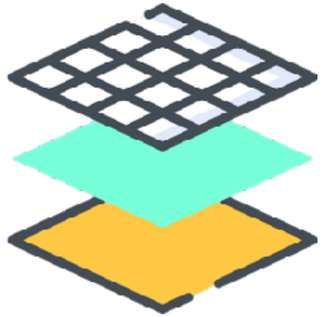
How Low (Level) Can You Go?



André D. Henry

Sr. Manager, Engineering @HARRY'S

- Software Engineer, Network Engineer, CTO
- Code, Math, Science & Electronics
- I probably made it explode at some point

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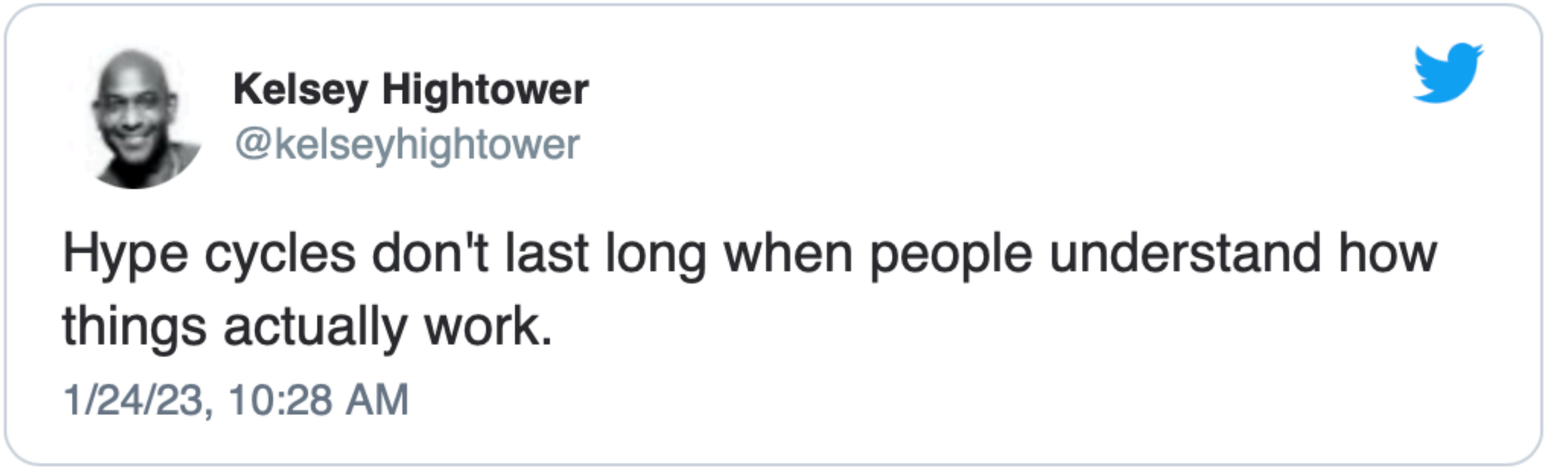
Why Are We Here?

