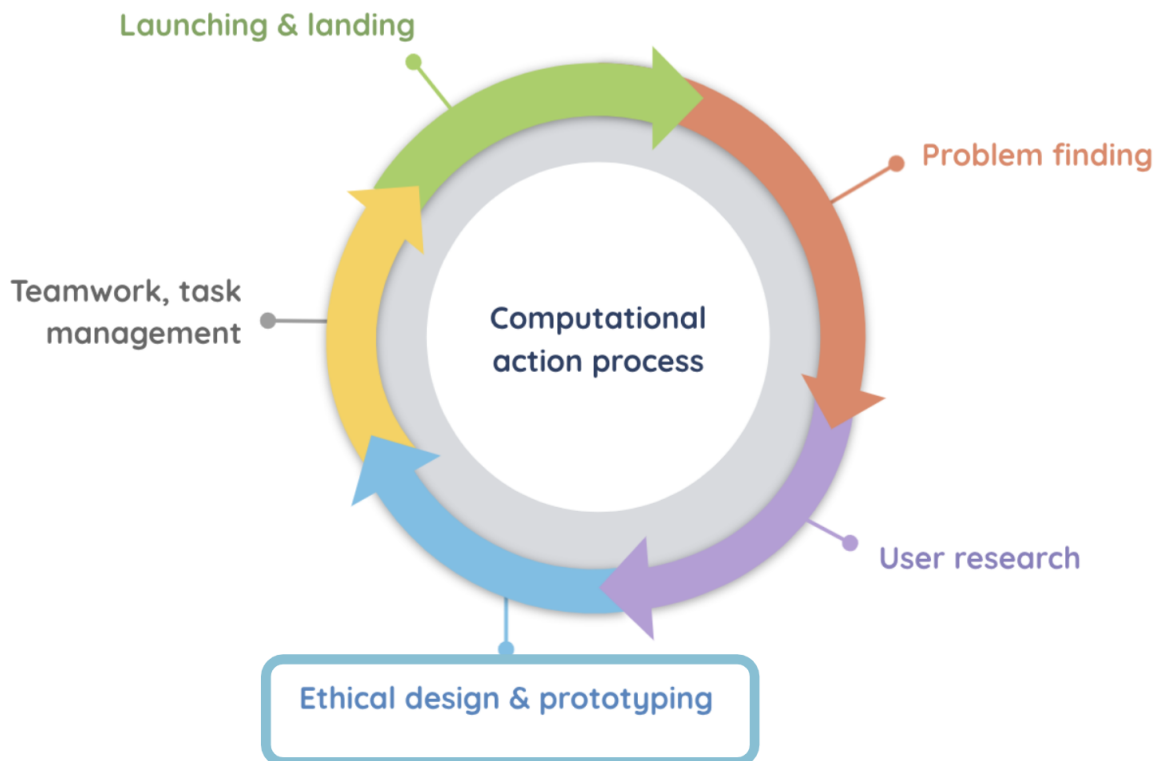# Designing ethically: designing with users, fast prototyping

What does it take to create "good design"?

"Good" design means different things to different people. We will take a look at both traditional, well-respected product designers as well as discuss how to incorporate user feedback and make ethical design decisions as you design your project.

Let's talk about ethical design
It's important to understand how your product will affect your users, but your users won't be the only **stakeholders** of your product.

A **stakeholder** is someone who is affected by your product in some way, and therefore has a stake in your product. It can be an investor, your mentor, your users, and even yourself! As the engineer/developer/inventor of your product, you also have a big stake and are affected.

There are usually many stakeholders for a given product, each with something different that they most care about. So how do we make ethical decisions as the creator/engineer/designer of the product?

We can use a tool called the **ethical matrix** to help. Here is what an ethical matrix looks like:

	Value 1	Value 2	Value 3
Stakeholder 1			
Stakeholder 2			
Stakeholder 3			

How to utilize the ethical matrix

On the left side of the ethical matrix are **stakeholders**. On the top of the ethical matrix are **values**. A value is something that is important to someone. In technology, values important to stakeholders may include:
- Data privacy
- Safety
- Security
- Fun
- Easy to use
- Works / is effective
- Accessibility
- Profitable
- Simple

By listing out key stakeholders and the values most relevant, we use the ethical matrix to center us on what's most important to keep into consideration when making and designing our product.

