# Sketching, Low-fi Prototyping & Pilot Usability Testing
**Checkpoint: Tue, Oct 24 @ 5 PM**
**Final: Start of Thu/Fri studio (Oct 26-27)**

## Goal
Learn how to use low-fi prototyping techniques in the early stages of user interface design.

## Assignment Overview
By the checkpoint (Tuesday 5pm):

1. **Explore 3 realizations of your selected solution with 10-15 concept sketches.** Explore a wide variety of modalities (e.g., speech, wearable, AR/VR, gestural, etc. – not just phone screens). Create 3-5 rough sketches for each realization for a total of 10-15 sketches. See this example, and don't be afraid to go for some novel realizations!

2. **Pick the top 2 diverse realizations and sketch 3-5 key screens for each.** The entire interface does not need to be fleshed out, but you should start to explore more of the user interface details. Specify the transitions between screens.

3. **Pick your best idea with which to move forward.** To do this, make a list of pros and cons for each of the 2 realizations you fleshed out. These points should be founded in your knowledge about your user base and design fundamentals.

4. **Storyboard 3 complete task flows: simple, moderate, and complex.** These will show how each task is performed in your selected design realization. Label each screen, show the transitions, and include annotations explaining important interactions and states.

5. **Construct your low-fidelity paper prototype.** Use the techniques described in the Snyder chapter (pwd: hcid) as a guideline. If you user test remotely (only in rare circumstances), upload photos of your paper prototype into a tool like Marvel POP or Figma and send the prototype link to your participants.

6. **Submit your low-fi prototype via Slack to your CA for feedback before you test.** This checkpoint helps ensure that your prototype is of the right fidelity so your testing won't be in vain and assess the level of novelty. The earlier you submit to your CA, the sooner you will be able to start testing. While you wait, you should finalize scheduling your testing participants and work on your presentation deck.

By the final due date:

7. **Implement any changes and test your prototype with 1 participant per team member.** For clarity, if you have 4 team members, you are responsible for 4 tests, etc. Participants should fall within your target user base. You may test with at most 1 Stanford student (preferably none) unless you have permission to do otherwise from your CA or Professor Landay. Avoid testing with people you know well and people who have already seen your project. Have each participant sign a consent form (copy and edit this document).

## Suggested Timeline

This assignment is dense! Start as soon as possible to complete all steps in a manageable timeframe. Below is a recommended timeline.
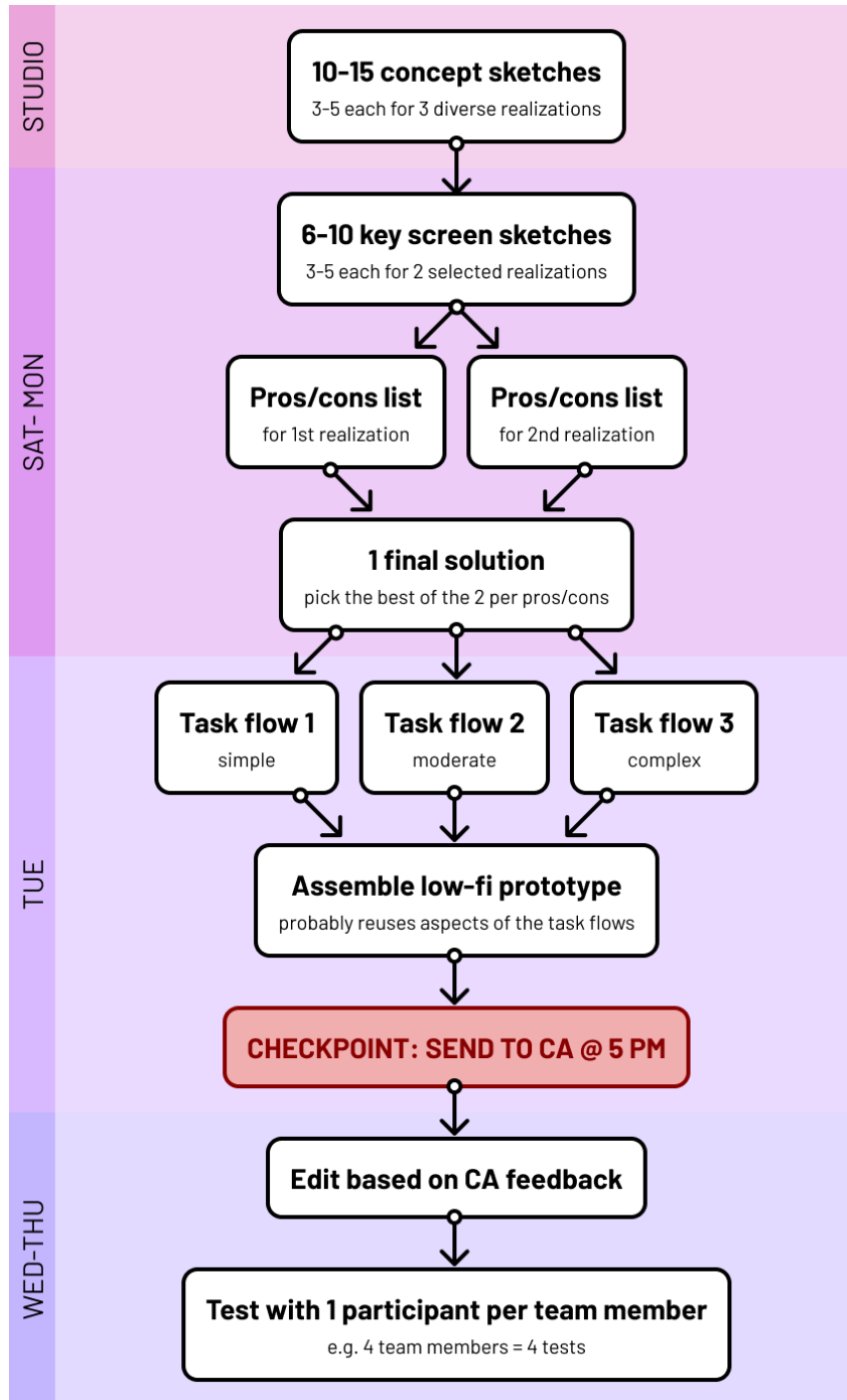
## Testing Procedures