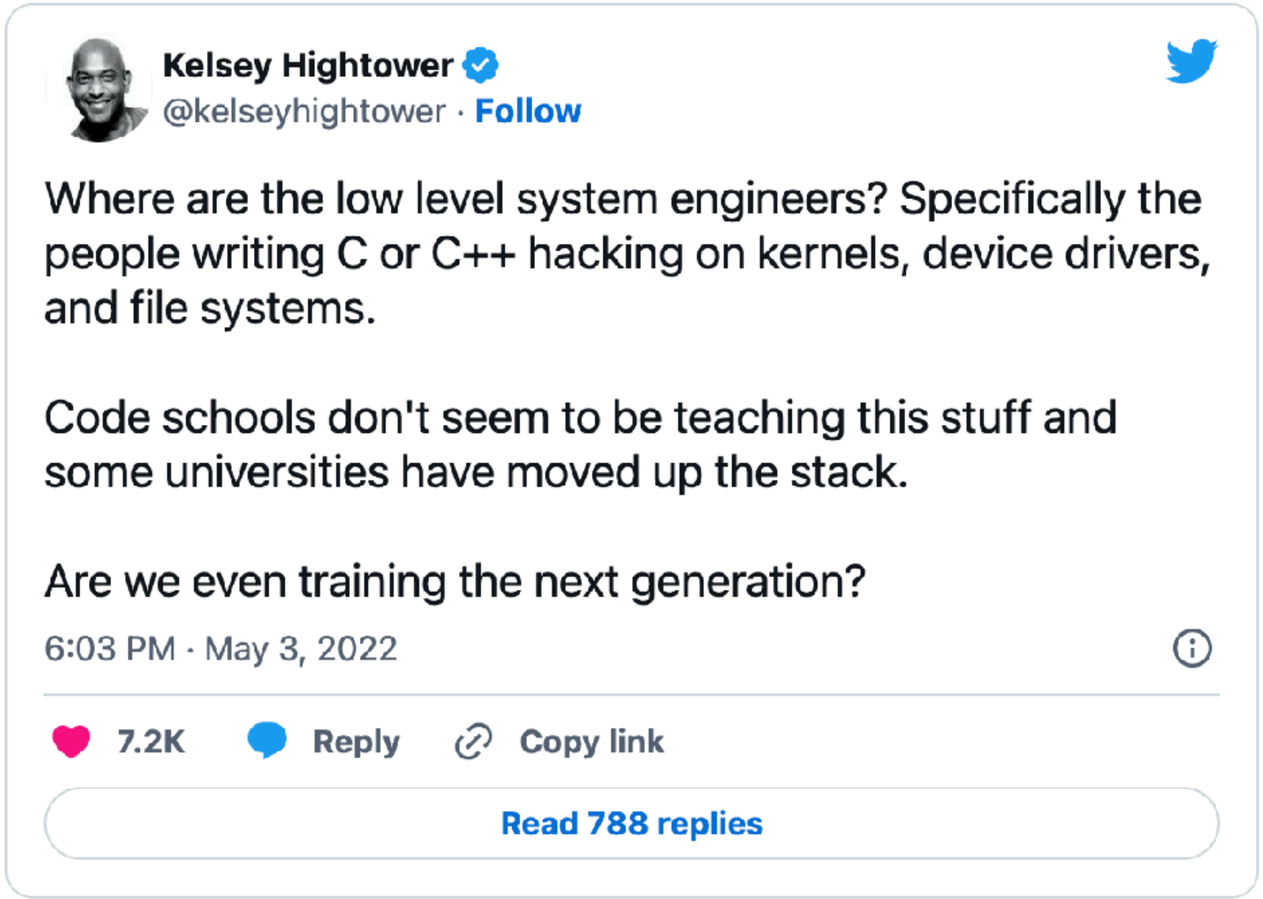
Cut Through The Hype



Foundational Knowledge is worth a Thousand Tools.

—Lucas Kostka

Computers Need Humans (*Still?*)



Kelsey Hightower
@kelseyhightower · **Follow**

Where are the low level system engineers? Specifically the people writing C or C++ hacking on kernels, device drivers, and file systems.

Code schools don't seem to be teaching this stuff and some universities have moved up the stack.

Are we even training the next generation?

6:03 PM · May 3, 2022

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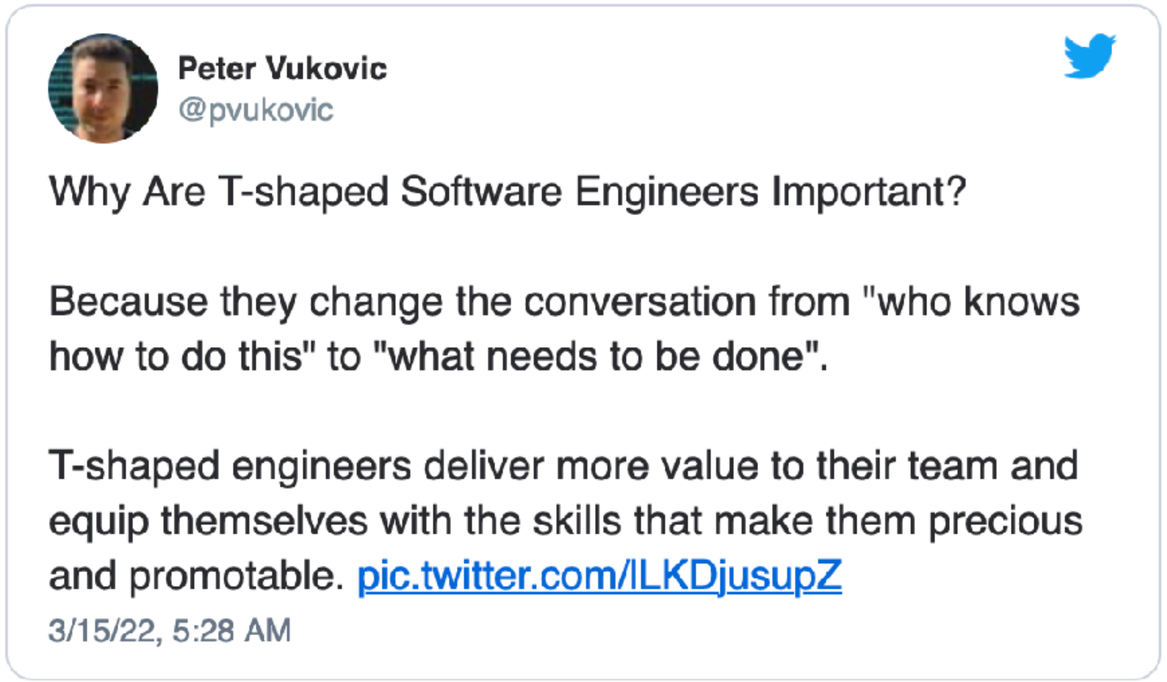
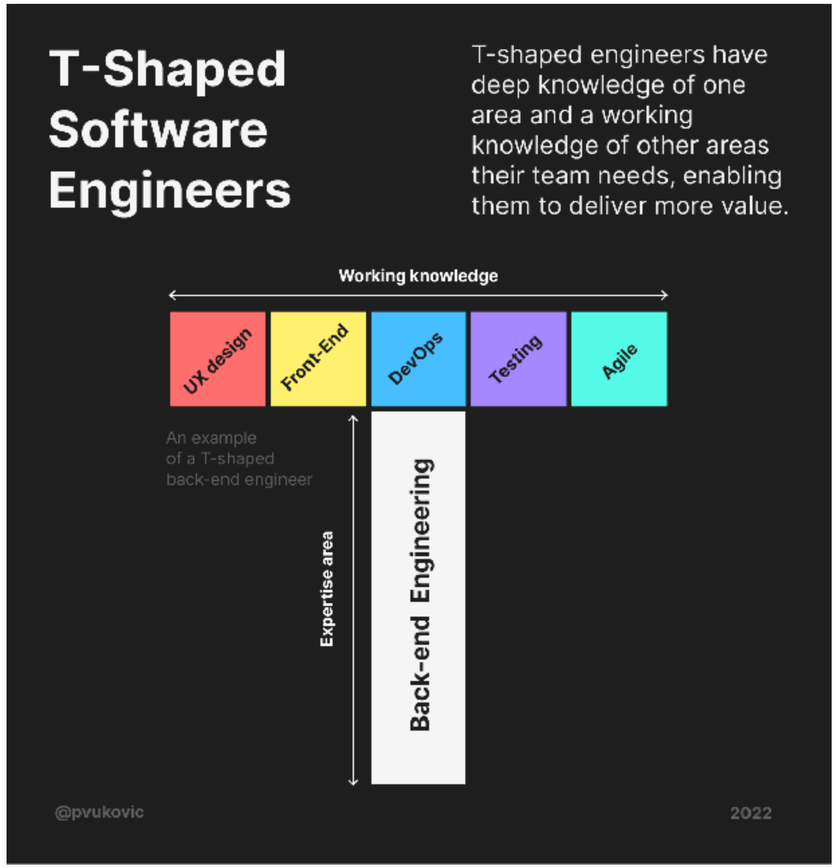
Develop Great Technologists





