

# Prototyping in UX Design



Oregon State  
University

# What is a prototype?

- **Prototype:** Early working model of a design
  - It can be almost anything, from a series of sketches representing different screens to a perfect prelaunch interface.
- Used to gain feedback and rapidly experiment with ideas.
- Are typically created through a mix of sketches, wireframes, or mockups depending on (including but not limited to):
  - Your project timeline and goals
  - Where you are in the design process
  - How robust the prototype needs to be.



Image from [1]

# Why Prototype?

- Test out design concepts and validate our designs early and often and without a lot of overhead
- Limit development costs
- Refine usability of the product based on users' needs
- Communication tool for the project team
- And..?



Image from [2]

# Low to Higher Fidelity Prototypes

- Fidelity: The degree of completeness of the user interface, interactivity, and flows.
- Two Extremes: Low Fidelity → High Fidelity

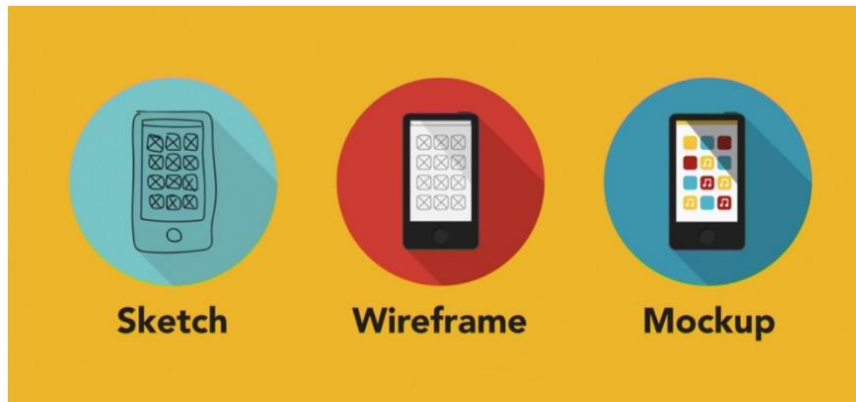


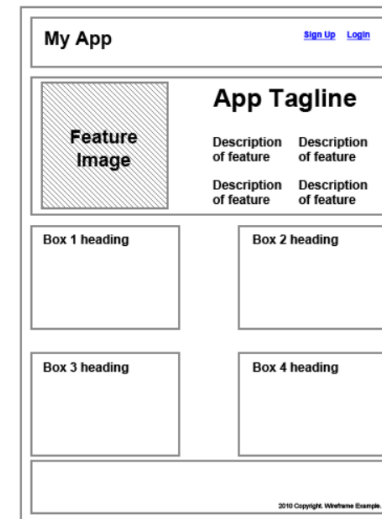
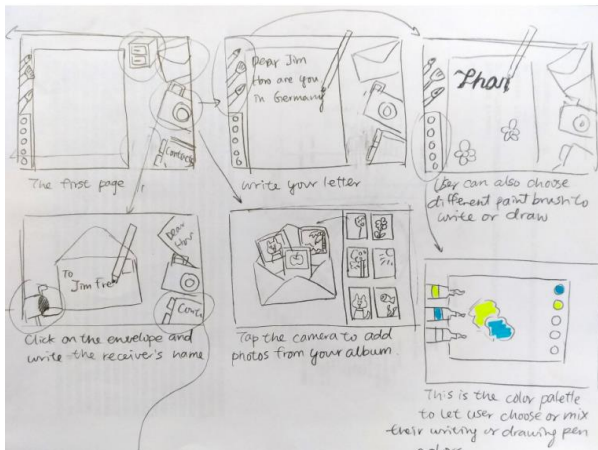
Image from [3]

Types of prototype



# Low-Fidelity Prototypes

- Low-fidelity: A design concept that is in a sketch state and does not have a very defined interface, flow, and interaction.
  - **Sketch/ Paper Prototyping:** Drawing of the user interface to explore ideas quickly
  - **Wireframing:** A visual representation of a product page that the designer can use to arrange page elements.
    - Focused on information and overall layout
    - Map out application structure
    - Grayscale appearance of a user interface
- Low-fidelity prototypes can be created using tools for presentation (such as PowerPoint or Keynote)



