

honing the right engineering skills in the age of ai

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agenda

What skills do engineers need to build and how can we help them build them?

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What skills do engineers need to build and how can we help them build them?

What?

- Human centered engineering
- Systems thinking
- Data modeling

How?

- Team member onboarding
- Manager coaching
- Assessing engineering performance

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What skills do engineers need to build and how can we help them build them?

What?

- **Human centered engineering**
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human centered engineering

What?

Problem solving focused on **developing empathy** to better understand the needs of the people you're building for

human centered engineering

What?

Problem solving focused on **developing empathy** to better understand the needs of the people you're building for

Why?

We **need humans to understand human behavior** and needs to focus on solving problems grounded in real experiences

human centered engineering

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Why?

We **need humans to understand human behavior** and needs to focus on solving problems grounded in real experiences

human centered engineering



human centered engineering



human centered engineering

Functional, but
what's missing?



human centered engineering

Shelter and seating!



human centered engineering

Shelter and seating!



human centered engineering



Ridership up
by 80%



agenda

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- ~~Human centered engineering~~
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- **Team member onboarding**
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team member onboarding

Then: bug fixes / backlog

→ Start to learn the codebase

team member onboarding

Then: bug fixes / backlog

- Start to learn the codebase
- Make first contribution

team member onboarding

Then: bug fixes / backlog

- Start to learn the codebase
- Make first contribution
- Quick win

team member onboarding

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team member onboarding

Then: bug fixes / backlog

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Now: customer experience deep dive

- Gather right context

team member onboarding

Then: bug fixes / backlog

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- Start to learn the codebase
- Make first contribution
- Quick win

Now: customer experience deep dive

- Gather right context
- Uncover customer pain points

team member onboarding

Then: bug fixes / backlog

- Start to learn the codebase
- Make first contribution
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Now: customer experience deep dive

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team member onboarding

Then: bug fixes / backlog

- Start to learn the codebase
- Make first contribution
- Quick win

Now: customer experience deep dive

- Gather right context
- Uncover customer pain points
- Deliver first win for customer

team member onboarding

Then: bug fixes / backlog

- Start to learn the codebase
- Make first contribution
- Quick win

Now: customer experience deep dive

- Gather right context
- Uncover customer pain points
- Deliver first win for customer

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systems thinking

What?

Holistic problem solving that emphasizes the **impact individual components** of the system **have on one another**

systems thinking

What?

Holistic problem solving that emphasizes the **impact individual components** of the system **have on one another**

Why?

Human judgment is required to understand the long term impact of assumptions, benefits and tradeoffs made within the system

systems thinking



systems thinking



(RIP 1994 - 2025)