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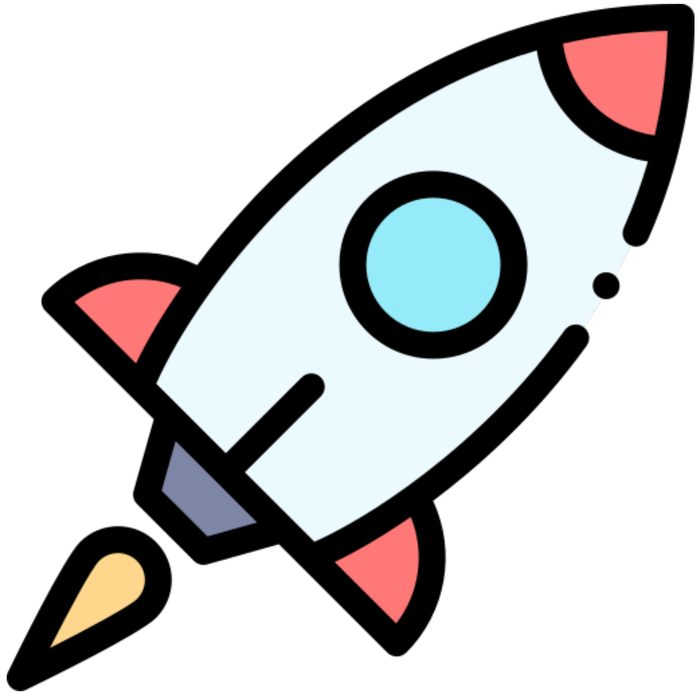
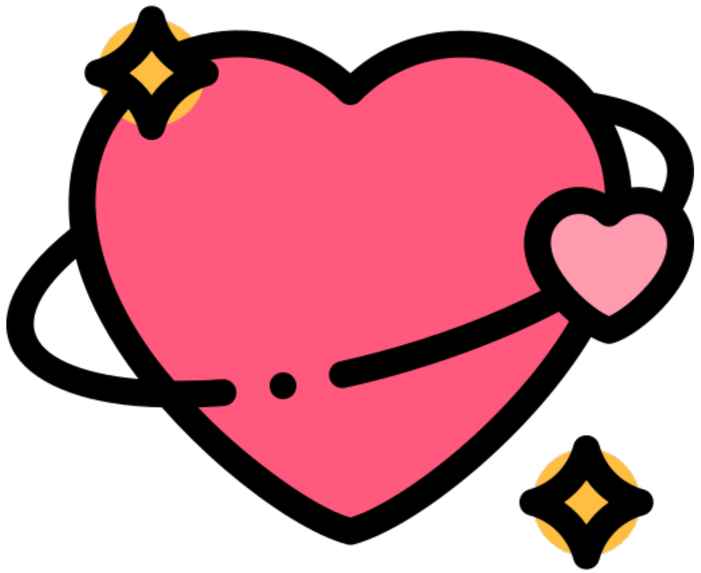
Competitive Advantage



Story Time

Sparked A Love Of Technology



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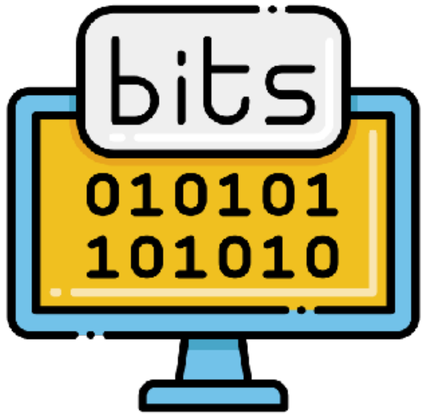
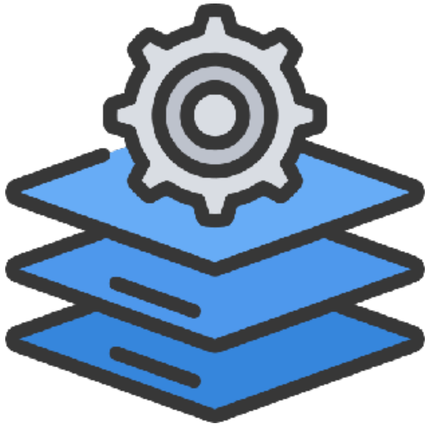
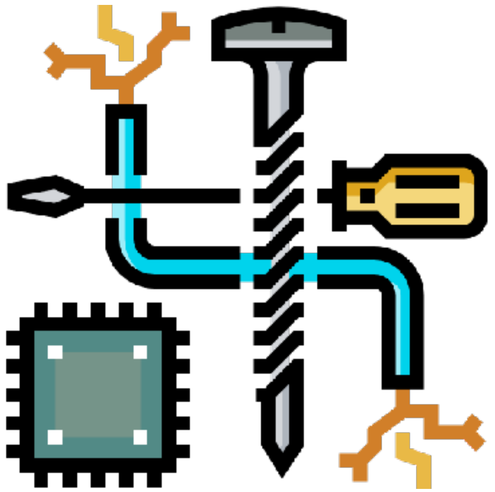
Fast Forward To The Future

What Is Low Level?

