

Data Visualization, Part 2

How to tell your story with AI

Grade Level: Suitable for 6-12

Suggested Time: 1 Hour

Overview

In Part 2, students shift from data to design. They learn the difference between User Interface (UI) and User Experience (UX) and use AI-powered prototyping tools – Ulzard or UXPilot – to create a mockup of their app or website. Students integrate their data visualizations from Part 1 into their mockup and prepare a screenshot or exported image for use in their project.

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AI Learning Priorities

Humans and AI: Students consider how design choices in AI-powered apps shape how users interact with and trust a system.

Representation and Reasoning: Students think about how features and formats shape how information is understood and interpreted.

Machine Learning: Students reflect on how the user interface of a product can influence what data users provide and how the system learns from it.

Ethical AI: Students make design decisions that consider accessibility, clarity, and the needs of diverse users.

Societal Impacts of AI: Students recognize that the design of AI-powered tools can affect who benefits from them and how they are adopted in communities.

Knowledge and Skills Topics

- The distinction between UI (how a product looks) and UX (how a product feels to use).
- How design choices (layout, color, labels) affect accessibility and user trust.
- Navigating and using an AI-assisted design tool (Ulzard or UXPilot).
- Making design decisions for a specific target audience.
- Uploading and embedding a data visualization into a design mockup.
- Saving or exporting design screens for use in a presentation.

Materials and Resources Needed

- ☐ Student devices with a web browser and internet access. This works best on a laptop rather than a phone or tablet.
- ☐ Whitelisted items
 - ☐ [Ulzard](#)
 - ☐ [UXPilot](#)

Curriculum Standards

- **ISTE 1.4.d Innovative Designer:** Students exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems
- **ISTE 1.6.b Creative Communicator:** Students create original works or responsibly repurpose or remix digital resources into new creations.
- **ISTE 1.6.d Creative Communicator:** Students publish or present content that customizes the message and medium for their intended audiences.
- **CSTA 3A-AP-16:** Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.
- **CSTA 3A-AP-21:** Evaluate and refine computational artifacts to make them more usable and accessible.
- **AI4K12 Big Idea 2 Representation & Reasoning:** How information is organized and displayed affects how AI systems and users interact with it.

Differentiation Suggestions

- For students who need support
 - Begin with Ulzard for most students, as it has a more guided interface and allows image downloads on the free plan.
 - Provide a simple prompt template: “Design a [type of app] for [target audience] that helps them [goal].”
 - Allow students to start with a hand-drawn sketch on paper before moving to the digital tool.
 - Pair students who struggle with design decisions with a peer, letting one focus on layout and one on content.
- For students who are ready to go further
 - Ask students to create mockups for two different screens (e.g., a home screen and a results screen) and explain the user journey between them.
 - Challenge students to evaluate their mockup for accessibility: Is the text readable? Are colors high-contrast? Is it usable on a phone?

Evidence of Understanding

- Completed mockup screenshot or exported image saved and ready to include in the presentation.
- Mockup reflects the project's target audience and purpose, includes the data visualization from Part 1, and demonstrates intentional layout choices.

Key Concepts

- UI (User Interface) - How a digital product looks - the visual design, layout, buttons, colors, and typography that users see and interact with.
- UX (User Experience) - How a digital product feels to use - the overall journey, ease of navigation, and whether users can accomplish their goals smoothly.
- Mockup - A static visual representation of what an app or website screen will look like, used to plan and communicate design ideas before building.
- Prototype - An interactive or semi-functional model of a product used to test and refine the user experience before full development.
- Ethical Data Use - Protecting people's privacy, crediting original sources, anonymizing survey responses, and drawing from a variety of sources to avoid bias.

Activity Overview

Activity #1: Build Your Mockup

Purpose: Turn website/app ideas into mockups.

Task: Students will have 35 minutes to work on this activity. They will use their PNG from Lesson 5, Part 1. Students will use the AI-enhanced tools to turn their ideas from something in their head or on paper to something they can present. Students will select one of the tools to work in, not both. A handout is available to support students with the tools. [Ulzard](#). [UXPilot](#).