systems thinking



systems thinking



systems thinking



Ridership up 18%
&
MetroCard usage up 59%

agenda

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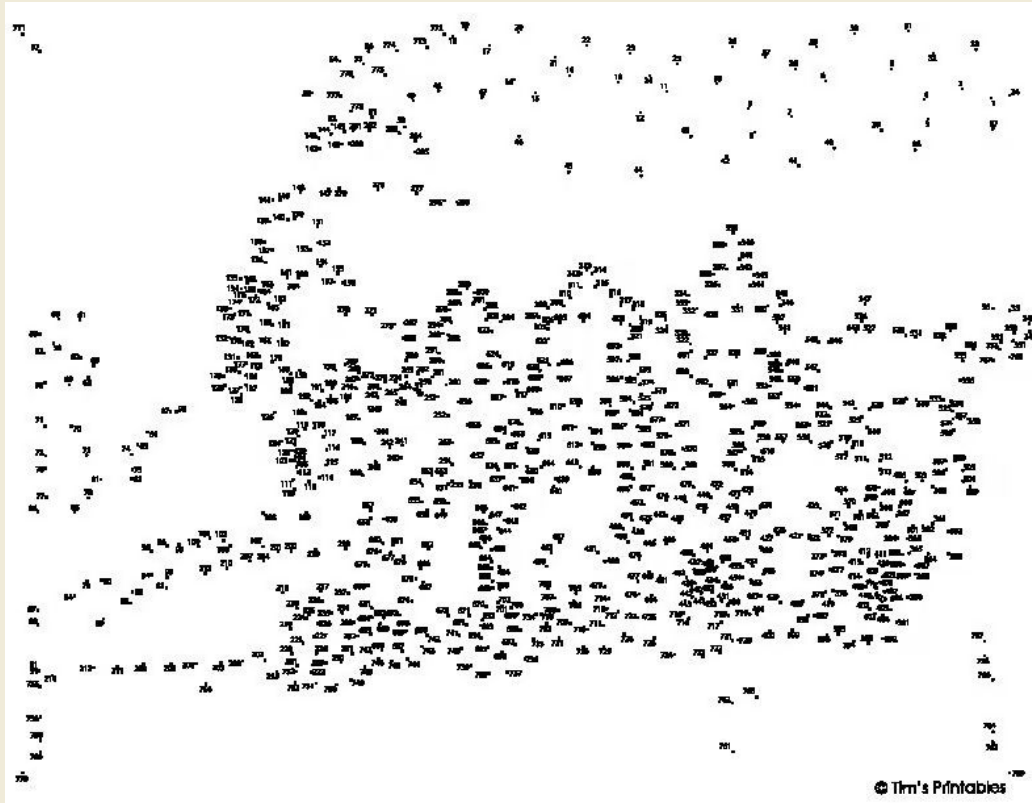
What?

- ~~Human centered engineering~~
- ~~Systems thinking~~
- Data modeling

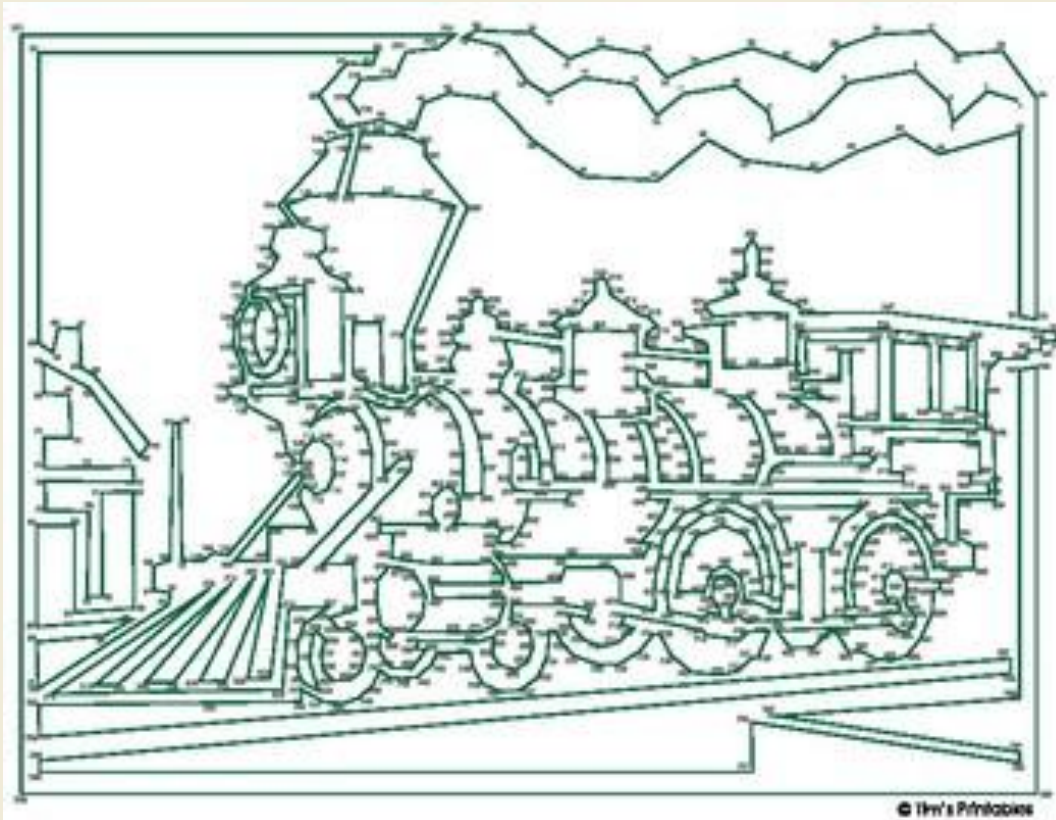
How?