### Pre-testing Preparation

- **Determine team member roles.** For example, facilitator, observer/note-taker, or computer. Practice these roles together in-advance so everything runs smoothly.

- **Set up/plan your testing environment.** If remote (again, only if absolutely necessary), send your participants a link to your prototype and use one of the following methods to observe the testing session:
    - Participant runs the prototype on their device and screen shares. Note: if your prototype is for a mobile app, try to get participants to test on a mobile device, etc.
    - Participant joins Zoom and "hugs" their laptop so you can see their phone screen. See this article and lectures slides for further explanation of the techniques.

- **Write a script for your demo and test procedure.** You should follow the same script with each participant to ensure validity across your tests.

- **Devise goals and metrics to assess the effectiveness of your prototype.** Come up with 2 usability goals (see Lecture 1 and parts of this reading) and a key measurement for each that will help you continually assess whether your prototype is achieving its goals. Consider both process data (i.e., what is happening) and bottom-line data (e.g., time spent per task or # of errors). These will be revisited in A6 as you iterate.

### In-test Procedure

- **Demo the system.** At a high-level, show the participant how they can interact with your prototype (e.g., how buttons or scrolling works), but do not show them how to perform any tasks. Demonstrate speaking aloud.

- **Have your participant test your tasks.** Tell them what they are trying to achieve, ***not how*** and provide adequate context. Only test one task at a time and remind your participant to think aloud. Make sure your observer is taking note of both positive and negative critical incidents that occur (e.g., mistakes, quotes, emotions, etc.) . When the participant finishes a task, give them directions for the next and so on.

- **Wrap up.** Collect any final thoughts and answer any questions they might have.

### Post-test Procedure

- **Synthesize a log of critical incidents.** These are both positive and negative events during the test. Prioritize these incidents by assigning each a severity rating (0 = no problem, 1 = cosmetic problem, 2 = minor usability problem, 3 = major usability problem, 4 = usability catastrophe).

## Presentation Guidelines

One team member who has not yet presented will present in studio. There will be 11 minutes for the presentation and 5 minutes for questions and feedback.