Let’s Get Down







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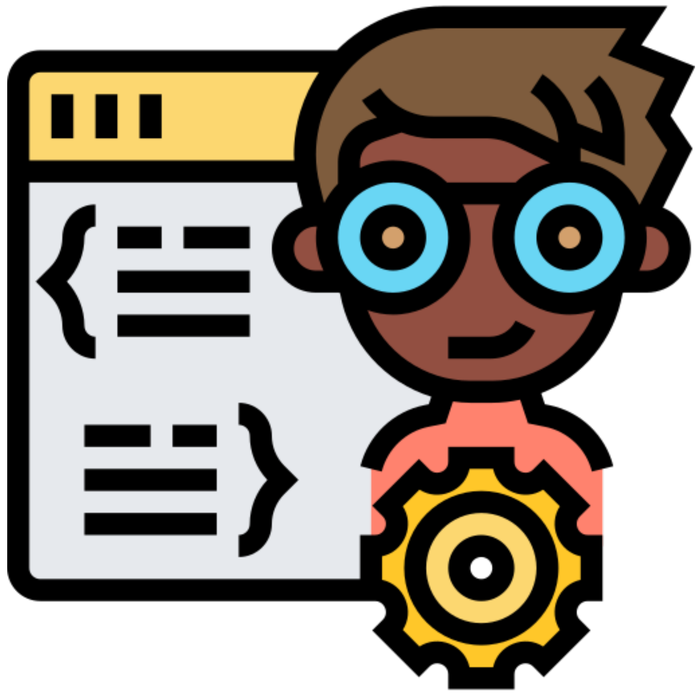
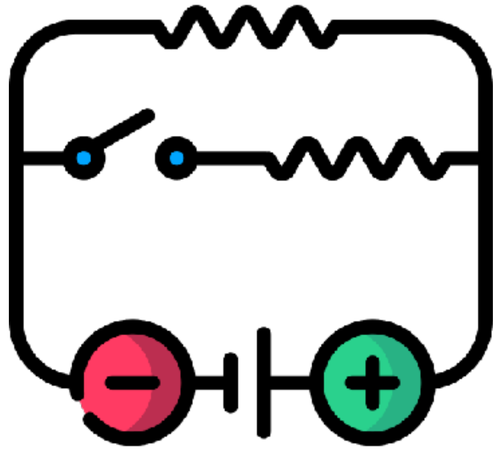
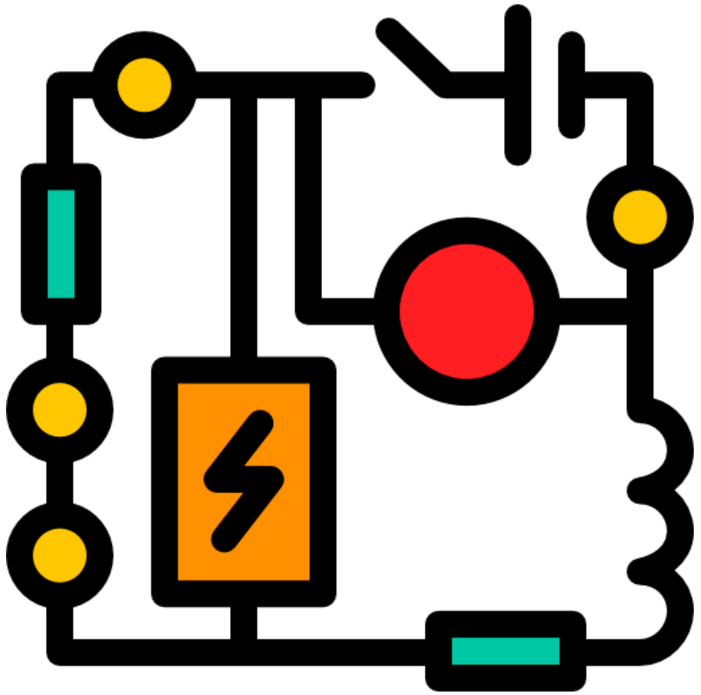
For Another Time…

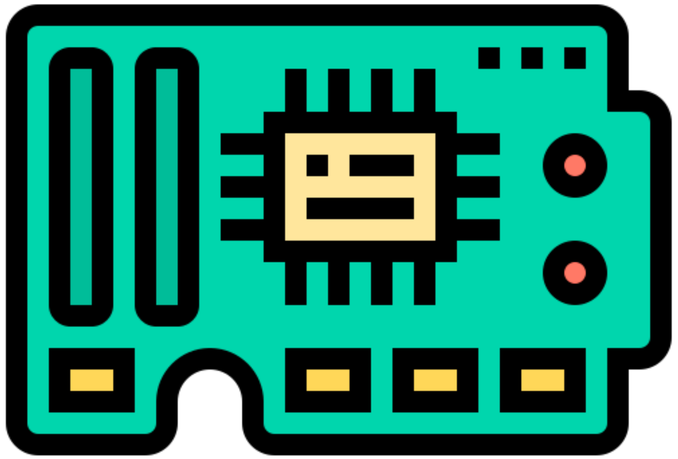


How Low?



