

# Lecture 8: Altair, Tasks

CS 7250

SPRING 2021

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*NORTHEASTERN UNIVERSITY*

*Slides and inspiration from Michelle Borkin, Krzysztof Gajos, Hanspeter Pfister, Miriah Meyer, Jonathan Schwabish, and David Sprague*

# CHECKING IN

Including about projects

PREVIOUSLY, ON CS 7250...

# Attribute Types

*(nominal)*

→ Categorical

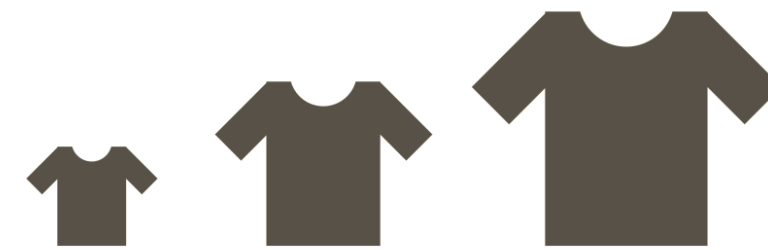


e.g.,

fruit (apple, pear, grape),  
colleges (CAMD, Khoury, COE)

→ Ordered

→ *Ordinal*



e.g.,

sizes (xs, s, m, l, xl),  
months (J, F, M)

→ *Quantitative (continuous)*



e.g.,

lengths (1', 2.5', 5'),  
population

# Visualization Building Blocks

## MARK:

→ Points



→ Lines



→ Areas



## CHANNEL :

→ Position

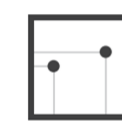
→ Horizontal



→ Vertical



→ Both



→ Color



→ Shape



→ Tilt



→ Size

→ Length



→ Area



→ Volume



# D3 TUTORIAL



Now, ON CS 7250...

