PROJECT 2

CREATIVITY CANVAS 🎨🖌️

Photo by ANTONI SHKRABA from Pexels

Objectives

This is a **pair** assignment. If you would like to partner with a specific person, fill out this form. If not, you will be randomly assigned. Pairs will be finalized on bCourses by EOD ~~Monday, June 27~~ Tuesday, June 28.

In this assignment, you will:

- Construct a hierarchical task analysis
- Understand the challenges of creativity support tools
- Conduct a task analysis
- Design an observational study protocol
- Apply paper prototyping and Wizard of Oz techniques for interaction prototypes
- Practice graphics programming techniques with Paper.js

Deliverables

All deadlines are at 11:59pm PST on the listed dates.

Due Date	Deliverable	Time Estimate[1]
Thurs, 06/30	Deliverable 2.1 — Initial Task Analysis	1 hour
Thurs, 06/30	Deliverable 2.2 — Observational Study Protocol	1 hour
Fri, 07/01	Deliverable 2.3 — Recruiting Message	1 hour
Tue, 07/05	Deliverable 2.4– Observational Study & Findings	2 hours
Wed, 07/06	Deliverable 2.5 — Concept & Low-Fidelity Sketches	1.5 hours
Fri, 07/08	Deliverable 2.6 — Figma Prototype	3 hours
Mon, 07/11	Deliverable 2.7 — Usability Test	1.5 hours
Mon, 07/11	Deliverable 2.8 — Figma Prototype Revision	1 hour
Wed, 07/13	Deliverable 2.9 — Interactive Prototype	≤8 hours
Thurs, 07/14	Final Report	30 minutes

Design Brief

In Project 1, we started with *predefined* tasks, situations and users. We also discussed ways to prevent error while achieving specific goals (e.g., heuristic evaluation).

However, creative activities complicate this model. Think about how you feel when you are in front of a blank piece of paper or a blank canvas. Do you have any goals in mind? Where do you begin? What constitutes success? To explore these issues around creativity support tools, we'll be making an interactive drawing tool application.

[1] This is an approximate estimate of the expected time for completion of each deliverable. You may spend more or less time as you wish! The estimates are provided in non-DSP terms. If you are a DSP student who would like help estimating the time per deliverable, feel free to reach out to Noah or Shm!

Technical Preview

The technical component of this assignment will involve making a direct manipulation mouse interaction that allows users to draw and color an image. Our javascript library of focus will be `paper.js`.

Technology

We can develop this interaction for a tablet-form factor. If you already own a tablet, feel free to leverage this in your design exploration. Alternatively, you can choose to develop it for laptop/desktop or a mobile phone screen form factor (up to you!). In development, use the Google Chrome Dev Tools to simulate a tablet form factor, just like you used them to simulate mobile device dimensions for Project 1, Deliverable 1.5.

Where to Begin & What to Expect

In this project, you will start by planning and running an **observational study** (in pairs), then **synthesizing your findings** (in pairs), and **sketching 3 potential interactions** that support your users in their creative endeavors (independent, each partner should ideate about 6 and refine to 3).

We are kicking off Project 2 around the same time you start Project 3 so that you have enough time to recruit and hear back from participants before you proceed with next steps! This project spec is in progress and there is more to come — stay tuned!

2.1 Initial Task Analysis · due Thurs 06/30

Do you know what users want from a drawing app? To check your biases and better understand your users, you will be conducting a *task analysis* — the process of learning about ordinary users by observing them in action to understand in detail how they perform their tasks and achieve their intended goals[2].

Task Decomposition

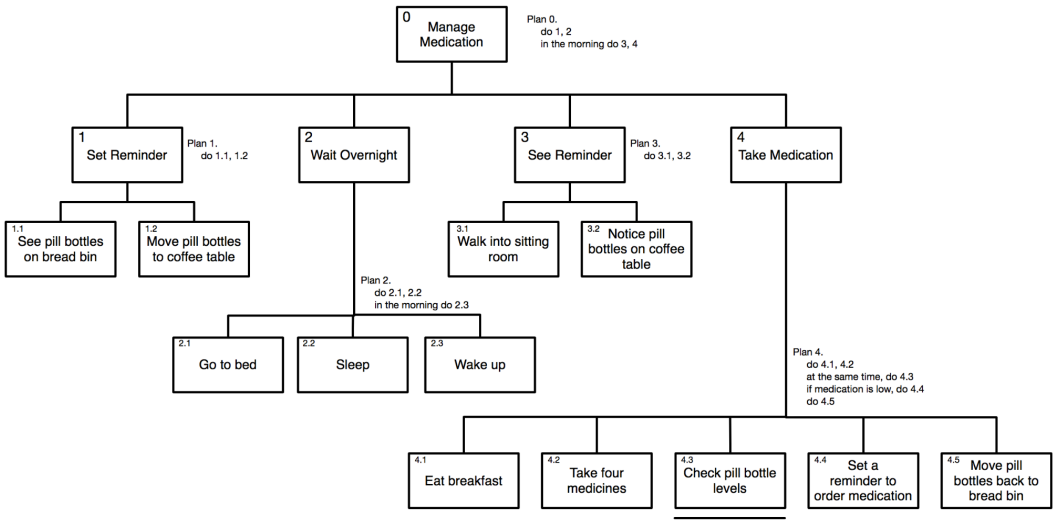
In future stages of this project, you will be understanding how users interact with either a:

(a) Drawing application (eg: https://kleki.com/ , Adobe Photoshop, MS Paint Online)
(b) Physical media (pencil, marker, crayons, etc.) and a piece of paper

There are many different types of tasks that are relevant to a drawing app. For this assignment, come up with a **specific drawing task** of the form: "Draw and color a _____." In the following task decomposition, this will be your high-level task.

Conduct an initial task decomposition by following these steps:

1. Talk to your partner about how you think users approach the task of using a drawing application (or making a physical drawing).
2. Try out the task individually. Observe the different actions you took and the thoughts that crossed your mind while doing them.
3. Reconvene with your partner to discuss what you observed.
4. Together with your partner, make a *Hierarchical Task Analysis (HTA) tree* with "Drawing" as the high-level task and levels of nested subtasks, as shown in Lecture 4. You can use Google Slides, ppt, Figma, Illustrator, or an online tool to make the diagram.



[2] Types of Task Analysis: https://www.usability.gov/how-to-and-tools/methods/task-analysis.html

Example HTA for the task of managing medication (source)

Reflection

Think about what types of subtasks you would like to better understand. (For example, how does a user choose a color? What constitutes a "mistake" and how do they recover? What does the user do with their drawing afterwards? What kinds of things would a user like to achieve but can't with the current crayons/markers or creativity app that they have?)

Write a 3-4 sentence description including:

- one difference between what you and your project partner observed when doing the tasks yourselves.
- the specific subtasks that you think would be interesting to learn more about.

If you cannot contact your partner...

- Write a reduced reflection, only about the specific subtasks that you think would be interesting to learn more about
- Include a screenshot to indicate that you reached out to your project partner (e.g., over email or Slack)
- Fill out the Project 2 Partner Problems Form and we'll try to match you with someone else.

To Submit ✅

Only one person from your pair needs to do the following.

1. On the Slack channel `#p2-1-hta`, one of you should post an image (.jpg, .jpeg, or .png) of your HTA tree diagram. Tag your team member in your message using @... on Slack.
2. Under the bCourses assignment titled **2.1 Initial Task Analysis**, one of you should submit a PDF with your HTA tree and your short reflection.

2.2 Observational Study Protocol · due Thurs 06/30

Now that you have thought about the different subtasks within the task of using a drawing app and/or drawing physically, you will figure out how to study this more formally. Design an observational study to validate or update your task analysis.

Because decisions about drawing and coloring are hard to observe, you should plan ways to incorporate a *think-aloud* (or thinking aloud) technique[3], which is used to understand what the user is thinking.

Building your protocol

1. Think about different ways you can extract observational data that might be useful to you and your peers. You can (e.g.):
    - observe your user drawing and coloring in their drawing on a blank page
    - observe your user drawing with access to many colors
    - observe your user drawing with access to limited, strange, or randomized colors
    - observe a user coloring in a coloring book / pre-drawn lineart image
    - observe a user drawing with a time constraint
    - observe a user drawing with their non-dominant hand
    - observe a user drawing in response to a word prompt, like “happy”
    - observe a user drawing in response to a visual prompt, e.g. a reference image.
    - observe a user drawing with their eyes closed
    - observe a user telling ***you*** what to draw and color for them, and *how* (very interesting for figuring the language these users associate with drawing, coloring, and creation)
    - ...
2. Make a short *protocol*, or plan, to guide you in your observational study about a specific type of drawing interaction (ex: drawing with limited colors). Example protocols are in the table below.
    - Aim for a session that lasts 5-15 minutes, 20 minutes maximum.
    - Outline the study, with detailed information on:
        i. what questions you'll ask in the preliminary demographics questionnaire
        ii. what you are going to say
        iii. how long you are going to let your users draw
        iv. what questions you ask during the task

[3] Think Aloud: https://www.nngroup.com/articles/thinking-aloud-the-1-usability-tool/

v. what questions you will ask post-drawing activity
vi. how long you anticipate each part to take
vii. any other relevant details to your setup.

- Recommended: Practice with your partner. One partner facilitates and the other partner acts as the user, then switch.