Inside The Machine

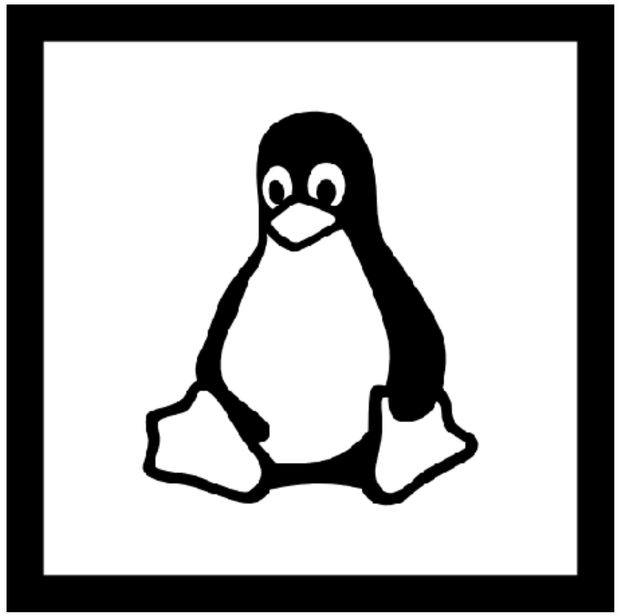




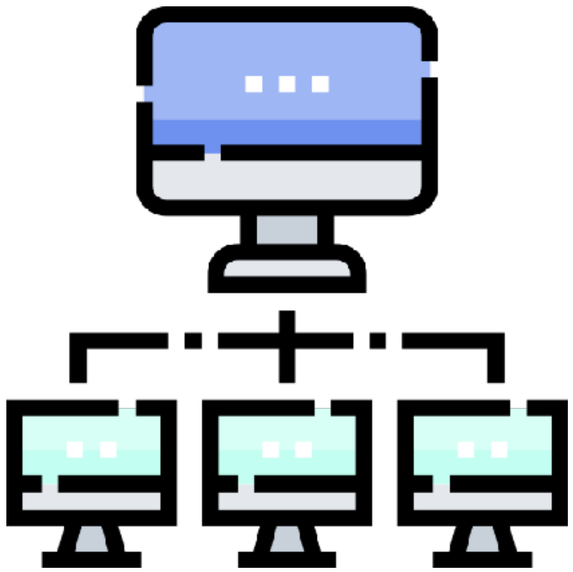
Lots To Explore, So Little Time

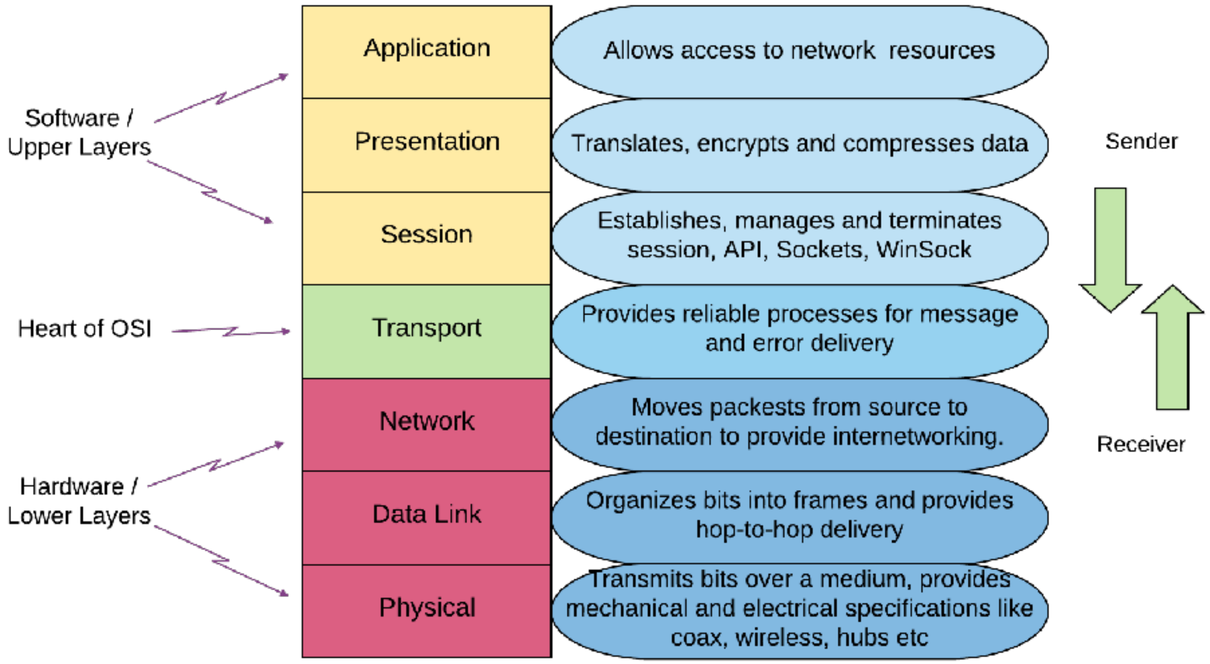
Open Source Projects

Linux Internals

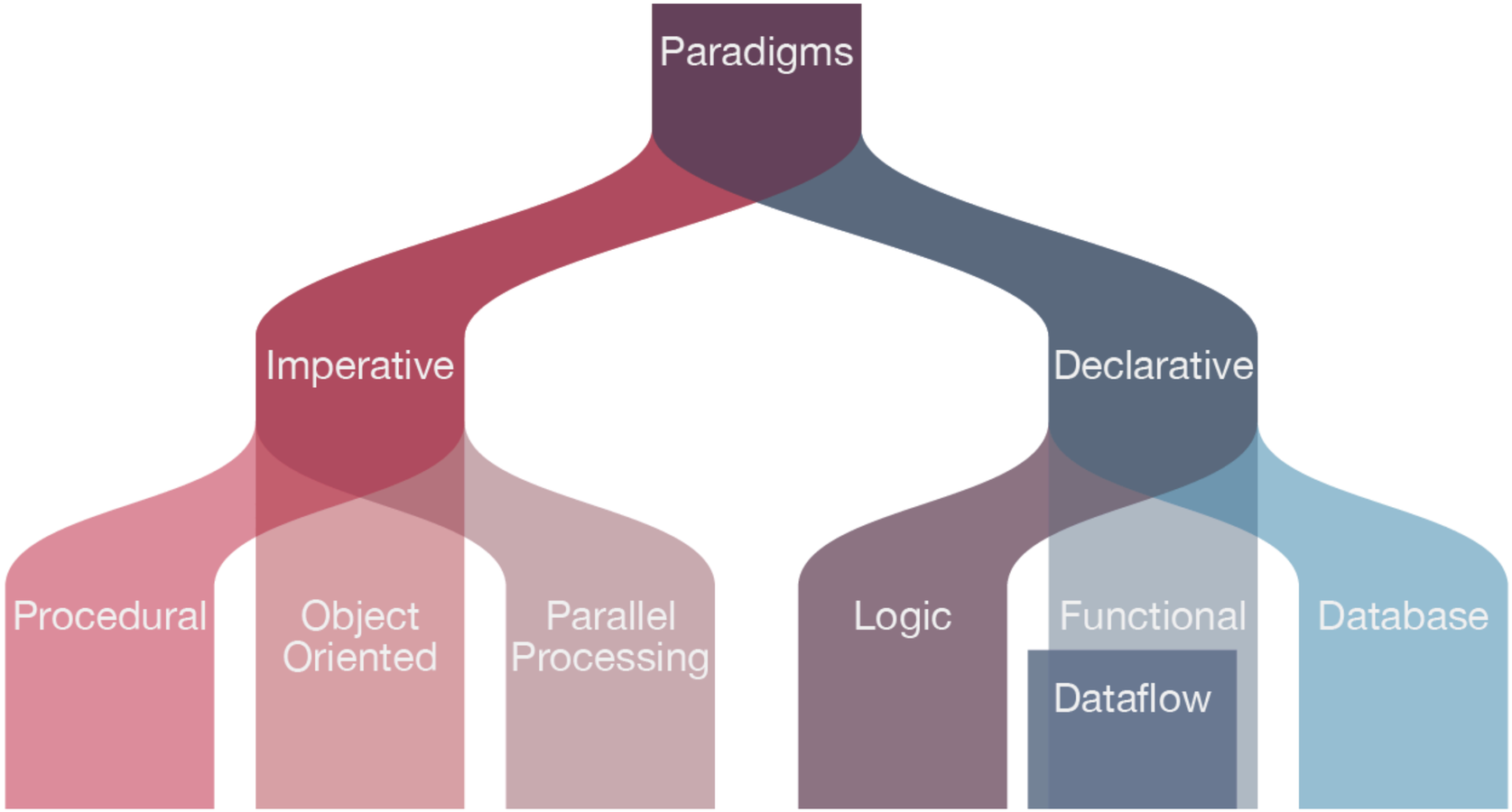


Networking




Application
Presentation
Session
Transport
Network
Data Link
Physical
Allows access to network resources
Translates, encrypts and compresses data
Establishes, manages and terminates session, API, Sockets, WinSock
Provides reliable processes for message and error delivery