Sequence, Session Flow, and Facilitation Prompts

Sequence

1. Opening
2. UI and UX
3. Meet the Tools
4. Activity #1 – Build Your Mockup
5. Debrief – Activity #1

Session Flow

1-Hour Class Period

Opening	0:00 - 0:03	Slide 1
UI and UX	0:03 - 0:10	Slide 2-3; Direct instruction
Meet the Tools	0:10 - 0:12	Slides 4-6; Direct instruction Handouts UXpilot - Ulzard
Activity #1	0:12 - 0:47	Slides 7-8
Debrief - Activity #1	0:47 - 1:00	Slide 9

45-Minute Class Period

STOP		Give Pre-Reading the night before
Opening	0:00 - 0:03	Slide 1
STOP		SKIP to SLIDE 4
Meet the Tools	0:03 - 0:05	Slides 4-6; Direct instruction Handouts UXpilot - Ulzard
Activity #1	0:05 - 0:40	Slides 7-8
Debrief - Activity #1	0:40 - 0:45	Slide 9

Facilitation Prompts

[SLIDE DECK](#)

SLIDE 1 - Title Slide

Say "Before we do anything else, I need you to do a quick check. In Part 1, you built a data visualization in Datawrapper and downloaded it as a PNG file. Raise your hand if you have that file saved and you can find it right now.

[Scan the room for students who do not raise their hands:]

If you do not have it, open Datawrapper right now - datawrapper.de - sign in, find your chart, and download it as a PNG before we move on. You have two minutes. Go.

SLIDE 2 - What are UI and UX?

Say "Two terms. You need to know both and you need to be able to tell them apart.

UI stands for User Interface. UX stands for User Experience.

UI is how your product LOOKS. It is everything visual - the colors you choose, the fonts, the button shapes, where elements are placed on the screen, the icons, the images, the layout. Every single screen your user ever sees is UI. If you can see it, it is UI.

UX is how your product FEELS. It is the experience of using it. Can users find what they need without getting confused? Is the flow logical - does one step lead naturally to the next? Do users feel confident that they know what to do? UX is the full journey a person takes from the moment they open your app to the moment they accomplish their goal.

Here is an analogy that might help. Think about a physical store. UI is the store design - the lighting, the signage, how the products are displayed, how nice everything looks. UX is whether you can actually find what you came for in under two minutes without asking for help. A beautiful store where nothing is organized has great UI and terrible UX. An ugly warehouse with perfect logical organization has bad UI and great UX.

For your project, you need both.

Can someone tell me: if an app has beautiful colors and a gorgeous logo but the signup process takes fifteen steps, what is the problem - UI or UX?

Right. UX. The visual design is fine, but the experience of using it is frustrating. Now flip it: if your app has no design at all - plain white background, default fonts, nothing styled - but a user can complete their task in three taps, what is the problem?

UI. The experience works but the interface does not build trust or feel professional. Both problems hurt your project.

So as you design today, you are making decisions about both at the same time. Every time you pick a color, that is a UI decision. Every time you decide what button does what, that is a UX decision.

SLIDE 3 - Great products need both

Say "I want to be direct about why this matters for your project.

The audience notices when an app looks polished AND is easy to use. They may not be able to name UI or UX in the moment, but they feel the difference immediately. When you show a mockup that looks professional and has a clear, logical layout, you are signaling: this team thought through their product. They did not just have an idea - they built something.

Great UI and great UX: users love it and come back. This is what you are aiming for.

Great UI but bad UX: it is pretty but frustrating. Users might try it once and never return. First impressions do not save bad experiences.

Bad UI but great UX: it works well but looks unattractive. Users might appreciate it once they get into it, but getting them to try in the first place is hard because the first impression is weak.

And bad UI and bad UX: I am not going to spend time on that one.

Your mockup today is a first impression. When someone opens your project and sees your prototype screen, you have about three seconds before they form an opinion. Make those three seconds count.

Now, I want to be clear about something. You are not professional designers. You have not had years of training. That is fine. What you DO have is an AI tool that will do most of the visual heavy lifting for you. Your job is to make intentional choices

on top of what the AI generates - not to design from scratch.

SLIDE 4 - Meet the tools

Say "You have two tools to choose from today. Let's walk through both so you can make an informed decision about which one to use."

Ulzard is best for teams who want to go from zero to a polished-looking screen as fast as possible. Here is how it works: you type a prompt - a sentence or two describing your app - and the AI generates a full screen layout instantly. From there, you edit it. You can drag and drop any element, change text, swap colors, move buttons around. It is very visual, very intuitive. If you have never used a design tool before, Ulzard will feel comfortable within a few minutes.