Sample Protocol — Observing DRAWING with LIMITED RANDOMIZED Colors

1. (1 min) Introduce ourselves
2. (1 min) Participate in drawing activity? Explain class project.
3. (4 min) Ask about their drawing habits.
    a. Last time they drew a picture?
    b. Favorite drawing or creative experience as a child?
    c. Past experiences with: markers, crayons, digital?
    d. ...
4. (3 min) Explain think-aloud. Show example with my own pen.
5. (5-6 min) Task: Given just these 2 colors, can you draw a flower?
    a. Questions to ask during the task.
        i. How did you decide which color(s) to use?
        ii. How do you decide what kind of lines/marks to make?
        iii. How do you feel as you are drawing and/or coloring?
        iv. ...
    b. Task: Give them an extra color.
        i. Will you use it? How? Where do you decide to incorporate it?
        ii. ...
6. (3 min)
    a. How do you feel about the artwork you produced?
    b. What was your feeling when a 4th color was added?
    c. What impacted your choice of what to draw?
    d. ...
7. (1 min) Thank them for their time.
8. (1 min) Take a screenshot/picture of their drawing as a record.

To Submit ✅

1. Under the bCourses assignment titled **2.2 Observational Study Protocol**, submit a PDF with your protocol for your observational study.

2.3 Recruiting Message · due Fri 07/01

Now that you have a plan for your interview protocol, you'll need to recruit (at least 2) participants! You and a partner will need to draft a recruiting message and brainstorm places to distribute it.

Understanding your target participants

Your target users can include artists, BART passengers, coffee shop inhabitants, Joe the doorman, etc. Challenge yourselves to not choose your roommates. You **may not** choose fellow classmates. You **may not** interview children or kids under the age of 18 years old.

Recruiting Message

Your recruiting message should contain the following components:

- A one-line description of who you are
- A brief description of the study and context – get them excited about the future you're creating
- Any compensation you will provide for the participants (not applicable for you; you will not be paying your participants. Make sure this is clear.)
- Call-to-action: how does the reader indicate interest in participating in your study?

Sending the Message

Work with your partner to find 2 real-life users to participate. Send out your recruiting message to people and groups that are a part of your target demographic for your observational study until you find your 2 users. Take screenshots of the messages you post and send. IMPORTANT: Redact any personal information, including names and personally identifiable information of others in your screenshots.

An example recruiting message from a research project by distinguished CS160 alum and Summer 2021 instructor Janaki Vivrekar

Physical Interaction with Social Media: Call for Participation [$20 gift card]

Hi everyone! 👋 We are a group of graduate students at the Hybrid Ecologies Lab and the I-School. We want to invite you to participate in a remote 2-week study about how you value social media usage and interact with a physical prototype for social media interaction.

During the study, you will get to interact for a week with an intervention prototype that requires some physical participation (e.g. turning a hand crank) to engage with social media. Study participation will also consist of two to three 30-minute interviews (intro, mid, and exit interview) and a short Google form survey that will take about 5 minutes to complete daily

> over the course of two weeks in March or April 2021. Participants will be compensated with a $20 Amazon gift card at the end of the study.
>
> **If you are interested in participating, please fill out this Google Form [link redacted].** Feel free to reply to this message or email janaki.vivrekar@berkeley.edu with any questions.

To Submit ✅

1. Under the bCourses assignment titled **2.3 Recruiting Message**, submit a PDF with your recruiting message and screenshots of messages and posts you made to recruit participants.

2.4 Observational Study & Findings · due Tue 07/05

What do users want from a drawing application? You probably have some ideas of what you would want from an art application, based on your own experiences. From constructing a task analysis with your partner, you may have some hypotheses. Make a mental note of those hypotheses, but put them aside for now. Now that you have recruited two participants, you will conduct an observational study to learn from them. Let's learn about drawing!

Conducting your study

For each of two recruited participants, run the study you designed in Deliverable 2.3 together with your partner. *If you are in a group of 3, run your study with a total of 3 participants instead of 2.*

In each study, you and your partner should each take turns being Partner A and Partner B. Make sure to switch roles with your group members. Each group member should be a facilitator and a note-taker at least once.

Partner A (Facilitator): You will facilitate the study, talking to the participant, guiding them through the tasks you designed, and asking them your questions.

Partner B (Note-Taker): will take notes on what the participant does and says. Even if you are recording the participant, the note taker should make sure to include notes of:

- An approximate transcript of what the participant says
- Descriptions of what the participant is doing when drawing
- A picture or screenshot of any of the participant's creations

Respect the participant's time. If they agree to participate in a study for 15 minutes, conclude the study after 15 minutes. IMPORTANT: Respect the participant's privacy. Take notes without personally identifying information. Scrub out any names, faces, or other identifying information about the participant in any deliverables.

