Summer 2, 2019 - CS 4520/CS5520 – Mobile Application Development

Pratheep Kumar Paranthaman, Ph.D.,

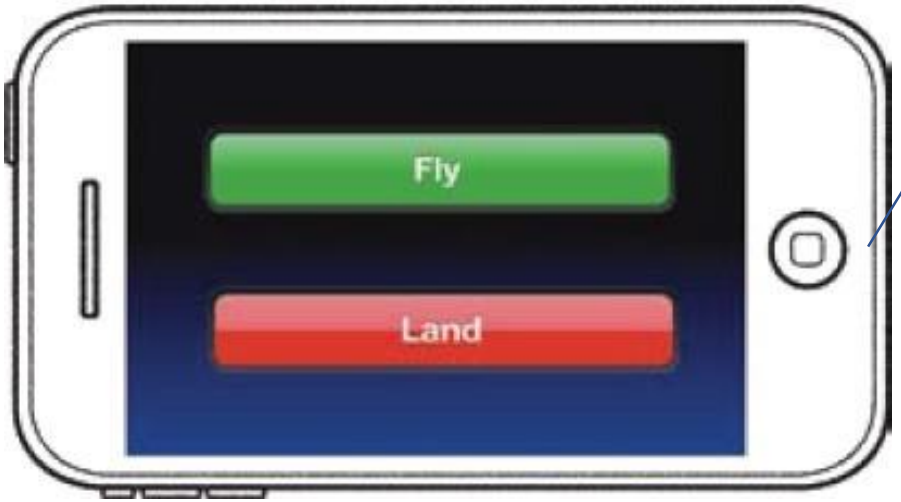
Today's topics

- Design fundamentals
- Prototyping
- User testing


I can do this all day.

Design an app to fly a plane

Which is your design most like?



What users want

Tapworthy Pg. 8 Tapworthy Ch 1.

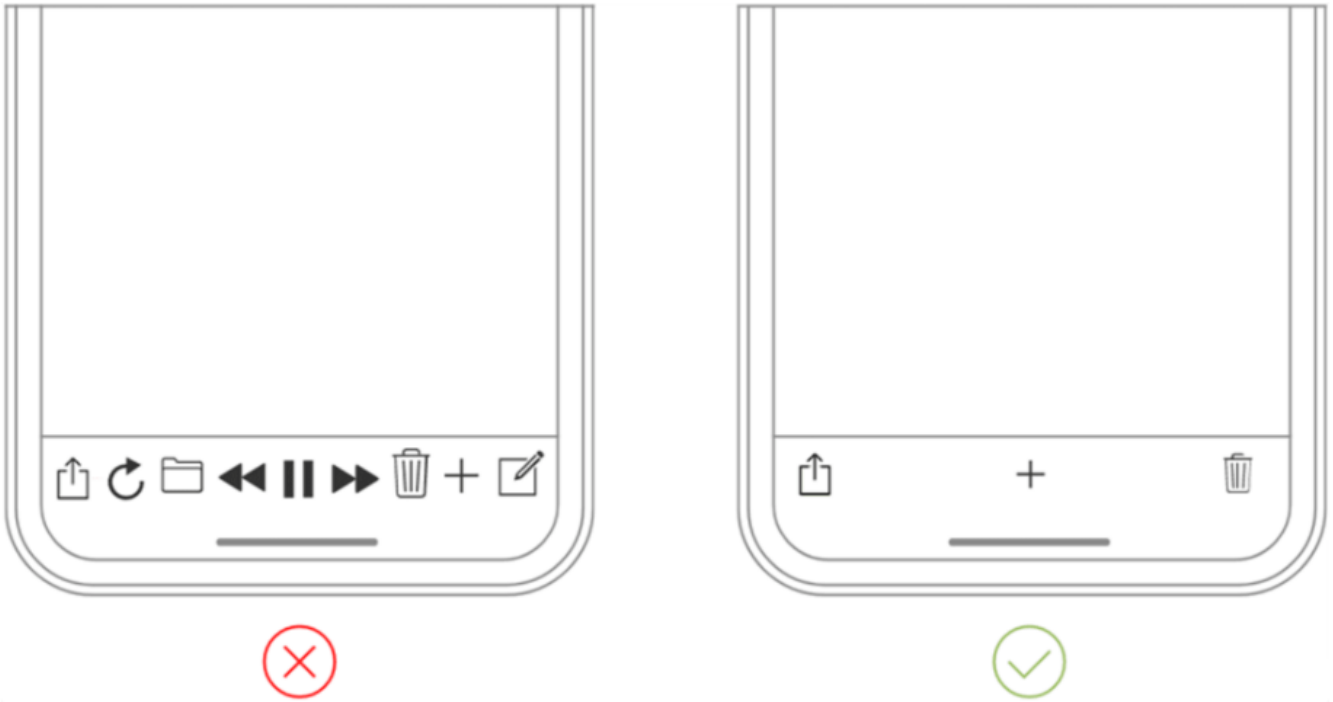
UI characteristics??