Moves packests from source to destination to provide internetworking.
Organizes bits into frames and provides hop-to-hop delivery
Transmits bits over a medium, provides mechanical and electrical specifications like coax, wireless, hubs etc
Software / Upper Layers
Heart of OSI
Hardware / Lower Layers
Sender
Receiver

A New Programming Paradigm



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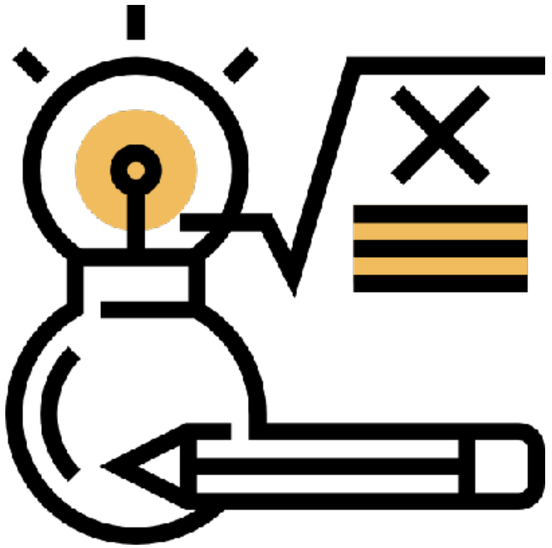
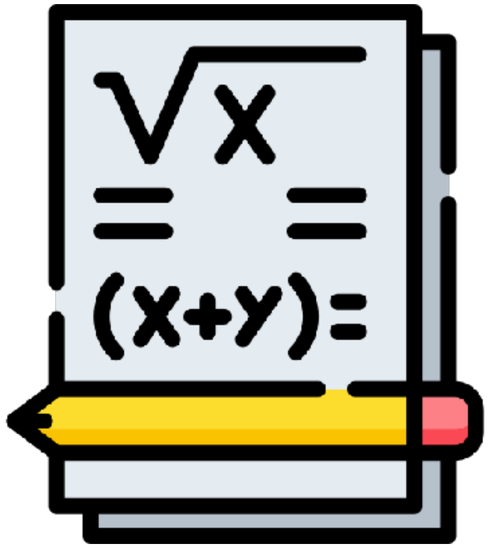
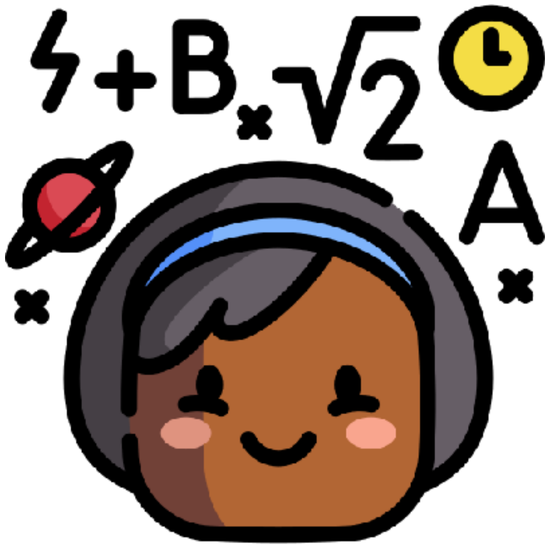
Learning Erlang