Synthesize your findings

Immediately after each observation session, review your notes with your partner and reflect on the interesting and unexpected things you heard and saw. What ideas does it give you for your design? What might help that user in their creative tasks?

Synthesize your findings across the two observational studies to make two **"findings"** that you can share. By "findings," we mean thought-provoking visuals or descriptions of observations. Each finding can include and discuss any of the following:

- a thought-provoking quote from a participant
- a picture or video of the drawing process
- a short and thought-provoking design principle
- a task tree diagram

For example, your finding could be something like one of these:

- A written observation about your participant. For example, "When participants only have 2 colors, they are more at ease since they don't have to think as much about finding the perfect color."
- A video or picture showing how a participant holds multiple crayons in their hands. (Images and videos should not have any personally identifiable information of the participant.)
- Thought provoking quotes from a participant while they were drawing under a time constraint, like: "When I have limited time, I feel driven to prioritize what I feel are the most important parts of the drawing" -P01

Choose the most interesting findings that you think will help you and your peers make the most interesting designs.

To Submit ✅

1. Under the bCourses assignment titled **2.4 Observational Study & Findings**, submit a PDF with the following:
    - 1-2 sentence description of each user you recruited (no name!)
    - Rough transcript for each study (they can be a bit messy)
    - Images/screenshots of creative ***artifacts*** (e.g. drawings) generated from both study sessions
    - 2 findings from your synthesis (with descriptive titles, and no identifiable information from the participants)
        - Include links to videos if videos are part of the finding
    - *Remember: No identifying information from your participants should be submitted*

On the Slack channel **#p2-4-findings**, send one message with your two findings. (If you don't see a channel on Slack, hover over the word 'Channels' in the left toolbar, then click the + sign on the right to add a channel to your list.)

2.5 Concept & Low-Fidelity Sketches · due Wed 07/06

So far, you have observed users performing a creative interaction and learned about user behaviors and possibly identified *pain points*, or problems that make it difficult for users to accomplish their goals in the creative interaction.

Design Concept

Together with your Project 2 partner(s), **come up with a design concept for your own interactive creativity-supportive web application** based on your findings from the observation in 2.4. This is likely to take the form of a drawing or painting application – but feel encouraged to use your observational study findings to motivate thinking outside-of-the-box. Consider all of the different ways a tool can support visual creativity and creative interactions (Stamps? Photo Collaging? Color Palettes? What learnings can you leverage from your observational study to drive novel innovation?)

In a paragraph, your design concept should...

- mention at least one finding from the observation that inspired this design concept. The finding(s) that you reference may be from the two you submitted in Deliverable 2.4, or separate findings that you didn't report on yet.
- mention the specific goal of your interactive art program that sets your idea apart from a classic drawing application. In this goal, you should reference a particular situation, task, or user that you are supporting.
- (optional) include a creative name for your interactive drawing/painting app! You'll have opportunities to change the name or come up with one later as well.

Low-Fidelity Sketches

Each partner in your group should individually create at least **two** low-fidelity sketches imagining what your creativity app will look like. Keep in mind your design concept and specific goal of your app as you produce your sketches.

Recall the following tips for low-fidelity sketches:

- Use pen and paper.
- Try to cover a breadth of ideas — different interactions, layouts, etc!
- Focus on quantity over quality.
- Don't use a ruler, and don't spend longer than 7-10 minutes on any one sketch. This is your time to experiment and explore — it's okay if a sketch doesn't "look good" or turn out exactly how you envisioned it, as long as it conveys your idea!

Synthesis: consolidate your ideas (3-5 sentences)

After each team member creates at least two low-fidelity sketches, reconvene as a group to discuss all the sketches. As a team, write a short synthesis about:

- aspects of the sketches that are similar,
- aspects that you think are particularly effective, and
- aspects that you could change in a future iteration.