UI characteristics

- Is it clear?
- Is it effortless?
- Is it responsive?

Characteristics of an effective UI

- Clear
  - Declutter



[smashingmagazine.com/2018/02/comprehensive-guide-to-mobile-app-design/]

Characteristics of an effective UI

- **Effortlessness**

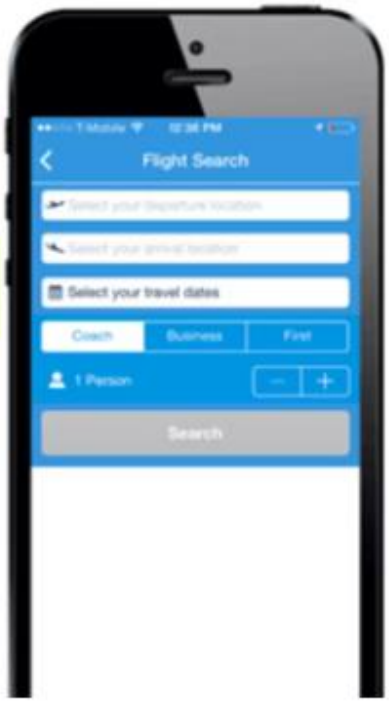
[smashingmagazine.com/2018/02/comprehensive-guide-to-mobile-app-design/]

Characteristics of an effective UI

- **Effortlessness**

"This is going to be painful."

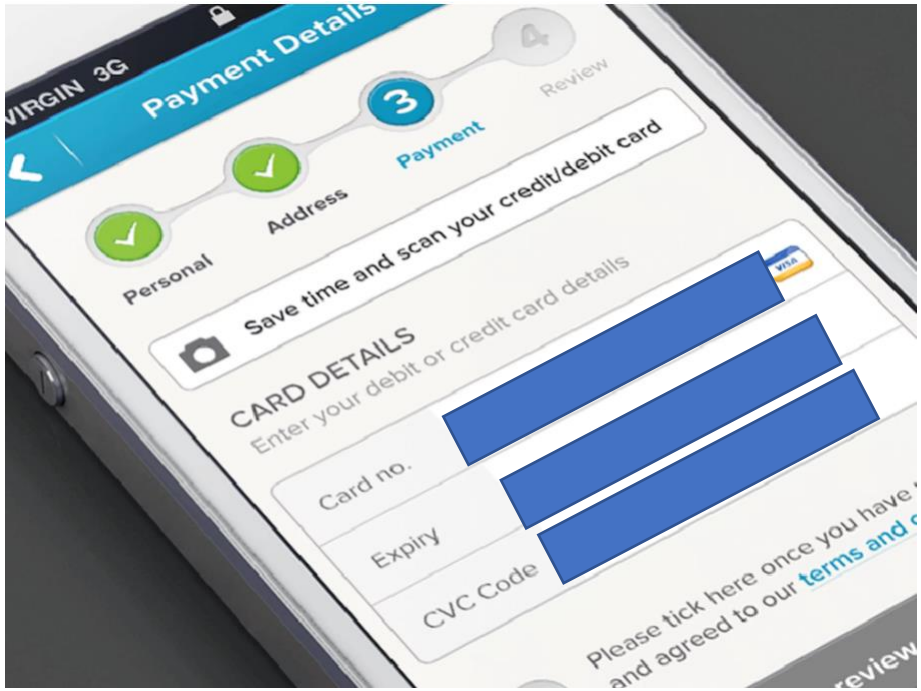
"This will be a breeze."



