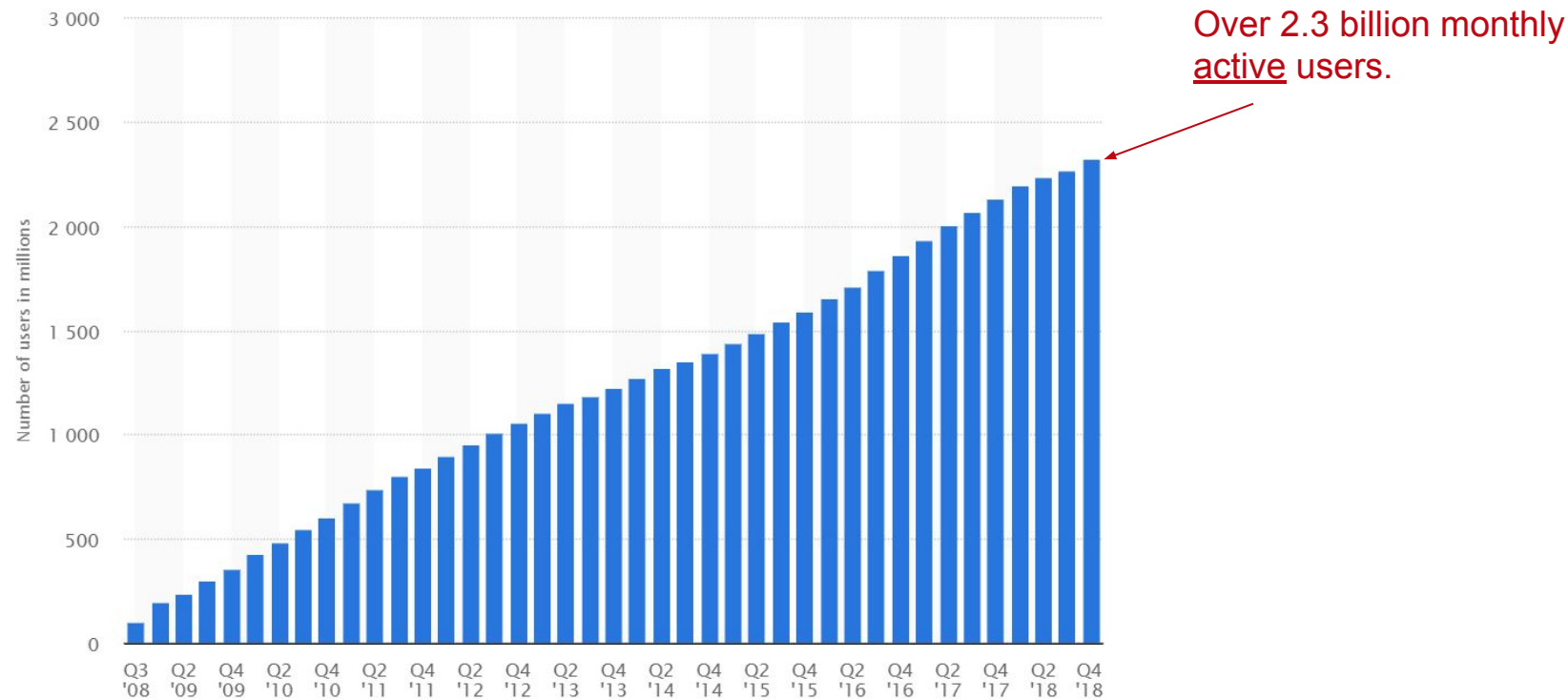
# **Programming in the Real World**

## Tesla Assembly Line (short clip)

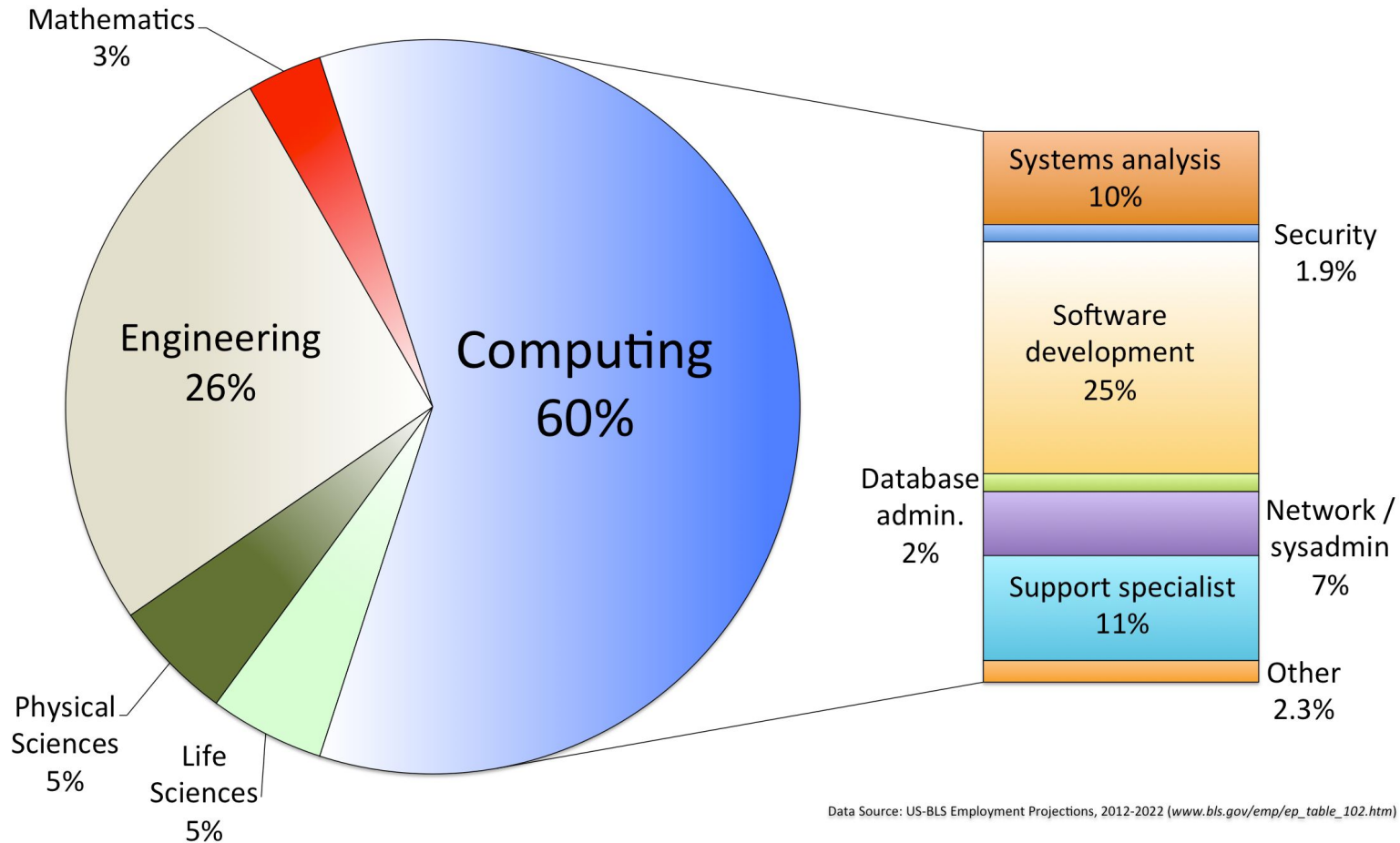
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# Facebook Monthly Active Users



## US-BLS Total U.S. STEM Jobs Through 2022 by STEM %



Data Source: US-BLS Employment Projections, 2012-2022 ([www.bls.gov/emp/ep\\_table\\_102.htm](http://www.bls.gov/emp/ep_table_102.htm))

# Current Economic Upheaval

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From an April 2015 McKinsey Global Institute report: Four trends are leading to a dramatic upheaval in society:

- Urbanization.
- Technological Change.
- Aging Global Populace.
- Shift from North American and European Trading Hubs.

“Compared with the Industrial Revolution, we estimate that this change is happening ten times faster and at 300 times the scale.” [[Link](#)]

## And at the Middle... You

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Even if you are not a CS major, I believe this course is a major step on transforming you into someone who will be driving this change.



# MIT Technology Review's "Biggest Tech Failures of 2016-2018"

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**Censored Search:** “When Google bailed out of China in 2010, shuttering Google.cn, the search giant said it could no longer abide by China’s insistence that it hide politically sensitive results. So much for promises. A team of as many as 100 Googlers has been at work on “Project Dragonfly,” an effort to build a new search engine for China.”

**Facebook-powered ethnic cleansing:** “It seems everyone with some hate to sell found that Facebook, the world’s largest social network, was a pretty friendly platform to do it on. That was definitely the case for a large team of Myanmar military officers who systematically used Facebook to set the stage for ethnic cleansing against that country’s mostly Muslim Rohingya minority in 2016. They employed the now familiar mix of fake news and troll accounts to stoke religious hatred and public fear before they set out to rape and kill Rohingya people and burn their villages. So why does Facebook make our 2018 list? It’s because Facebook hasn’t been able to stop its product from being used as a platform for organized hate crimes.”