IN-CLASS PROGRAMMING —

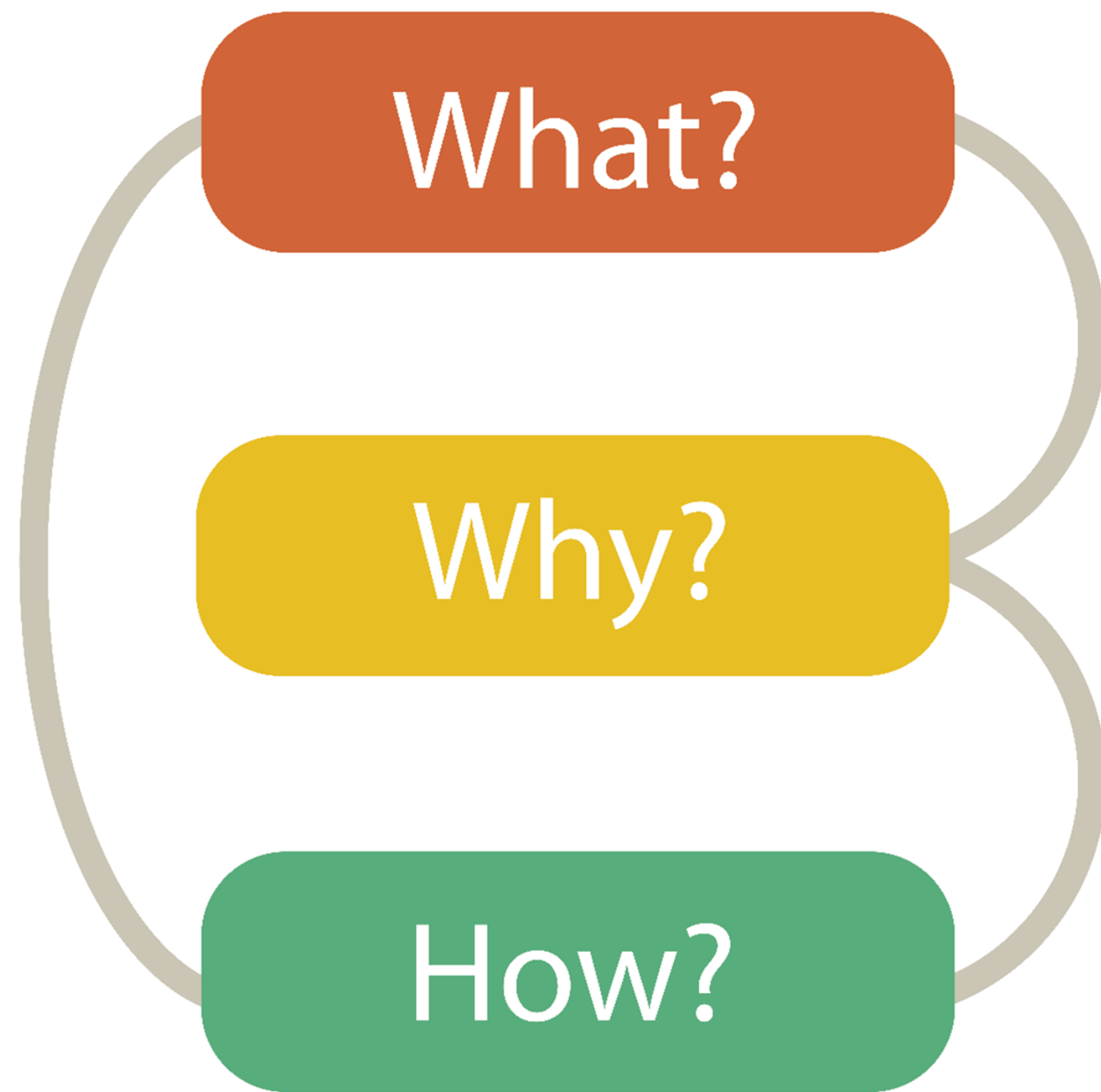
SOUTH END ALTAIR

*~25 min total (TBD)*



PREVIOUSLY, ON CS 7250...

# Analysis



DATA ABSTRACTION

TASK ABSTRACTION

VISUAL ENCODING

# TASK ABSTRACTION

## Why abstract?

Avoids domain specific terms thus easier to apply to other cases (broadly applicable results).

## Why?

### Actions

### Targets

#### → Analyze

→ Consume

→ Discover



→ Present



→ Enjoy

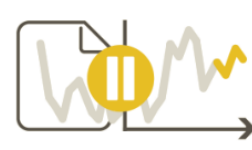


→ Produce

→ Annotate



→ Record



→ Derive

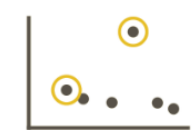


#### → Search

	Target known	Target unknown
Location known	Lookup	Browse
Location unknown	Locate	Explore