[smashingmagazine.com/2018/02/comprehensive-guide-to-mobile-app-design/]

Characteristics of an effective UI

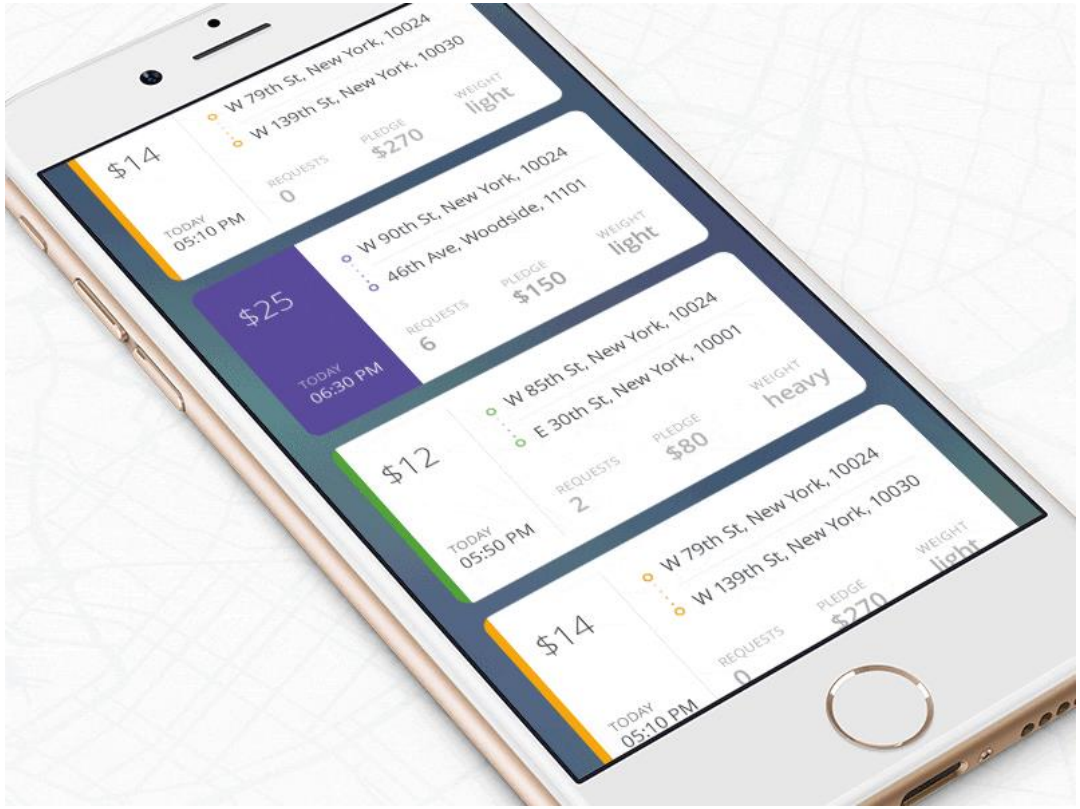
- Effortlessness -> chunking?



[smashingmagazine.com/2018/02/comprehensive-guide-to-mobile-app-design/]