# MIT Technology Review's "Biggest Tech Failures of 2016-2018"

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**EOS Tokens:** By December it had raised \$700 million by selling... EOS tokens, to investors in what's called an initial coin offering. An ICO is [an] alternative to a stock market debut... Often, the promise is that buyers of the virtual coins can redeem them for a company's product. But EOS tokens give the buyer the right to nothing specific. The coins, the company says, have no "uses, purpose, attributes, functionalities, or features."

**Volkswagen's "defeat device":** Volkswagen created what may be the most expensive few lines of code ever written. The software, called a "defeat device" and cooked up by the German automaker to fool U.S. emissions testers, concealed that its diesel cars emit as much as 40 times the allowed pollution [cost to VW: \$14,700,000,000].

# The Courage to Act

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You will be faced with difficult ethical problems in your life and careers.

- Because of your education and technology skills, your actions will have enormous impact.
- Often the difficulty is less about deciding on the right action, but rather having the courage and moral practice to take the right action.

Going full Aristotle: “We become builders...by building, and we become harpists by playing the harp. Similarly, then, we become just by doing just actions, temperate by doing temperate actions, brave by doing brave actions.”

# Pre-Midterm Q&A

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I'll take whatever questions you have and answer them cold, so I can show not just how to do it, but how I personally approach the problem.

- AMA: Why are you doing this instead of industry?
- Rules for instantiating nested classes.
  - If the nested class is private: You can instantiate from within the parent class, or within the nested class, but not from another class.
  - If public: From anywhere.
  - The syntax rules:
    - If it is non static, you have to use a specific instance.