To Submit ✅

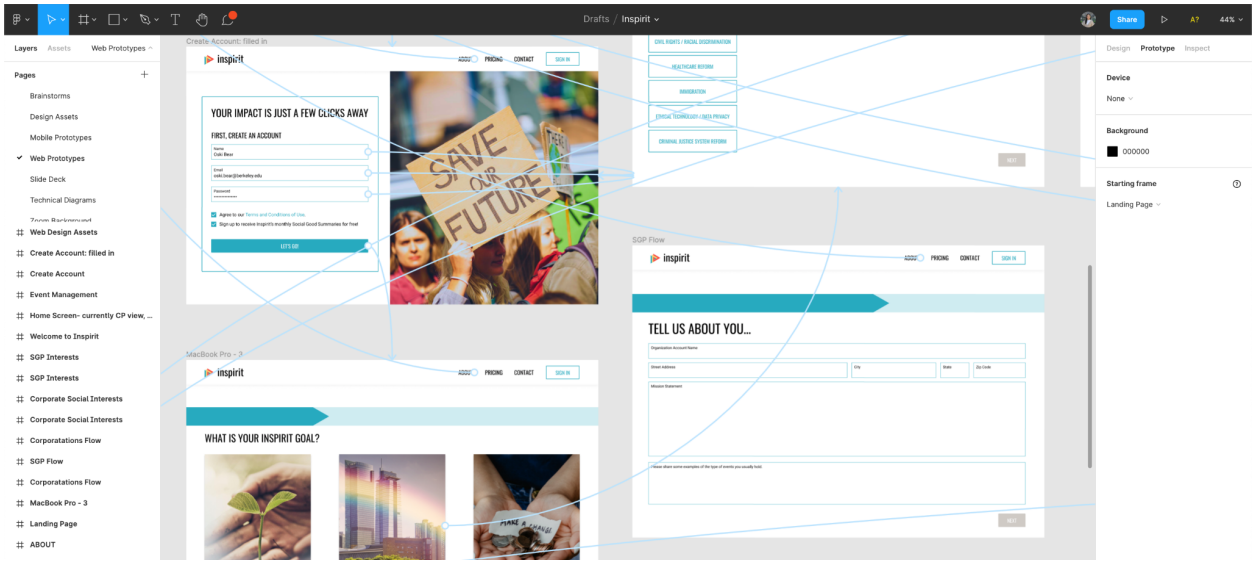
1. Under the bCourses assignment titled **2.5 Concept & Low-Fidelity Sketches**, submit a PDF with the following:
    - A short paragraph describing your design concept.
    - All low-fidelity sketches of your interactive, creativity supportive web app.
    - Synthesis of ideas explored in the sketches.

2.6 Figma Prototype · due Fri 07/08

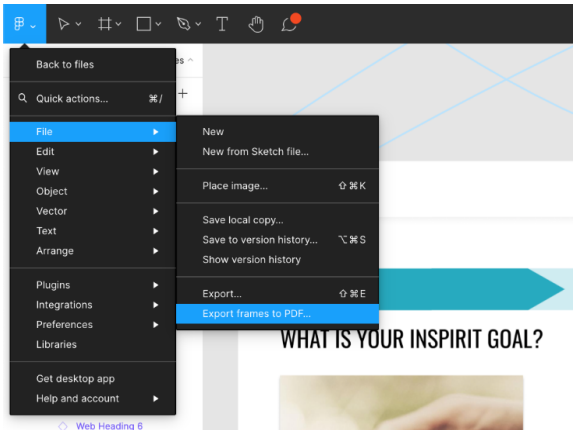
It's time to move from the "design" stage to the "prototype" stage of this Design Cycle (*design → prototype → evaluate*)! Instead of building wireframes by hand and then coding up your app like in Project 1, you will be building a prototype of your app using Figma, a collaborative web-based tool to prototype visual interfaces and map user interactions and flows. You will be introduced to Figma and get some practice with it in TA-led sections. You can apply for a free education account here.

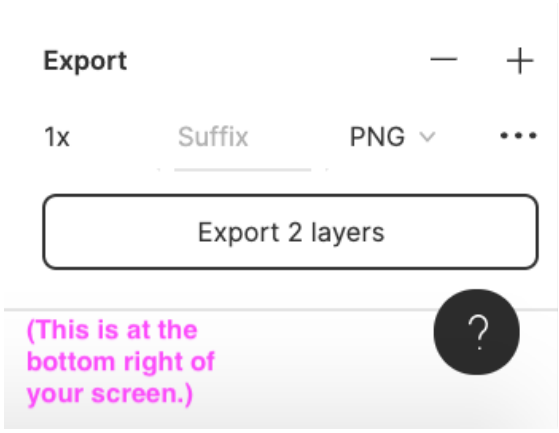
Take the effective ideas from your synthesis in 2.5 to build a Figma prototype of your web application. Use the "Prototype" tab on the right panel of Figma to prototype user interactions. For example, prototype the results of clicking on buttons or selecting different colors via an onscreen color palette, etc. This will be helpful when running your usability study.

Example Figma Prototype of Inspirit



Once you finish prototyping, take a screenshot (like the one above) of all the interactions you prototyped, by connecting onscreen elements using the "Prototype" tab. Additionally, export all frames as a PDF or as images and collate them into a PDF.





Note that the number of frames or screens does not matter as much as the completeness of the prototyped interactions you have on your screen. When you are done, you should have many clickable, scrollable, and other interactive elements on each screen leading to visual changes on resulting screens.