Characteristics of an effective UI

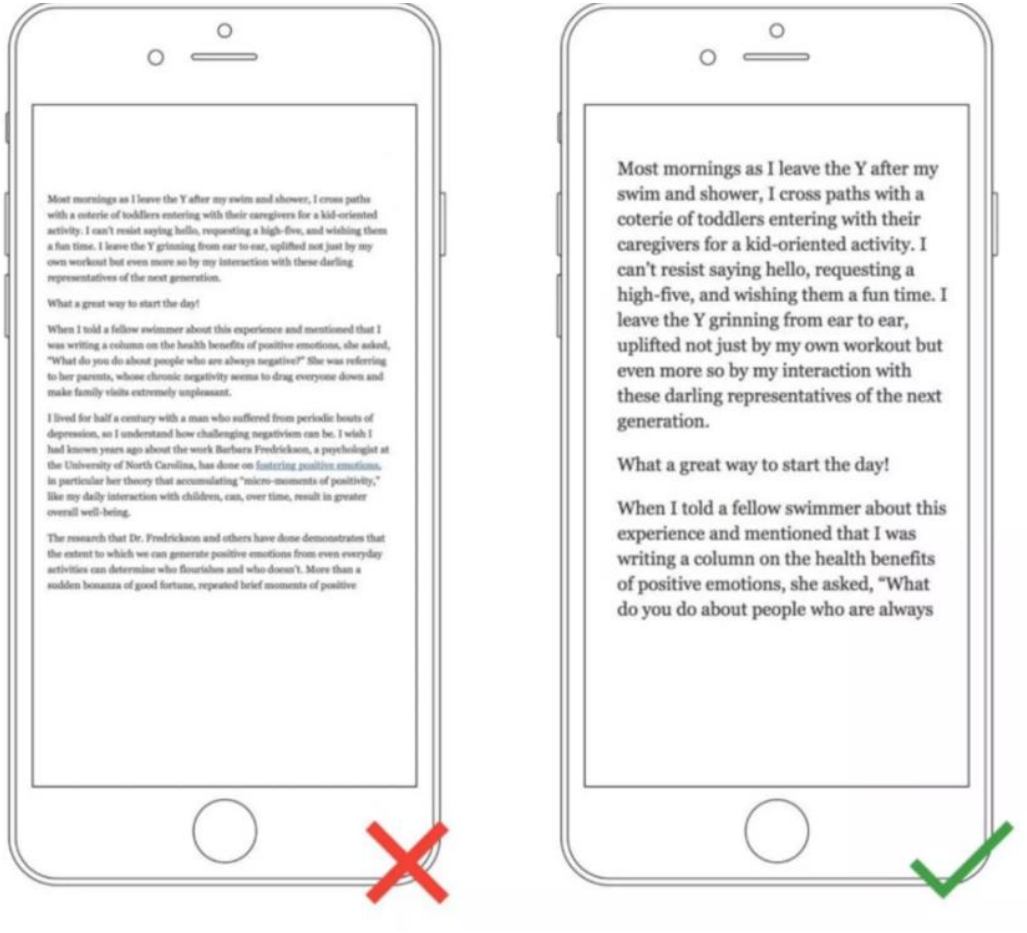
- Responsive



[smashingmagazine.com/2018/02/comprehensive-guide-to-mobile-app-design/]

Characteristics of an effective UI

- Easy on the Eye



[smashingmagazine.com/2018/02/comprehensive-guide-to-mobile-app-design/]

Creative vision

Good advice...

Enchant me

Beauty is more than skin deep. Android apps are sleek and aesthetically pleasing on multiple levels. Transitions are fast and clear; layout and typography are crisp and meaningful. App icons are works of art in their own right. Just like a well-made tool, your app should strive to combine beauty, simplicity and purpose to create a magical experience that is effortless and powerful.

Simplify my life

Android apps make life easier and are easy to understand. When people use your app for the first time, they should intuitively grasp the most important features. The design work doesn't stop at the first use, though. Android apps remove ongoing chores like file management and syncing. Simple tasks never require complex procedures, and complex tasks are tailored to the human hand and mind. People of all ages and cultures feel firmly in control, and are never overwhelmed by too many choices or irrelevant flash.