The other key thing: Ulzard lets you upload an image directly onto your screen. That is how you get your Datawrapper visualization into the mockup. And on the free plan, you can download your finished screen as a PNG. That download is important - you need it for your project.

My recommendation: if you are not sure which tool to use, start with Ulzard.

UXPilot is different. It is better for teams who want to map out a user flow - meaning the sequence of screens a user moves through - before focusing on visuals. The AI helps you plan screens and think through the structure of your experience step by step. It is great for thinking, but it is slightly less immediate than Ulzard for pure visual output.

One important limitation: UXPilot's free plan does NOT allow downloads. If you use UXPilot, you will need to screenshot your work. Use Ctrl+Shift+S on Windows or Cmd+Shift+4 on a Mac to capture the screen. Crop it and save it.

Take a minute and decide: which tool is your team using? Ulzard or UXPilot? If

you are split, go Ulzard - it is faster.

[Provide handouts or share docs electronically.]

SLIDE 5 - UX Pilot

Say "They both have AI. This is UXPilot. Write out your prompt on paper first and be very careful, you have a limited number of AI credits."

SLIDE 6 - Ulzard

Say "This is Ulzard. Notice the standard editing tools on the left, your screen in the center and your Preview and Interaction buttons on the right.

SLIDE 7 - Design Tips

Say "Before you start, here are six design tips. These are not suggestions - if you follow all six, your mockup will look significantly more professional than if you ignore them.

Tip one: DESIGN FOR YOUR USER. Every single decision you make - colors, font size, button placement - should be based on what your user needs, not what you personally like. If your app is for elderly patients, large fonts and high contrast matter more than looking trendy. If your app is for athletes, speed and simplicity matter more than information density. Ask yourself with every choice: would my user actually want this?

Tip two: ONE SCREEN, ONE PURPOSE. The screen you are designing today should answer exactly one question for the user. Not two, not five. One. If you are cramming too much onto a single screen, you are designing for yourself, not for your user. Simplify.

Tip three: READABLE TEXT ALWAYS WINS. Dark text on a light background, or light text on a dark background. Never medium gray on light gray, never yellow text on a white background. And a minimum of 14-point font for any body text. If you have to squint to read it in preview mode, reviewers will notice.

Tip four: MAKE YOUR CALL TO ACTION OBVIOUS. CTA means Call To Action - the main button on the screen, the thing you most want the user to tap or click. It should be the biggest, most colorful, hardest-to-miss element on the screen. If a user opens your app for the first time and does not immediately know what to press, the CTA is not obvious enough.

Tip five: SHOW, DO NOT JUST TELL. Your data visualization should be visible on the screen - not buried behind a tap, not hidden in a settings menu. Place it where it has immediate impact. If your chart shows that the problem is serious, it should be one of the first things a user sees.

Tip six: LESS CLUTTER. Whitespace - empty space on the screen - is not wasted space. It is breathing room. It makes your design look intentional and

professional. Crammed screens look amateur. If you have added five different colors, three different font sizes, and every element Ulzard offered you, start removing things. Restraint is a design skill.

SLIDE 8 - Activity

Say "Here are your five steps.

Step one: choose your tool. Ulzard at uizard.io, or UXPilot at uxpilot.ai. Open it right now.

Step two: sign in with your school login and start a new project. In Ulzard, click "New Project." In UXPilot, click "New Project" and name it after your AI product.

Step three: generate or build your most important screen. In Ulzard, type a prompt describing your app - for example: "A mobile app for high school students that tracks air quality in their neighborhood and sends alerts." The AI will generate a layout. Do not try to make it perfect from the prompt. Get a starting point and then edit. In UXPilot, describe your app and explore the flow it suggests.

Step four: upload your Datawrapper visualization image. In Ulzard, click the image upload icon in the left panel, select your PNG, and drag it onto your screen. Make it large enough to actually read - if the chart text is illegible in the mockup, it will not impress anyone. Add a short label above it so users know what they are looking at. In UXPilot, find the image element in your screen and upload your PNG there.

Step five: download or screenshot your finished mockup. In Ulzard, go to preview mode, then export and download as PNG. In UXPilot, take a screenshot and crop it to just your screen.

SLIDE 9 - Gallery Discussion

Say "We are going to do a quick gallery share. Each group is going to show their screen - you can hold up your laptop, share your screen, or project it if we have time. Then pick 1-2 questions to answer from the slide. You do not need to answer all five. Pick the ones that apply to your project.

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