Refer to some of the visual design resources in Lecture 6 to achieve effective visual design in your Figma Prototype.

To Submit ✅

1. Under the bCourses assignment titled **2.6 Figma Prototype**, submit a PDF with the following:
    - A link to your Figma file with appropriate viewing permissions.
    - A screenshot of the interactions you prototyped, visible when you select the "Prototype" tab.
    - Images of all frames you prototyped.

FAQ & Clarifications

- Q: How interactive / functional does this prototype (and my final interactive prototype) have to be?
    - A: Consider what we learned in Lecture 6 about breadth vs. depth when it comes to prototype fidelity. Build a T-shaped prototype:
        - Overall shallow **breadth** - e.g. you might design and place all of the buttons you'd want your final creativity app to have, even if you don't think you can fully implement functionality for all of them
        - More **depth** of fidelity for your **primary/core features** (ie. the features related to your "main idea" are supported. For instance, if you found from your observational study that users like to be able to view reference images, you should prioritize prototyping and implementing that functionality.)
- Q: How do I cite sources in Figma?
    - A: You can directly place links somewhere in your Figma document.

2.7 Usability Test · due Mon 07/11

Now that you have prototyped your interactive creativity application, it is time to test how a user might interact with it!

Schedule the Usability Test

If at least one of your group members can attend Studio on Monday, 7/11:

- Try to have **at least 2 members** present; it'll make everything much easier, allowing you to have a designated test-runner and note-taker, as well as making the discussion afterwards much faster.
    - If that isn't possible, other group members should try to connect over Zoom.
    - Otherwise, you'll just have to run the test and take notes yourself :(
- During Studio, TAs will ask students to sit such that there are 2 groups per table, and you will run your usability test on the other group.

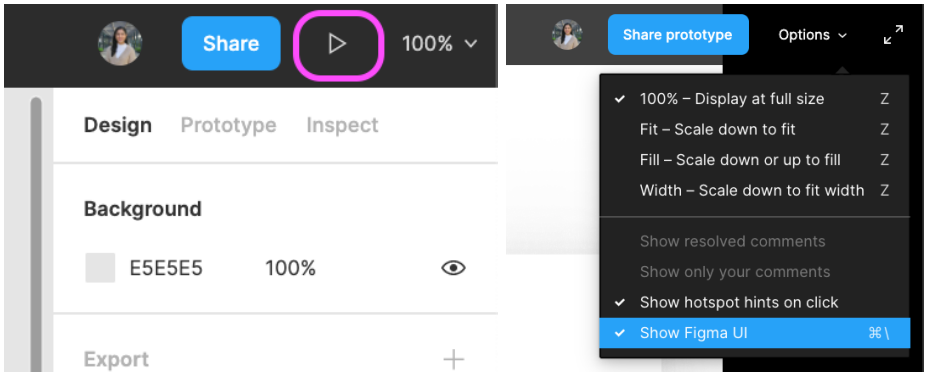
If not:

- As in Deliverable 2.4 (your Observational Study), find a user to schedule a short usability test (~20 minutes). You can use the same recruiting message from Deliverable 2.3. You can run the study with a new participant, or one of your participants from Deliverable 2.4. Pick one teammate to run the usability test and one or more teammates to take notes during the usability test.

Run the Usability Test

Run the usability test by following these guidelines:

1. Introduce yourselves and give your participant background information on the study (why you're conducting it, what you hope to learn, and that your prototype is not fully implemented yet so they should feel free to give unfiltered and genuine feedback).
2. Ask them if they have any questions about the study. Answer any questions they have.
3. If this is a user you haven't chatted with before in 2.4, then ask them to give a brief background of themselves. (Any history with art? Other art apps they use?)
4. Ask the user to screen-share (or just watch their laptop if you're in-person at Studio), and give the user access to your Figma Prototype. First, click on the "Present" button near the top right of your Figma screen. On the new tab that gets generated, click "Options" at the top right, then deselect "Show Figma UI." Copy the URL of this tab and share it with your participant in your usability study (Slack your classmate if in Studio). The URL should be formatted as:
   https://www.figma.com/proto/_____&hide-ui=1



5. Ask your user for their initial reactions to the interface. Take note of the aspects of design that the user is drawn to, as well as any parts that seem confusing.
6. Ask the user some questions. Generate a list of questions in advance that help you dig deep into how the user will interact with your app in different situations to perform various tasks. Some ideas for questions:
    - Let's imagine a scenario where you want to use this app to do _____. Can you walk me through how you would go about doing this?
    - [for most of your prototyped interactions] What do you think would happen when you click on _____? [let them respond with their guess] Go ahead and click on it. [note their reaction and thoughts]
    - [if they mention any parts of the interface that seem confusing] You mentioned that _____ seemed to be a bit "_____" [use the exact word(s) they used].
        - Could you share more about what you meant by that?
        - Instead of having _____ on that part of the screen, what do you think would make it easier for you to accomplish your goal?
7. Ask the user if there is anything else the user would like to share regarding their thoughts about the design they used.
8. Thank the user for their time, tell them that their feedback was helpful for informing your future design work, and say goodbye!
9. Reconvene with your teammate(s) to do a quick debrief on the usability test and synthesize your learnings.