Make me amazing

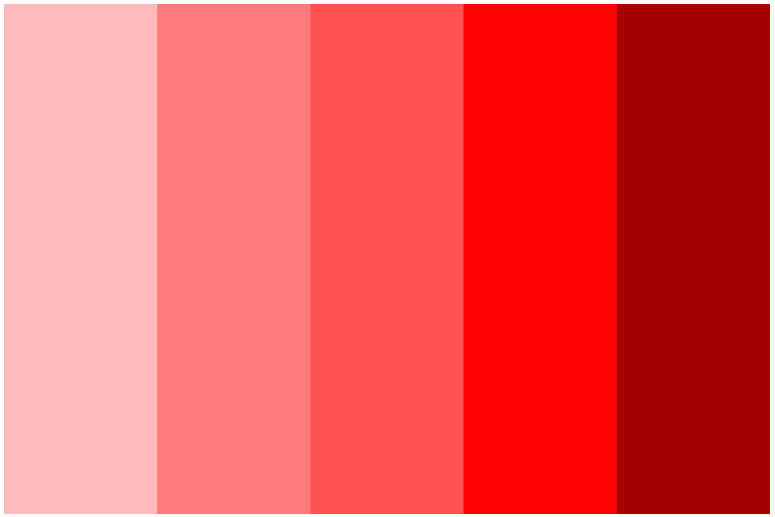
It's not enough to make an app that is easy to use. Android apps empower people to try new things and to use apps in inventive new ways. Android lets people combine applications into new workflows through multitasking, notifications, and sharing across apps. At the same time, your app should feel personal, giving people access to superb technology with clarity and grace.

Colors

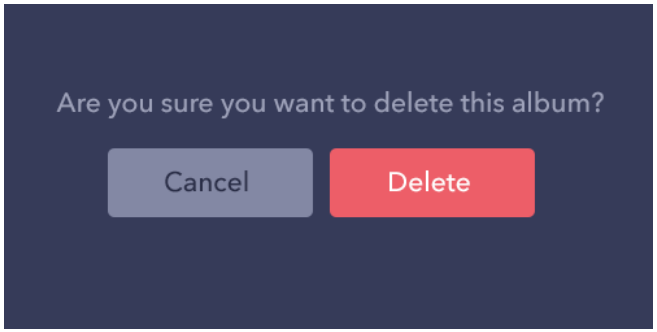
- Colors evoke different emotions [1][2][3][4].
- Depending on the purpose of the App you can determine the colors that can be used in it.

Red

- **Danger, Importance, Passion**



[color-hex.com/color-palette/2539]



[uxplanet.org/create-emotion-with-color-in-ux-design-446a3766b085]

Orange

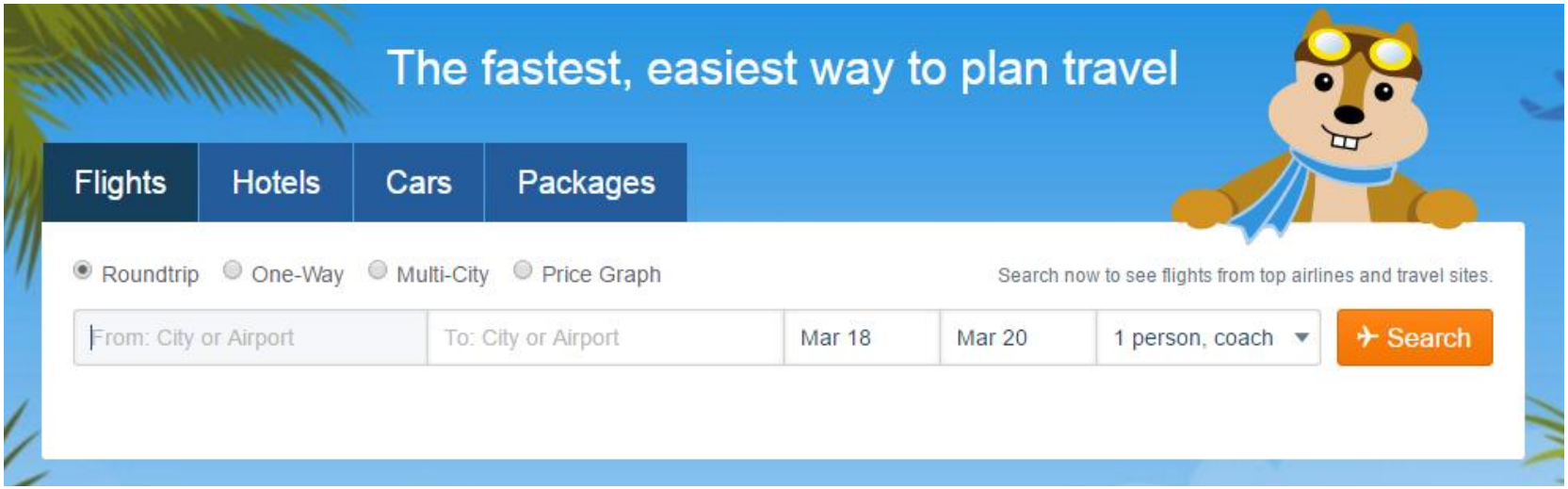
- **Confidence, Energy, Optimism**

Playful emotions – sportive

Casual Apps

Enterprise???