- ~~New team member onboarding~~
- **Manager coaching**
- Assessing technical performance

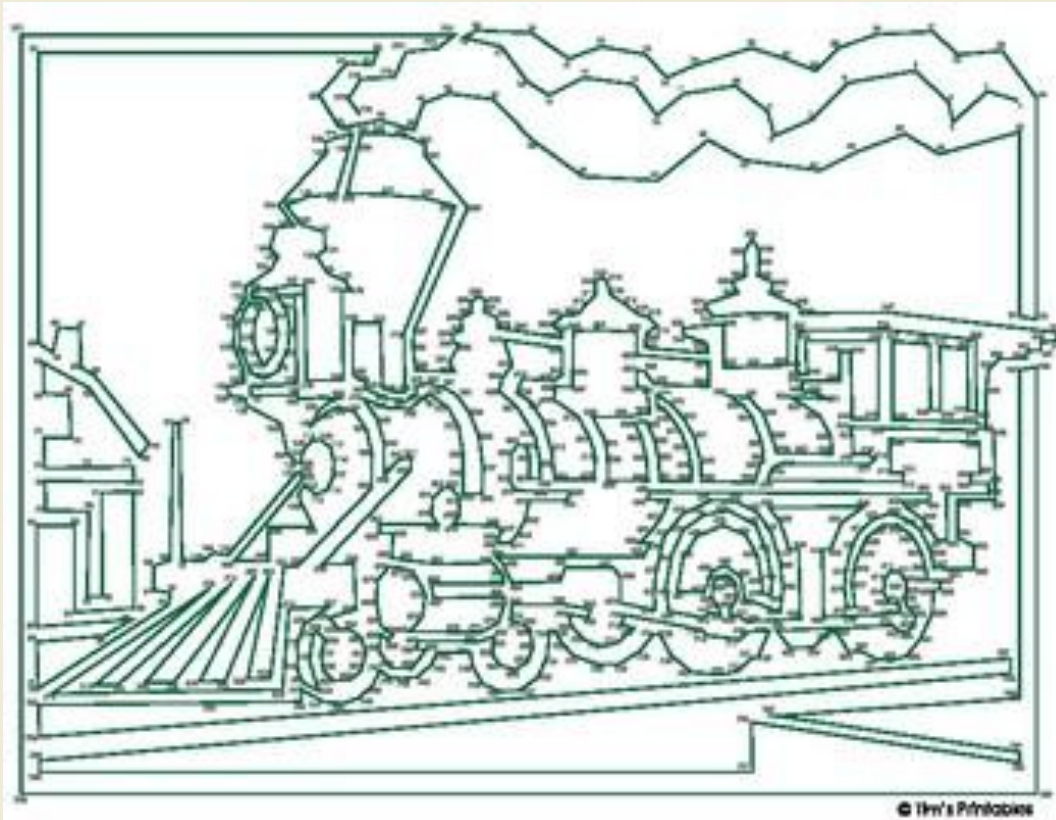
manager coaching



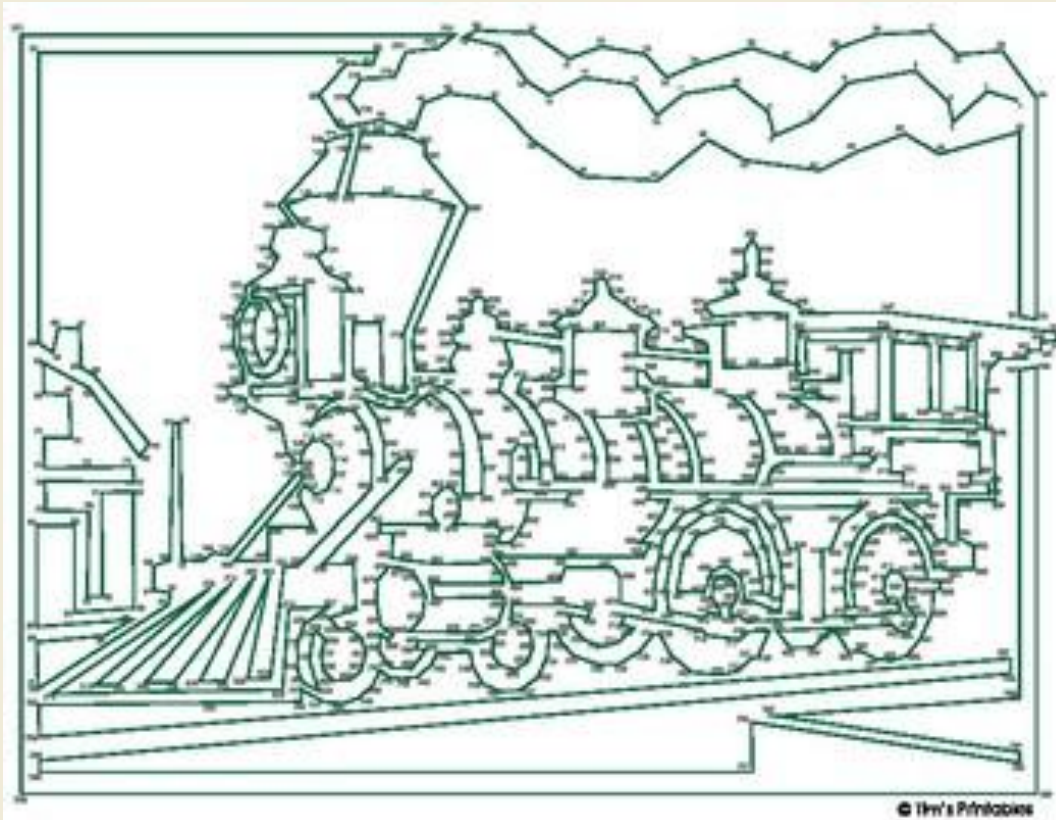
manager coaching



manager coaching



manager coaching



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data modeling

What?

The process of **designing** how data is **structured** and related

data modeling

What?

The process of **designing how data is structured** and related

Why?

How **well your data is designed determines how well you can utilize tools** like LLMs to effectively scale your team's ability to ship

data modeling



data modeling



data modeling

Subway Station

Station code

Statuses

Subway Status

Line code

Line name

Arrival time

Is delayed



data modeling



data modeling

Subway Station

Station code

Statuses

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Line code

Line name

Arrival time

Is delayed



data modeling

Subway Station

Station code

Location

Trains

Train

Line code

Direction

Schedule

Current location

Status Alert

Alert type

Description

Trains

Train schedule

Station code

Line code

Arrival time



data modeling

Subway Station

Station code

Location

Trains

Train

Line code

Direction

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Current location

Status Alert

Alert type

Description

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Train schedule

Station code

Line code

Arrival time



data modeling



Ridership up
by ~200%



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- **Assessing engineering performance**

assessing engineering performance

What are you rewarding in your current engineering culture?

assessing engineering performance

What are you rewarding in your current engineering culture?

→ Speed?

→ # of PRs?

→ Token usage?

assessing engineering performance

What are you rewarding in your current engineering culture?

→ Speed?

+

→ Thorough
preparation

→ # of PRs?

+

→ Quality of work

→ Token usage?

+

→ Effective tool
usage

takeaways

takeaways

- Encourage deep understanding of your customer needs

takeaways

- Encourage deep understanding of your customer needs
- Help your team connect the dots to see the bigger picture

takeaways

- Encourage deep understanding of your customer needs
- Help your team connect the dots to see the bigger picture
- Be mindful of what you reward as good performance

takeaways

- Encourage deep understanding of your customer needs
- Help your team connect the dots to see the bigger picture
- Be mindful of what you reward as good performance



thank you!

connect with me here!



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