Here's how to fill out an ethical matrix:

1. List 3 (or more) stakeholders of your product on the left side of the matrix. These can include:
   a. The users
   b. Indirect users (e.g. parents, family, friends, pet walkers, etc) Think outside the box!
   c. The engineering and product team (this includes you!)
   d. Investors
   e. Manufacturers/factories of a physical product

2. On the top, think about what values are important overall for these stakeholders of the product. Rely on the user research, your own logical processing and brainstorming with your team to come up with values. Take a look at some common values important to users of apps:
   a. Data privacy
   b. Safety
   c. Security
   d. Fun
   e. Easy to use
   f. Works / is effective
   g. Accessibility
   h. Profitable
   i. Simple

3. Fill out the matrix by putting a **check mark** for the values that are important to each stakeholder. Go down row by row.
   a. Some values may be highly important to 1 stakeholder, whereas some values are less important. Put a check mark if the stakeholder really cares about this value.
   b. Rely on your user research to help you fill out the table for users that aren't yourself!

4. Take a look at the matrix after you've filled it out. Is there anything surprising? What will you keep in mind as you're going into designing your product?
   Important: There is no "right answer" to what values are most important, or which stakeholders are most important. As the engineer/designer/inventor, it is up to you to weigh the pros/cons of prioritizing certain features in your app over others. Use the ethical matrix to help you list out what's important to all stakeholders of your app. It

should be a guide to you to keep thinking about users and working with users as you design!

10 Principles of Good Design

Dieter Rams is a well-known German designer who pioneered concepts of good design in the space of industrial and product design. Rams' 10 Principles of Good Design are still a timeless simple guide for great product design today. Rams' principles famously influenced contemporary successful products, including notably Jonny Ives, who led design at Apple through its innovative iPod and iPhone launches.
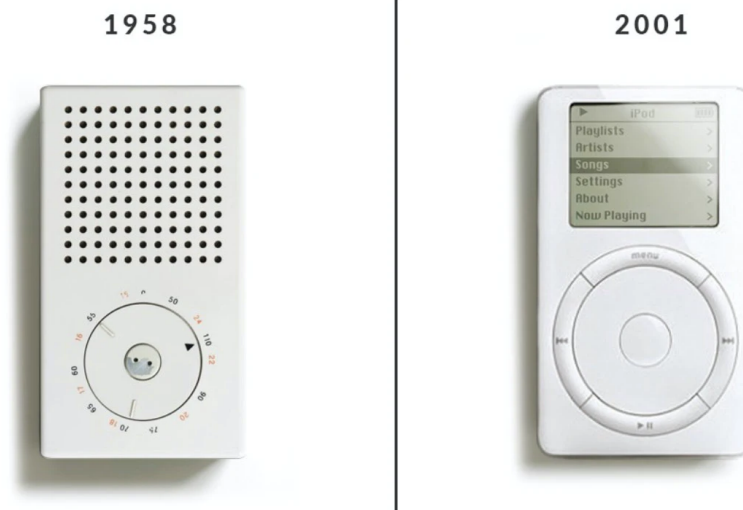
(Check out a radio Rams designed in 1958 compared to the 1st iPod release from Apple, led creatively by Jonny Ives!)

Let's take a look at Rams' principles. According to Rams, good design:

1. Is innovative
2. Makes a product useful
3. Is aesthetic
4. Makes a product understandable
5. Is unobtrusive
6. Is honest
7. Is long-lasting
8. Is thorough down to the last detail

9. Is environmentally friendly
10. Involves as little design as possible

These principles are helpful to use as a guide as you design your project. They're not hard-and-fast rules, but if you take a product that you really like (whether physical or software), you can see they usually check off these principles.

Try it!
1. Think of a physical product you really enjoy. (It can be a smartphone, an alarm clock, a door handle, a mug, a watch, a bike, headphones, etc etc.)
2. Ask yourself: why do you enjoy the design of this product? How is it satisfying your **form needs** (e.g. aesthetics and looks) and/or **function needs** (e.g. what it does)?
3. See if Rams' 10 principles of good design apply to your favorite product. You might be surprised at how many it may check off!

1. Think of a *software* project you really like. (It can be an app, a website, or a specific piece of an app or website. For instance, I really enjoy zooming in and out of the map view of Airbnb and discovering fun houses.)
2. Do the same exercise: what do you enjoy and why do you enjoy in this product? How does it satisfy your needs in its **form** vs its **function**?
3. This will be helpful to help you brainstorm how you may want your product so that your users also enjoy the form and function of your app.

Note: When you're introduced to concepts of good and bad design, you'll start seeing it everywhere in your life: door handles that seem to push but actually pull, apps that make sense or don't make sense, desktop monitors that are curved instead of flat, mug handles that are easy to grip vs uncomfortable… etc etc. The key to being a good designer is being ***curious*** and ***empathetic!*** By being curious about design in the world around you, you will practice thinking about user experience and continue to improve your design and product "chops".