Reflection & Synthesis (5-7 sentences)

Synthesize what you learned from the usability test into a short summary! Respond to the following:

- What did you learn from how the user interacted with your prototype?
- What parts of your interface worked well and allowed the user to achieve their goals?
- Did the user say or do anything surprising or unexpected? (If so, what?) Did they use the prototype in a different way than intended?

- Did the user request any features or functionality that you had not previously thought of?
- How will your learnings help inform the next iteration of your prototype?

To Submit ✅

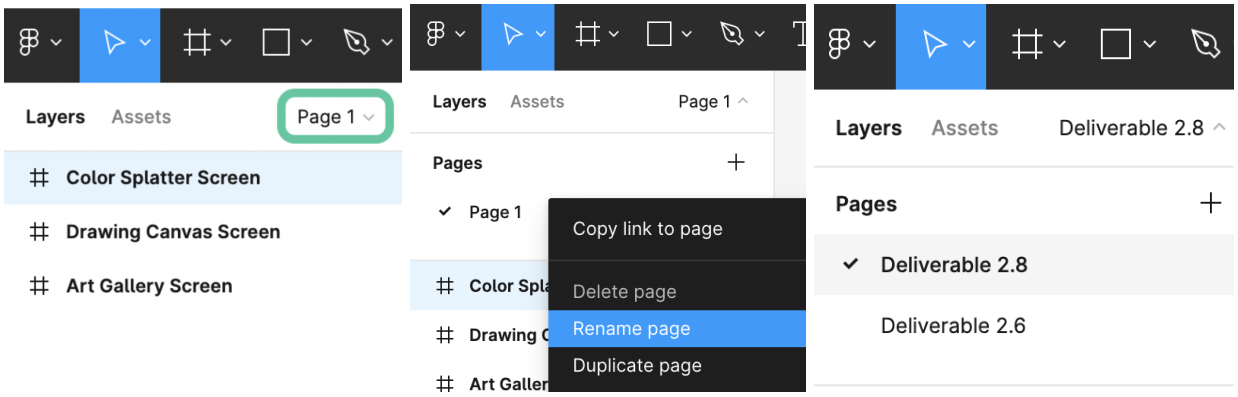
1. Under the bCourses assignment titled **2.7 Usability Test**, submit a PDF with the following:
    - A link to the prototype view of your Figma prototype (URL formatted as https://www.figma.com/proto/_____&hide-ui=1)
    - Notes your team took during the usability test (these don't have to be super neat or organized at all!) Your notes should include the questions asked by the facilitator running the usability test.
    - Reflection & synthesis (5-7 sentences)

2.8 Figma Prototype Revision · due Mon 07/11

Now, you can iterate on your Figma prototype based on your findings from the usability test. Aim to improve the visual design, layouts, functionality, and polishedness of your prototype as well.

Revise your Prototype

Create a new page on your Figma file. Label the original Page 1 as “Deliverable 2.6” and label the new page as “Deliverable 2.8”. Duplicate or copy all the content from the “Deliverable 2.6” Page onto the “Deliverable 2.8” Page.



Freely iterate and improve on your work on the “Deliverable 2.8” page. (This way, your past iteration is documented and unchanged on the “Deliverable 2.6” page.)

Identify Changes

Identify at least **three** changes you made to your Figma prototype based on the feedback from the usability study.

To Submit ✅

1. Under the bCourses assignment titled **2.8 Figma Prototype Revision**, submit a PDF with the following:
    - A link to your Figma file with appropriate viewing permissions.
    - A list of three changes you made to your Figma prototype based on the feedback from the usability study, with “Before” and “After” image comparisons of the screens affected by those changes. For each change, reference what you learned from the usability study that led to that change.
2. On the Slack channel **#p2-8-prototypes**, send one message with:
    a. A link to your Figma prototype, and

b. An image of the most important or representative screen in your Figma prototype.

2.9 Interactive Prototype · due Wed 07/13

In this part of the assignment, you will create a web prototype of your drawing application.

Setup

Here is the Github Classroom link for this project:
https://classroom.github.com/a/Kbhh7wqg.
(Please *use the GitHub Classroom link* - this sets up a private repository for you that instructors can see, but your classmates cannot. If you don't want to use the starter code, you can just delete/overwrite it!)