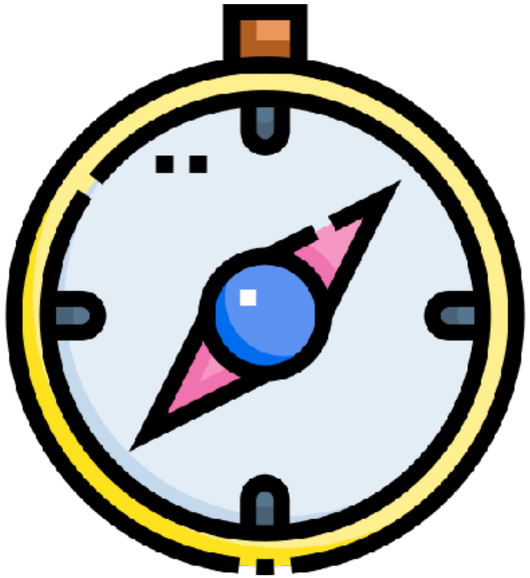
Some Theory



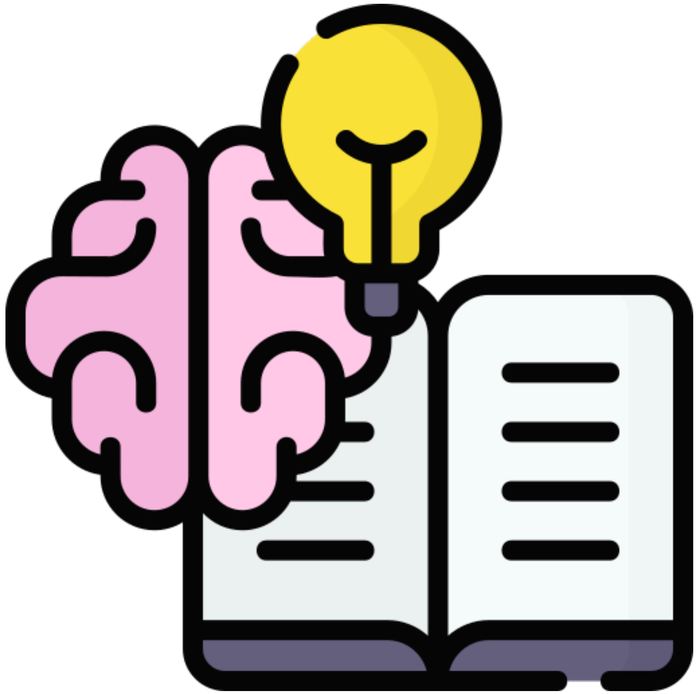




None Of The Above!



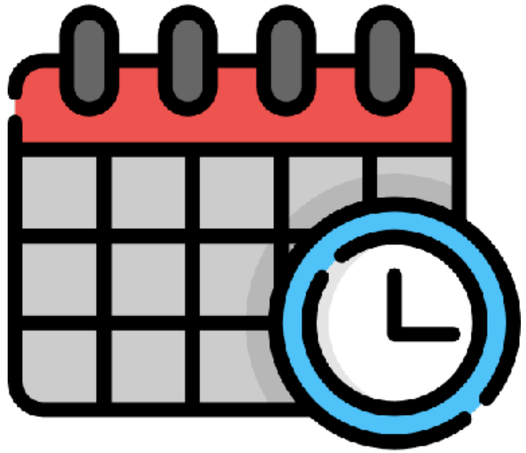
Your Own Systems



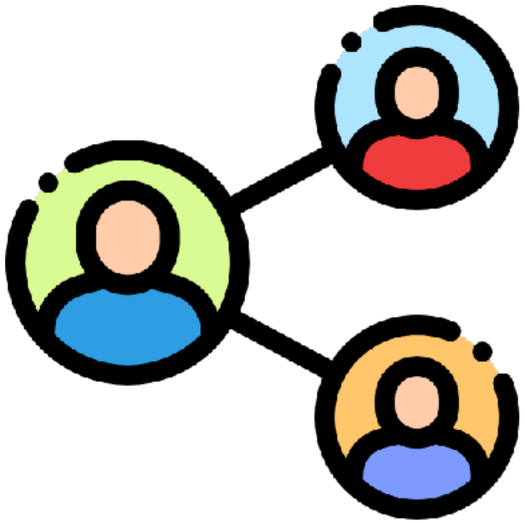
How?