More on Rams and good design:
● https://bellroy.com/journal/heroes-of-design-dieter-rams
● https://www.interaction-design.org/literature/article/dieter-rams-10-timeless-commandments-for-good-design

Now that you've explored how you perceive good design, let's start prototyping your app!

Prototyping: fail fast

You may have heard of the phrase "fail fast". In designing and prototyping, this is important because we don't have infinite time. We want to get as much information as possible as quickly as possible in order to create effective designs that are useful to people.

This is why it's important to **start by sketching**. There's nothing faster to describe an idea than sketching with pencil and paper. Sketching is useful because:
1. You can do it quickly, and anywhere
2. It's easy to test sketches with users and get feedback quickly
3. You haven't invested any resources into coding or making higher-quality designs, so emotionally & psychologically you are more willing to change your designs based on feedback.

This last point is important! Remember: to make good design, the designer should be *curious, open to feedback, empathetic* and not too in love with their own idea that they can't change it.

Fitts's Law
One important concept in UI design is to think about placement and size of key interactions.
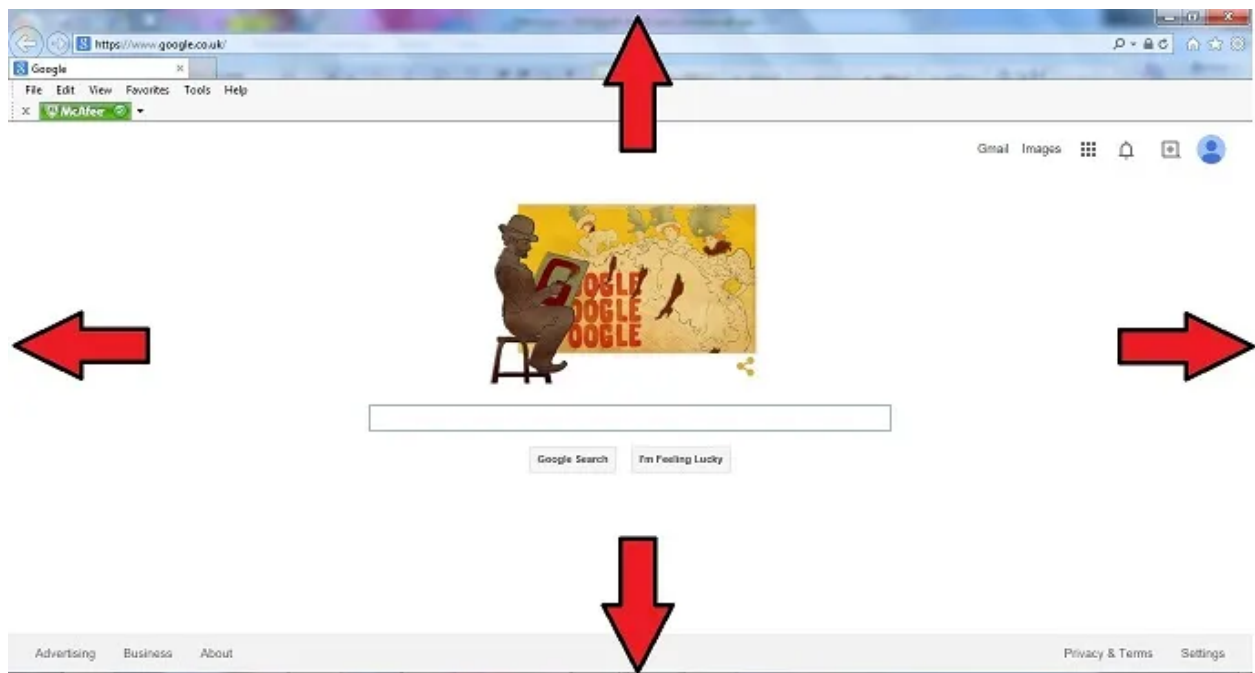
Fitts's Law states: "...the time to acquire a target is a function of the distance to and size of the target". How is this relevant to your designs?

Don't make it hard for users to navigate to or choose an item. Generally, don't put buttons on edges of screens, and make interactions (like buttons) large enough and spaced far apart enough to avoid accidental taps or clicks.