Follow similar instructions to previous projects to set up your development environment and to deploy a local Node.js+Express server running with the starter files for your prototype. Make sure to track your code on GitHub.

Collaboration

You will create these prototypes in your group. As such, only one group member needs to create the repository. You may need to explicitly add your partner to the repo. You can do so under **Settings → Manage Access**. The url to access that page should look something like this, but with your username:
https://github.com/cs160-summer-2021/p2-creativity-canvas-s-almeda/settings/access

You and your partner will be working together on this implementation. You can choose how best to work together. If you want to use **Pair Programming** and work on the project synchronously, only one of you will need to add, commit, and push code. If you are working asynchronously, we recommend committing and pushing often to avoid any merge conflicts. If you `git push` at the end of every working session, you may also want to `git pull` at the start of every working session, and communicate with your partners.

If you are new to GitHub, these videos from CS61B might be helpful.

Watch Lecture 6.5 (from July 05, 2022) to see how the code for this simple drawing application was written, from start to finish.

Interactive Application Prototype

Implement a revised (and possibly simplified) version of the interactions from your Figma prototypes. You can modify `index.html` and `my-drawing-app.js` for the interactions you

build for this project, copy and reuse any relevant components, or create other `.html`, `.js`, and other files as appropriate for your interaction.

Paper.js is a great library to consider as you think about implementing your interaction, but using it is not required. Paper.js was covered in TA-led sections (Slides from Lucy). You may also find Hammer.js helpful if you want to incorporate touch gestures, from Project 3, Task 4.

Simplify your idea to the extent that you can program and test it out in 8 hours or less. Start simple, and focus as much of your coding effort as possible on the unique **main idea** of your interaction.

Documentation

To present your final web prototype, add the following to a PDF:

- Come up with a name for your website that reflects its unique design.
- Write a brief tagline of what the website does (20-words or less).
- Write a description of the interface and interactions you designed (100 words max).
- Write a project description of the specific *pain point(s)* your website addresses (e.g., in reference to the unique findings from your 2.4 Observational Study that inspired your 2.5 Concept) (**100 words max**).
- Add a link to your GitHub repository.
- Add links to a Documentation Video of your interactive prototype that shows off the functionality of your prototype (including a title slide and narration of your interactions. It does not have to be long, but it should definitely be shorter than **4 minutes max**).

Reflection (3-5 sentences)

Think about your revised Figma prototype. What parts were you able to capture in your higher fidelity interactive prototype? Why is this the main idea of your interaction? What functionality were you not able to include?

FAQ & Clarifications

Q: I included X feature in my *Figma prototype/Concept Sketches/previous design steps*, but I'm struggling to implement it in my Interactive Prototype. Will I get in trouble?! What do I do?!
A: Okay first, relax. Remember: the design of this prototype is your choice – or really, a ***series of design choices***. Sometimes we will run into functional problems or time constraints, and we have to make choices about what to include, what to change – sometimes we receive new information (learning by doing) about what is feasible or reasonable to implement, and what is not. We have to make smart decisions regarding

design trade-offs: what choices will create results worth the required time/effort/resources to implement them, and which will not? If you're struggling to implement a feature exactly the way you designed it in earlier stages, implementing an alternative design with the new information and perspective you've achieved sounds like a really smart choice!

To Submit ✅

1. Under the bCourses assignment titled **2.9 Interactive Prototype**, submit a PDF with your Documentation (see above) and Reflection.
   Be sure to include links to your GitHub repository and Documentation Video. Please also check that your links are working and accessible.

2. On the Slack channel **#p2-9-interactive**, send one message with a link to your documentation video, and remember to include your partner's @ username.

Final Report · due Thu 07/14

Final Report PDF

Create a PDF with the following components:

- 2.1 - Hierarchical Task Analysis tree
- 2.2 - Observational Study Protocol
- 2.3 - Recruiting Message
- 2.4 - Findings from the Observational Study
- 2.5 - Design Concept
- 2.6 - Figma Prototype
    - Link
    - Labeled images of a few screens representing the main interactions/functionality
- 2.7 - Findings from Usability Study
- 2.8 - Revised Figma Prototype
- 2.9 - Documentation of the Interactive Prototype
- Links to your
    - GitHub repository
    - Video

You have creative control over how you format your PDF for this submission! Consult the CS 160 Submission Guidelines for basic guidelines. Use consistent and tasteful visual style, headings, and fonts. Start with a "hero" screenshot or set of screenshots of the website and the description of what the website does. All other sections should be included in chronological order. Have fun with designing your final report!

To Submit ✅

Under the bCourses assignment titled **Project 2 · Creativity Canvas: Final Report**, submit the PDF of your final report.