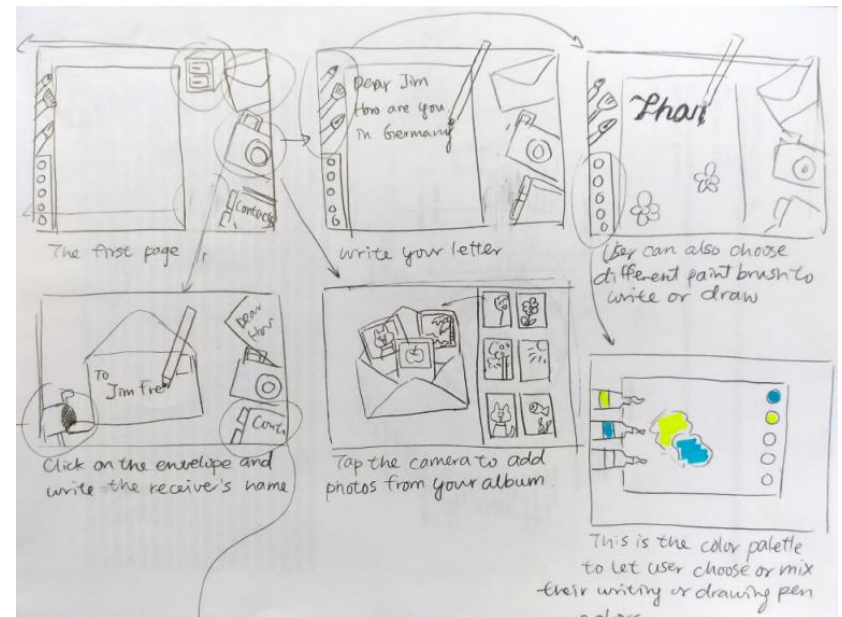
# Benefits/Disadvantage of Low-Fidelity Prototypes

## • Benefits:

- Can build them almost anywhere and anytime you want
- Faster and with lower cost
- Less time to prepare a static prototype, more time to work on design
- Can make design changes more easily during the test
- Everyone (including stakeholders) recognize that the work isn't finished yet
- Easy to use in terms of collaboration

## • Disadvantage:

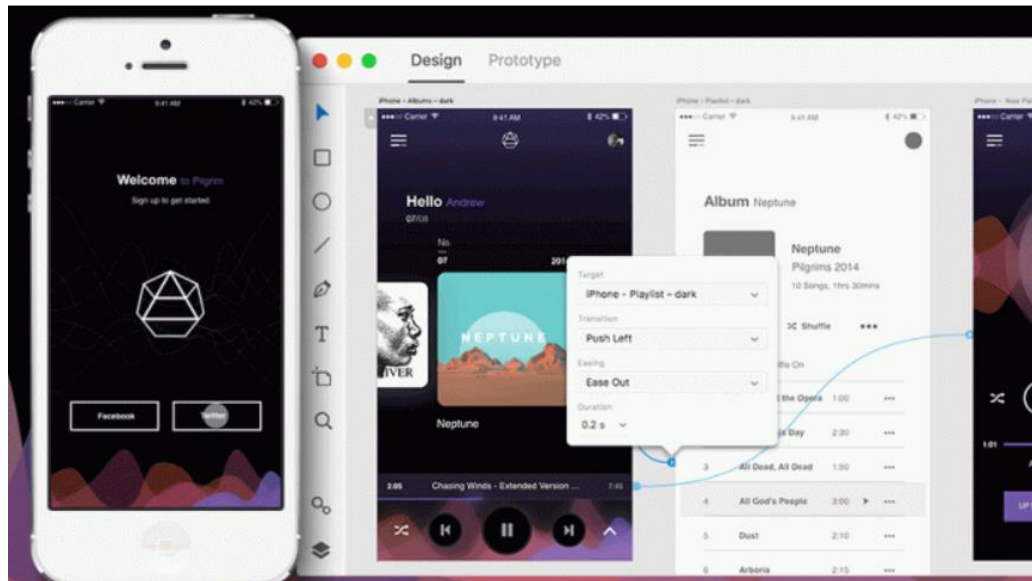
- Limited flows and interaction behavior
- Difficult to validate usability
- Needs facilitator





# High-Fidelity Prototypes

- High-fidelity prototypes appear and function as similar as possible to the actual product/user interface.
  - Looks and feels like the real product
- Usually created when we:
  - Have a solid idea of how the design interface should look and work
  - Want to get some feedback from the user that is more usability-focused and detailed
  - Get final-design approval from stakeholders.



# Benefits of High-Fidelity Prototypes

- **Benefits:**

- More representative of the look and feel of the design
  - More flows and interaction behavior
- Better usability validation:
  - Most usability issues will be caught using hi-fi prototypes
  - Testability of specific UI elements or interactions
- Testing is less likely to be affected by human error

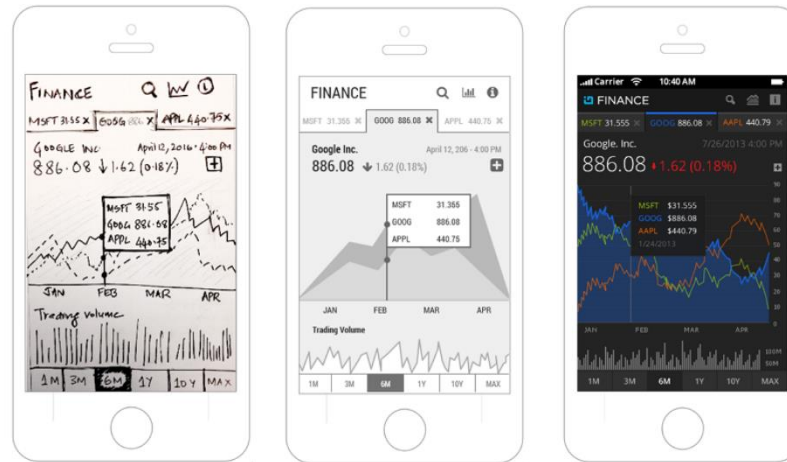
- **Disadvantage:**

- Requires more time to create
- More expensive (Higher cost)
- Difficult to update