How to sketch prototypes and rapidly test
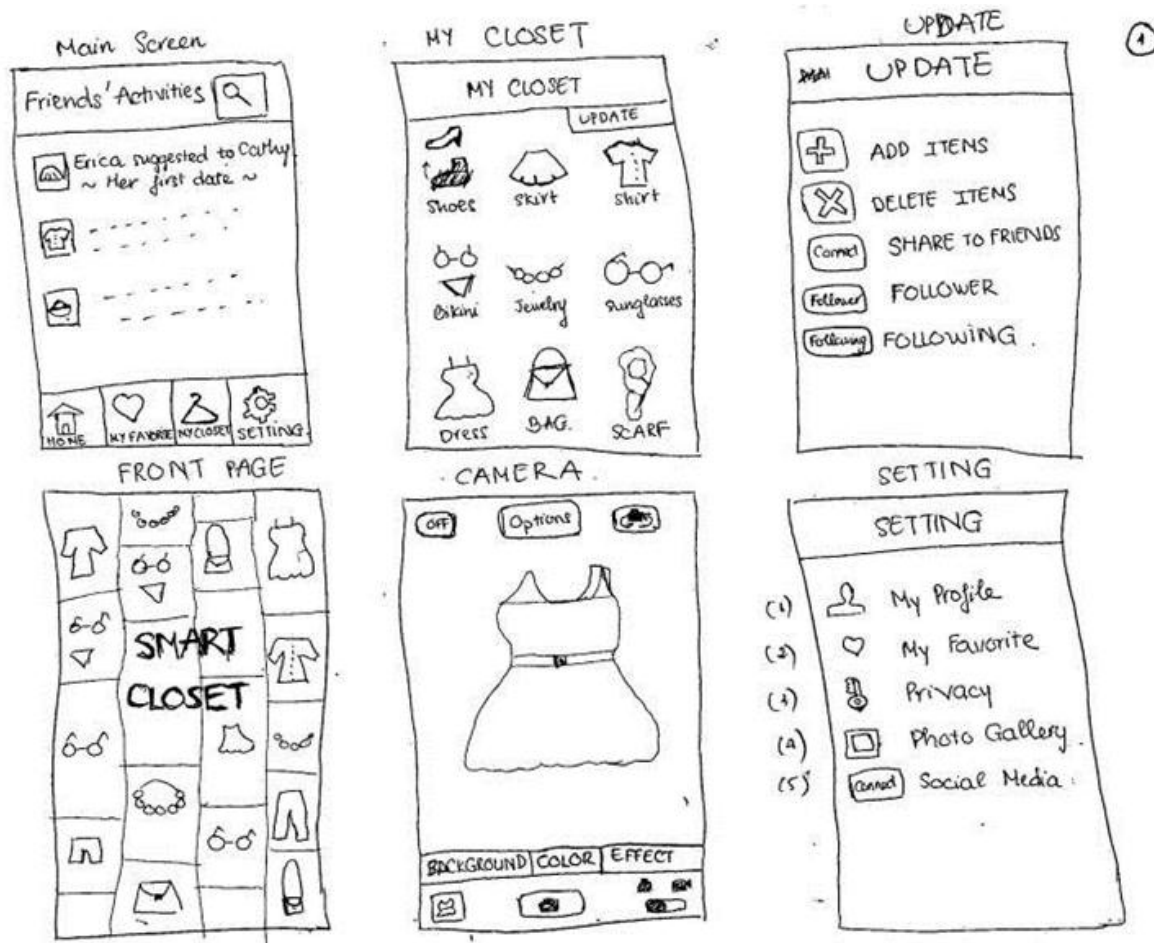
1. Sketch the **main screens** of your app or product. Focus on the **80% use cases** (not the small edge cases).
2. Draw bigger than lifesize! Blown up sketches are helpful for users to understand the prototype, and for you to see the interactions.

3. It's helpful to have **1 screen per page** in order to simulate interacting with an app or site while testing. You can cut a piece of paper in half for each mobile screen.
4. Focus on interactions: when a user interacts with one button, does the entire page change, or only a part? You can use smaller pieces of paper to simulate parts of the app changing.
5. Test with real users if possible, or on teammates or friends/family. In this type of test, seeing a user interact with the paper is helpful.
6. Ask users for their feedback. Remember: use the tips and guidelines you learned during *user research* when asking questions! These skills are transferable to getting feedback when testing.
7. Discuss with teammates feedback and sketch the new screens
8. Repeat with testing and sketching as necessary

Wireframing

After a quick sketch and test activity comes wireframing.

Wireframes are so named because they help frame the shape of the idea. They're 1 step more crisp and higher quality than pencil sketches, and are extremely useful because they better simulate a real app or website.