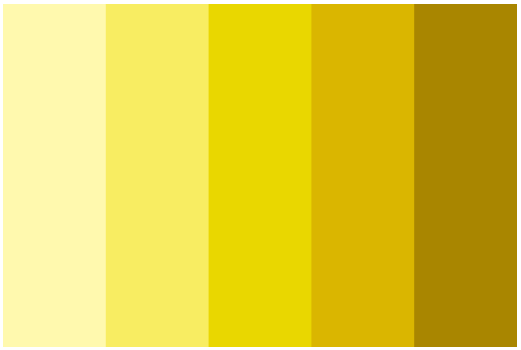
Orange


The fastest, easiest way to plan travel
Flights
Hotels
Cars
Packages
Roundtrip
One-Way
Multi-City
Price Graph
Search now to see flights from top airlines and travel sites.
From: City or Airport
To: City or Airport
Mar 18
Mar 20
1 person, coach
Search

Yellow

- **Attention, Happiness**

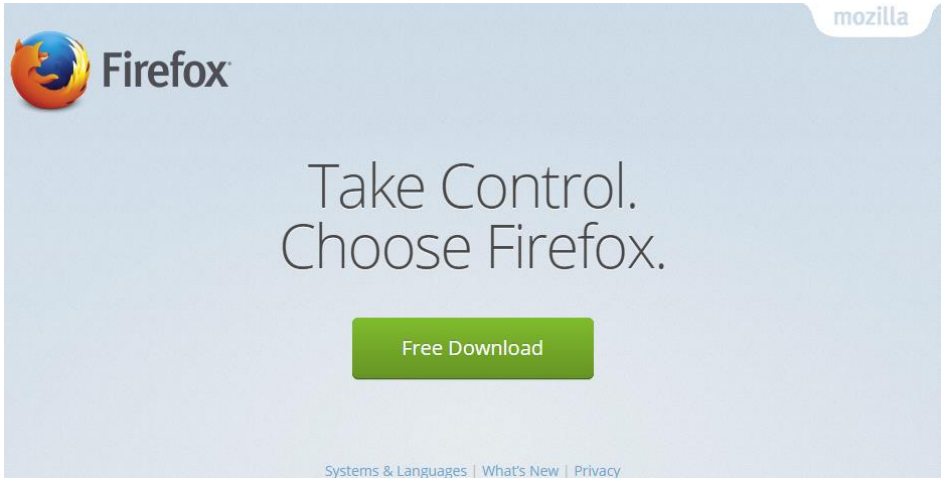
[seton.com/reflective-warning-signs-caution-ac0563.html]

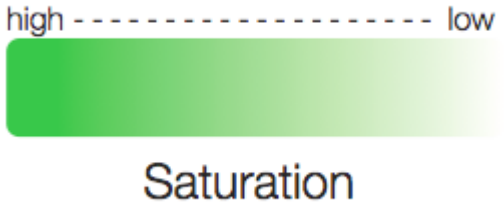


[color-hex.com/color-palette/2539]