#### → Query

→ Identify



→ Compare



→ Summarize



#### → All Data

→ Trends



→ Outliers



→ Features



#### → Attributes

→ One

→ Distribution



→ Extremes

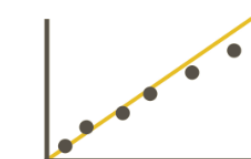


→ Many

→ Dependency



→ Correlation

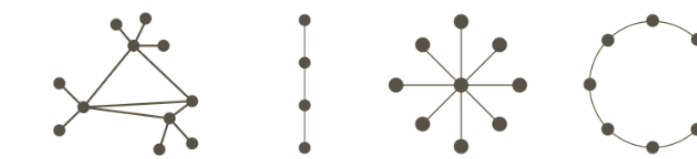


→ Similarity



#### → Network Data

→ Topology

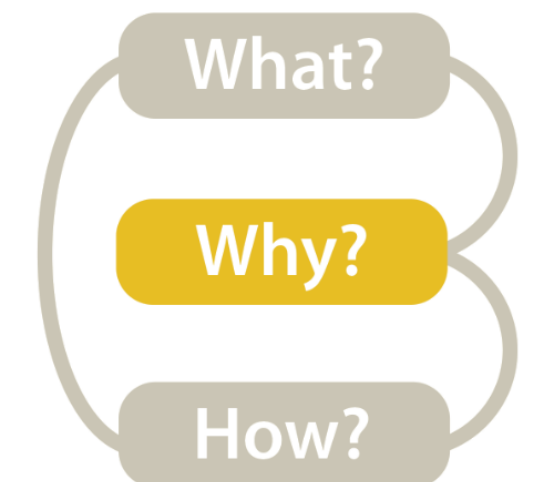
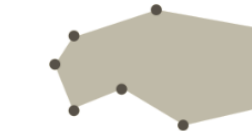


→ Paths



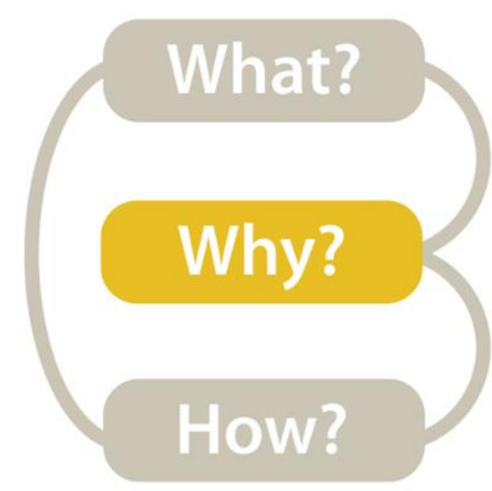
#### → Spatial Data

→ Shape



Now, ON CS 7250...

**IN-CLASS EXERCISE:**  
**MOCK INTERVIEW, TASK ANALYSIS**



# Task Analysis

## Visualization for Public Transit Development

20m

### INSTRUCTIONS:

- We will break you into groups of ~3 on Zoom.
- Pretend you are transportation engineers, e.g., for the MBTA, City of Boston.
- Discuss the user tasks and goals and abstract them using the taxonomy from VAD (right, Fig. 3.2).
- Save your **notes & group members** for a later exercise!!!

### → Analyze

High-level

#### → Consume

→ Discover



→ Present

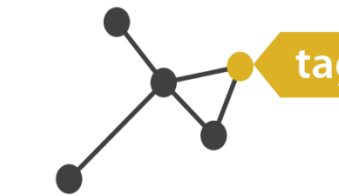


→ Enjoy

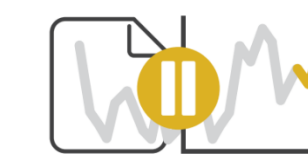


#### → Produce

→ Annotate



→ Record



→ Derive



### → Search

Mid-level

	Target known	Target unknown
Location known	Lookup	Browse
Location unknown	Locate	Explore

### → Query

Low-level

#### → Identify



#### → Compare



#### → Summarize



# Upcoming Assignments & Communication

<https://northeastern.instructure.com/courses/63405/assignments/syllabus>

Look at the upcoming assignments and deadlines regularly!

- Textbook, Readings, & Reading Quizzes — Variable days
- In-Class Activities — 11:59pm same day as class
  - T: Lecture
  - F: Lecture, in-class design following up on today
  - T: Lecture
  - F: In-class project feedback meetings & work
- Assignments & Projects— Generally due **R 11:59pm**
  - R (6 days):** Assignments 6a (Altair) and 6b (critique)
  - Next R (13 days):** Assignment 7 (D3 Events)
  - Next-next R (20 days): Project 3 — Interview & Task Analysis**

Everyday Required Supplies:

- 5+ colors of pen/pencil
- White paper
- Laptop and charger

Use Canvas Discussions for general questions, email the TAs/S-LTA/instructor for questions specific to you: [codydunne-and-tas@ccs.neu.edu](mailto:codydunne-and-tas@ccs.neu.edu). Include links!