Guidance and Direction

Make The Time



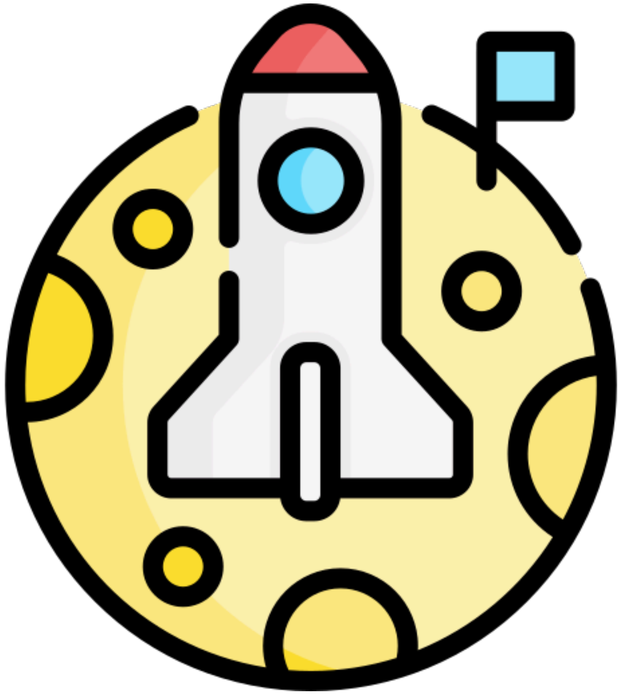
Encourage Sharing

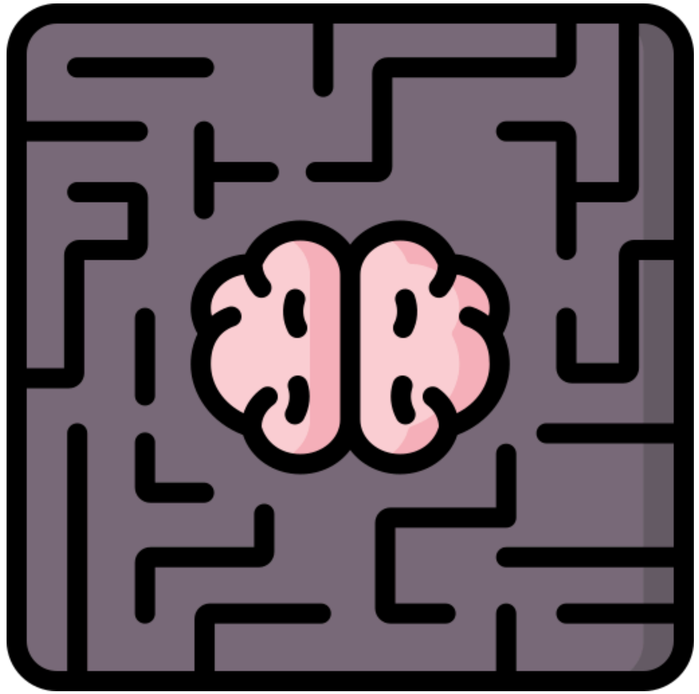


Pitfalls!

If We Train, They Will Leave

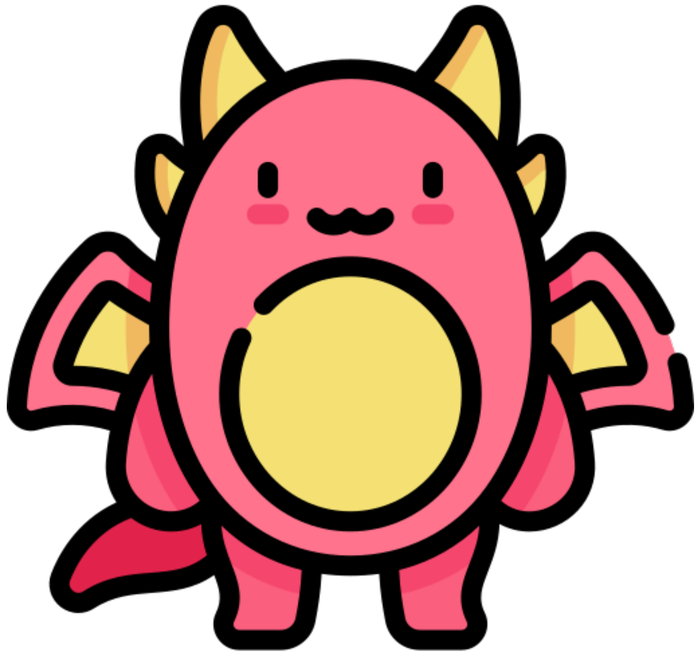
Keep It Simple

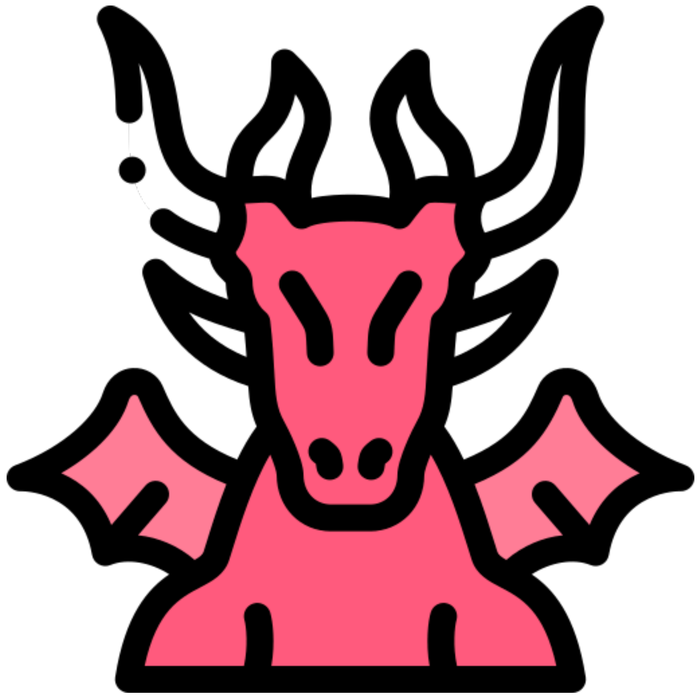




Time Limits

DON’T Put It In Prod





Resources

The Internet!

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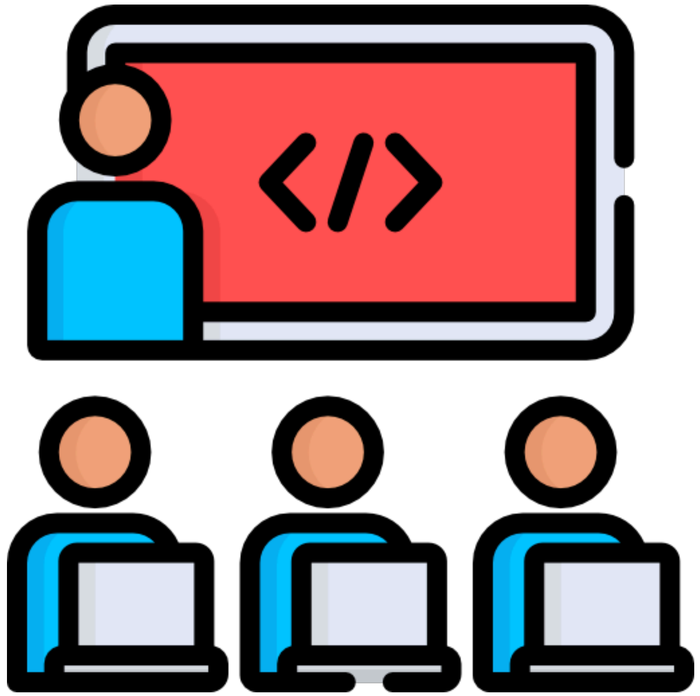
Your Team

Take A Class



Thank You & Safe Travels!

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