You can easily wireframe with a free popular tool Marvel (www.marvelapp.com). Other popular free tools also exist: Balsamiq (www.balsamiq.cloud) is very similar. In a pinch, you can also use Google Slides or PowerPoint to illustrate certain screens.
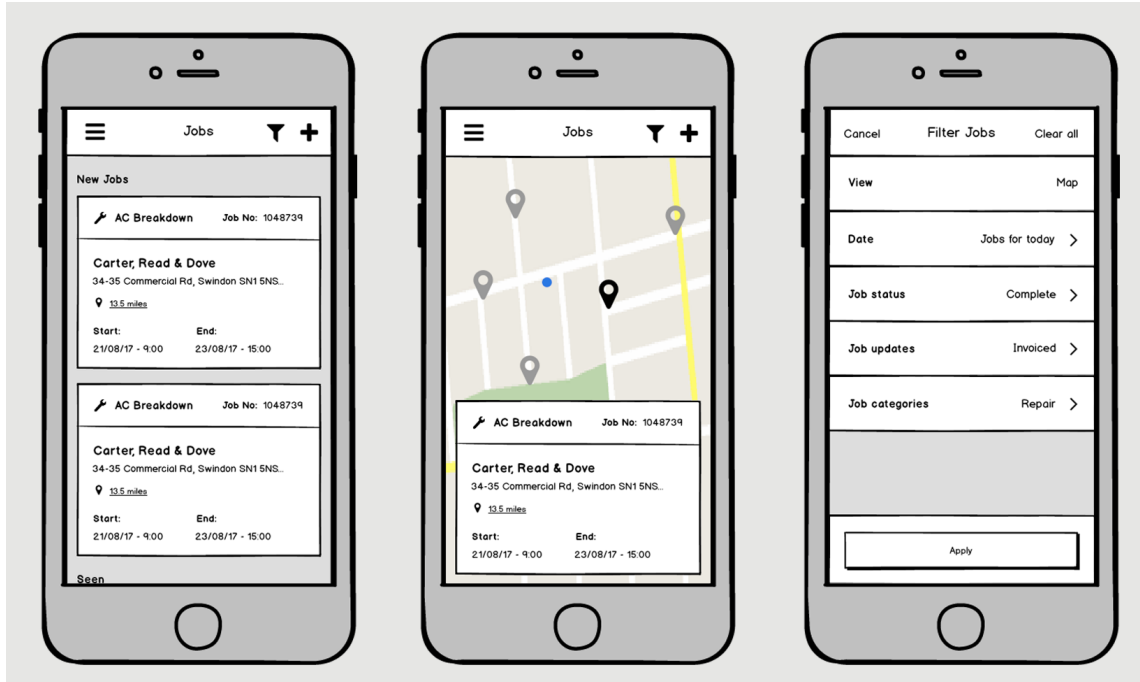
Above: an example wireframe

What should you wireframe?

After sketching, wireframe the main screens (again focus on the main important screens and users' 80% use cases). This will help you solidify some details of components in your apps or site (alignment of buttons or text boxes, etc etc.)

Wireframing will help you see all the components of each screen of your app or site, so you can easily code by following the wireframes.

How to wireframe with Marvel

Strongly recommended to try out Marvel and play around with its wireframing components!

1. Create a free account at http://www.marvelapp.com. Marvel lets you create 1 wireframe project per free account. Invite your team mates during this process so that you all can collaborate in 1 project space.
2. *IMPORTANT!* During the onboarding screens, make sure you select **Design in Marvel.** This is the option to wireframe using low-fidelity components.
3. Start wireframing your screens! Select the right device (Android) in the dropdown and play around with components.

4. You can make as many screens as you'd like, but keep in mind **time management** so focus on the **80% use cases** in order to have enough time to implement, QA (debug) and finish your project!

<u>Going form wireframes to implementation</u>
In industry, designers will create wireframes, test that on users again using rapid prototyping, then create **high-fidelity designs** using tools like Sketch, Figma, or Adobe. These high fidelity designs will look exactly like the app or site, and these are also put through user research. This process can take weeks up to months.

While it's good to test every design as the designs evolve and get feedback, we are also learning the importance of *getting the most value from feedback when time is limited*. This is why we tested sketch prototypes first! It doesn't take weeks of work to create pencil sketches, and the feedback received from user research on sketches is the big direction of feedback that we want to hear as designers: do the components mostly make sense? Are the parts of the app useful?

Your final sketches should not be very different from your wireframes, because you already received the broad feedback and incorporated it into your further designs.

Next, you can start making your project and implementation!