# Which Fidelity is the Right Fidelity?

- Remember
  - You are having a **user centered designed approach** to understand users needs and discovering opportunities and insights.
  - You are **Defining the problem** space based on the insights gathered from the users.
  - **You are Ideating** through various designs concepts and ideas to come up with potential design ideas.
  - **Prototyping and iterating** on those design ideas and concepts and finally, **delivering on the key idea**.
- Early stage of design starts with sketches to come up with concepts → Iteration + higher fidelity Prototyping -> test your Prototype (user evaluation)



*Image from [9].*

# What prototyping/Mockup Tool Should I use for This Class?

- We suggest using [Balsamiq](#) Mockups which is a quick wireframe tool. The fully functional trial version of this application is available for 30 days. Its is easy to use and fast. Additionally, it allows you to export your projects into a clickable pdf.
- **Is it required to only use Balsamiq?**
  - No, you are free to use whatever tool you wish. But for this class project, you should turn in/share a runnable version of your prototype (e.g., interactive pdfs):
  - You can build your prototype in HTML (You do not need to implement a fully functional UI. To make it interactive just include your graphics and provide links between pages)
  - You can even use PowerPoint or Word (Do not forget to link the pages)
- **Note:** Some may argue Balsamiq is lower fidelity prototyping tool, but still it is accepted for the projects of this class.

## Some other tools you may want to consider:

Application	Description	Free version
<a href="#">Axure</a>	<ul style="list-style-type: none"> <li>- Mac and PC: Professional prototyping design tool</li> <li>- Some users complain its complex and invisible interactive design</li> </ul>	<ul style="list-style-type: none"> <li>- Trail 30 Days.</li> <li>- Options for students and teachers: <ul style="list-style-type: none"> <li>• Teachers will receive a license key for their own computer + an additional classroom key to be used for campus computer labs.</li> <li>• Students: receive a one-year subscription license assigned to an Axure account</li> </ul> </li> </ul>
<a href="#">Invision</a>	<ul style="list-style-type: none"> <li>- Web app:</li> <li>- An interactive design tool. It helps to better cooperation among teammates and more feedback from your users.</li> </ul>	<ul style="list-style-type: none"> <li>- Free for one project</li> <li>- Supports a free <a href="#">education edition</a>:</li> </ul>
<a href="#">JustinMind</a>	<ul style="list-style-type: none"> <li>- Mac and PC:</li> <li>- Provides a nice solution to prototype web and mobile apps.</li> <li>- Generates HTML prototypes</li> </ul>	<ul style="list-style-type: none"> <li>- Free for 30 days</li> </ul>
<a href="#">Mockplus</a>	Mac and PC: Rapid prototyping tool. Easy for beginners. Supports exporting to HTML.	<ul style="list-style-type: none"> <li>- Free offer for students and teachers: <ul style="list-style-type: none"> <li>• University/College Students, FREE Pro Subscription for one month.</li> <li>• University/College Teachers, FREE Pro Subscription for six months.</li> </ul> </li> </ul>

# Resources

For more information take a look at these resource as well:

1. [Top 20 Prototyping Tools for UI and UX Designers](#)
2. [6 Prototyping Tools For Any UX Designer](#)
3. [UX Foundations: Prototyping](#)
4. [Prototyping 101: The Difference between Low-Fidelity and High-Fidelity Prototypes and When to Use Each](#)
5. [Sketches, Wireframes, Prototypes. Levels of fidelity and what to expect from each](#)
6. [What Is a Prototype: A Guide to Functional UX](#)
7. [UX Prototypes: Low Fidelity vs. High Fidelity](#)
8. [Low Fidelity vs High Fidelity Prototypes](#)
9. [High-Fidelity & Low-Fidelity Prototyping: What, How and Why?](#)

## More Info 😊

- [Comparing Prototyping Tools](#): Comparing some of the prototyping tools based on different actors including interactivity, speed, collaboration and free.
- Balsamic Documentations and tutorials:
  - [Mockups tutorials](#)
  - [Mockups complete documentation \(manual\)](#)
  - [Mockups FAQ](#)
- What prototyping tools are used in industry (e.g., in Google):
  - [Origami](#)
  - [Framer](#)
  - [RelativeWave - Form](#),
  - [Pixate](#),
  - [Marvel](#)
  - [Flinto](#)
  - [InVision](#)
- [Google Design](#): In Google Design website, you can find interesting articles about design and user experience, browse for some design resources, and search for job opportunities in the UX/Design area,
- [Comparing 9 prototyping tools](#)