**Expected Content**

1. Intro
    a. Project title and team
    b. Value proposition
    c. Problem/solution overview
    d. Outline of talk
2. Sketching explorations
    a. Overview images of 10-15 concept sketches – *no need to talk in detail about these while presenting, just meant to capture your process*
    b. 2 further fleshed out realizations
3. Selected interface & rationale
    a. Present the most relevant pros and cons and have the full lists in the appendix
    b. Relevant data, constraints of the platform, and findings that shaped your decision
    c. Why is the design you chose superior?
4. Low-fi prototype construction
    a. How the prototype was built and operated; its features and interactions
5. Low-fi prototype: 3 task flows
    a. Simple, moderate, and complex
    b. Complete and clear with use of captions, labels, transitions, and annotations as required (can use a different color if helpful)
6. Testing methodology
    a. Participants: demographics, recruitment, compensation
    b. Environment and apparatus
    c. Procedure: team member roles, description of process
    d. Usability goals and key measurements
7. Testing results
    a. Process data (what's happening in the big picture)
    b. Bottom-line data (usability goal key measurements)
    c. Other relevant observations
    d. How well did you achieve your usability goals based on the key measurements?
8. Discussion
    a. What are the implications of your findings?
    b. Based on the results, how will you change your design?
    c. Was there anything that the testing couldn't reveal?
9. Appendix
    a. Full list of pros and cons for selected interface rationale
    b. Link to the low-fi prototype on Marvel POP, etc. (if applicable)
    c. Any preparation you did for the testing (e.g., script)
    d. Organized log of critical incidents from testing

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e. Other figures, etc. that might be helpful for your CA

## Sketching Report Guidelines

Since it's difficult to see the details of a sketch when included as an image in a slide deck, we ask that you produce an additional document. All images should be large enough to see the details and captioned and annotated as required for understanding by an outside audience (your CA).

**Expected Content**
1. Title page
   a. Project title
   b. Value proposition
   c. Team member names
2. Concept sketches
3. 2 further fleshed out realizations
4. Low-fi prototype
   a. Birds-eye view image of the entire system
   b. Task flows with transitions and interactions labeled

## Deliverables

Upload deliverables to a subdirectory titled "Assignment 5" in your team's Google Drive folder.

1. **Presentation**
   Google Slides deck presented by 1 team member during studio.

2. **Participant consent forms**
   Combined into a single PDF.

3. **Sketching report**
   Google Doc with the required information outlined in this spec.

## Examples

*\*\*Note: this assignment has been modified, so these examples are not perfect mappings to the deliverables; however, much of the quality of the work stands.*
Budder, StoreaTime, SleepMate, Journy, QuokkaTips, Voices

CS 147 Autumn 2023: Assignment 5
Instructor: James Landay


## Grading Criteria

Grading is broken into 2 components: 1) a group grade for the slides and sketching report content and 2) an individual grade for the presenter and their slide quality.


### Group deliverables (100 pts)

*Checkpoint (5)*
      ____ Low-fi submitted for feedback on time and is relatively complete
      ____ Feedback was acted on appropriately

*Sketching (20)*
      ____ 10-15 concept sketches that capture 3 diverse realizations
      ____ 2 realizations are fleshed out; key screens are understandable

*Final design rationale (5)*
      ____ Pros/cons lists for 2 selected realizations
      ____ Final rationale is logical and clearly explained

*Task flows (15)*
      ____ One each of simple, moderate, and complex
      ____ Quality, low-fi task flows with necessary screens/details

*Low-fi prototype (20)*
      ____ Complete and built using low-fi techniques
      ____ Clearly explains how the prototype was built and its features
      ____ Reflects exploration of novel interface design

*Usability testing method (20)*
      ____ At least 1 usability tests/team member were conducted
      ____ Participants: demographics, recruitment, and compensation
      ____ Testing environment and apparatus are appropriate, images included
      ____ Testing procedure is clear and appropriate, images included as available
      ____ Usability goals and key measurements are logical and thoughtful

*Results and discussion (15)*
      ____ Relevant data, critical incidents, and images are included
      ____ Reasonable UI changes are recommended based on testing results
      ____ Discusses progress made towards usability goals
      ____ Shortcomings of the usability test; what might it have failed to reveal?


### Presentation grade (100 pts)
      ____ Well-designed slides; visual aids are aesthetic and effective
      ____ Covers required scope within 11 minutes

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_____ Engages with the audience and isn't reading from a script
_____ Projects voice well and communicates clearly