Green

Growth, Nature, Success

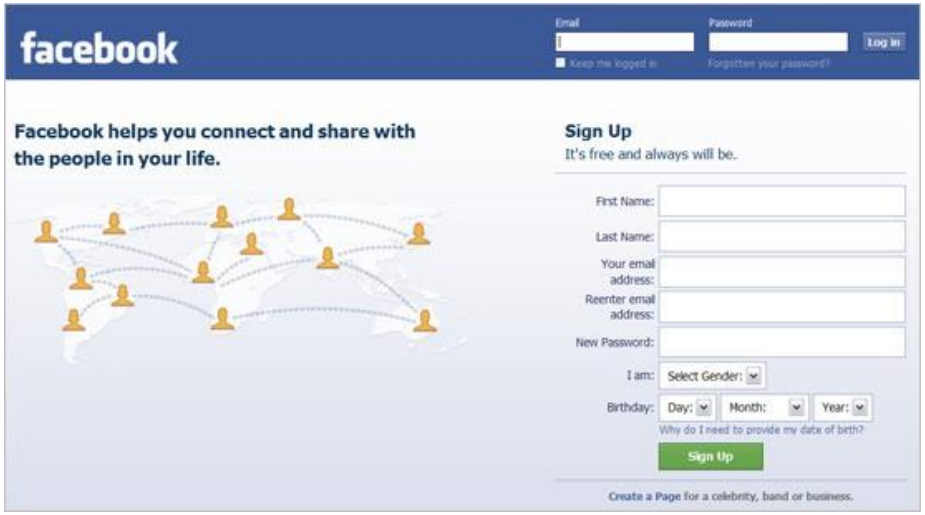


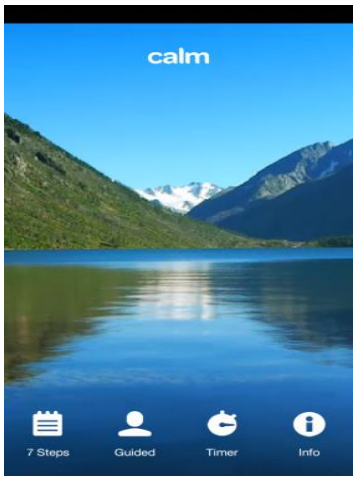


[terrywhitechemmart.com.au/healthapp/]

Blue

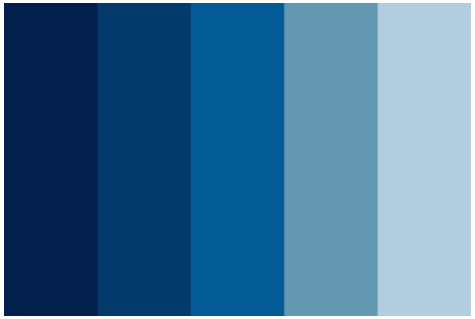
- **Trust, Comfort, Relaxation**





PayPal

RBS
The Royal Bank of Scotland



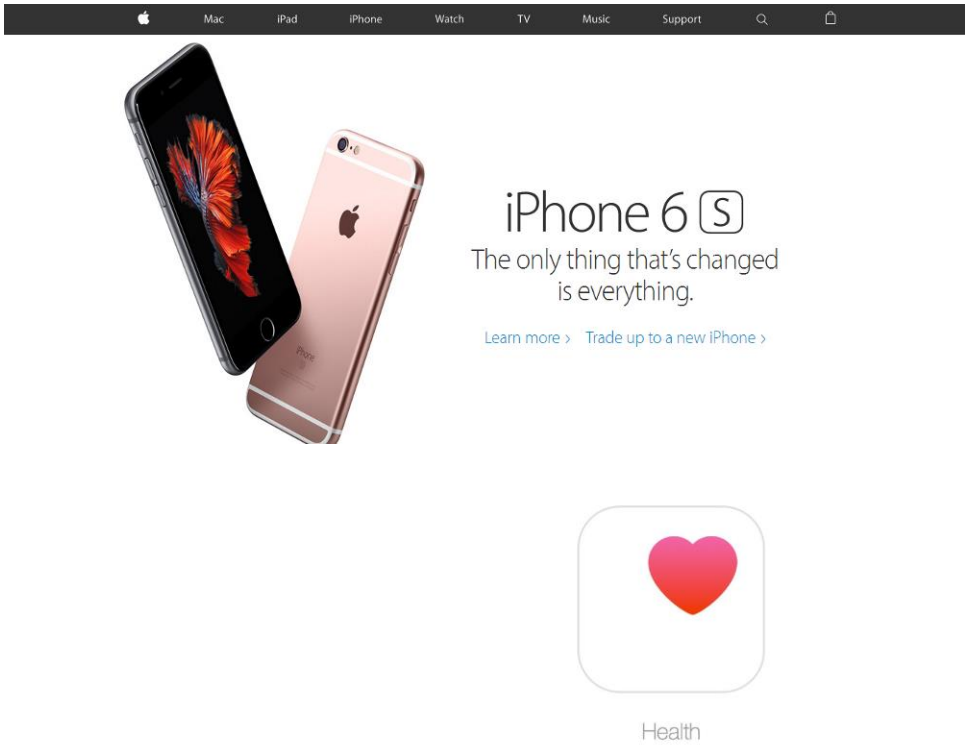
Black

- **Formality, Power, Sophistication**

VALENTINO

White

- **Freshness, Sterility, Health**



Recall: Design challenges

- User expectations for simplicity
- Limited input modality
- Security/privacy
- Colors evoke different emotions
- **Standing out in a crowd**

Ideas???

Goals of Usability

“Knows what to do”

“Knows how to do”

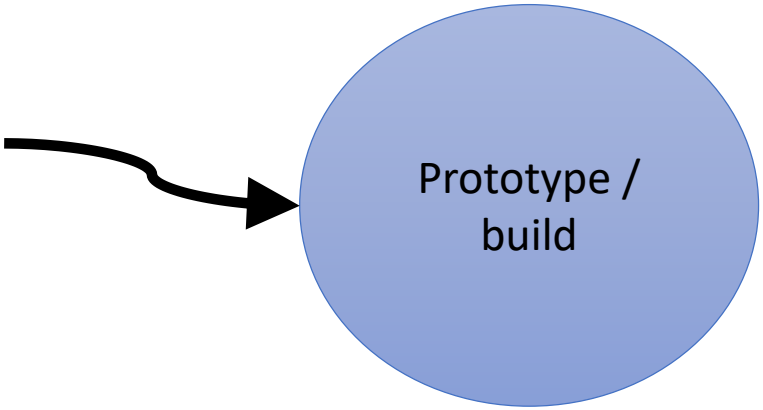
“Is able to do”

- Games user Research(Andres Drachen)

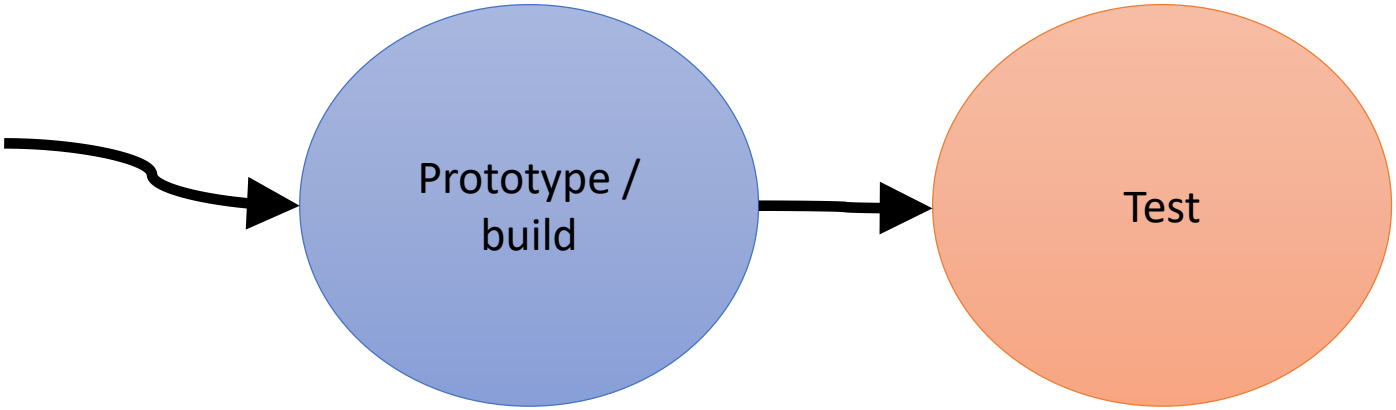
Design and development workflow

Iterative Design

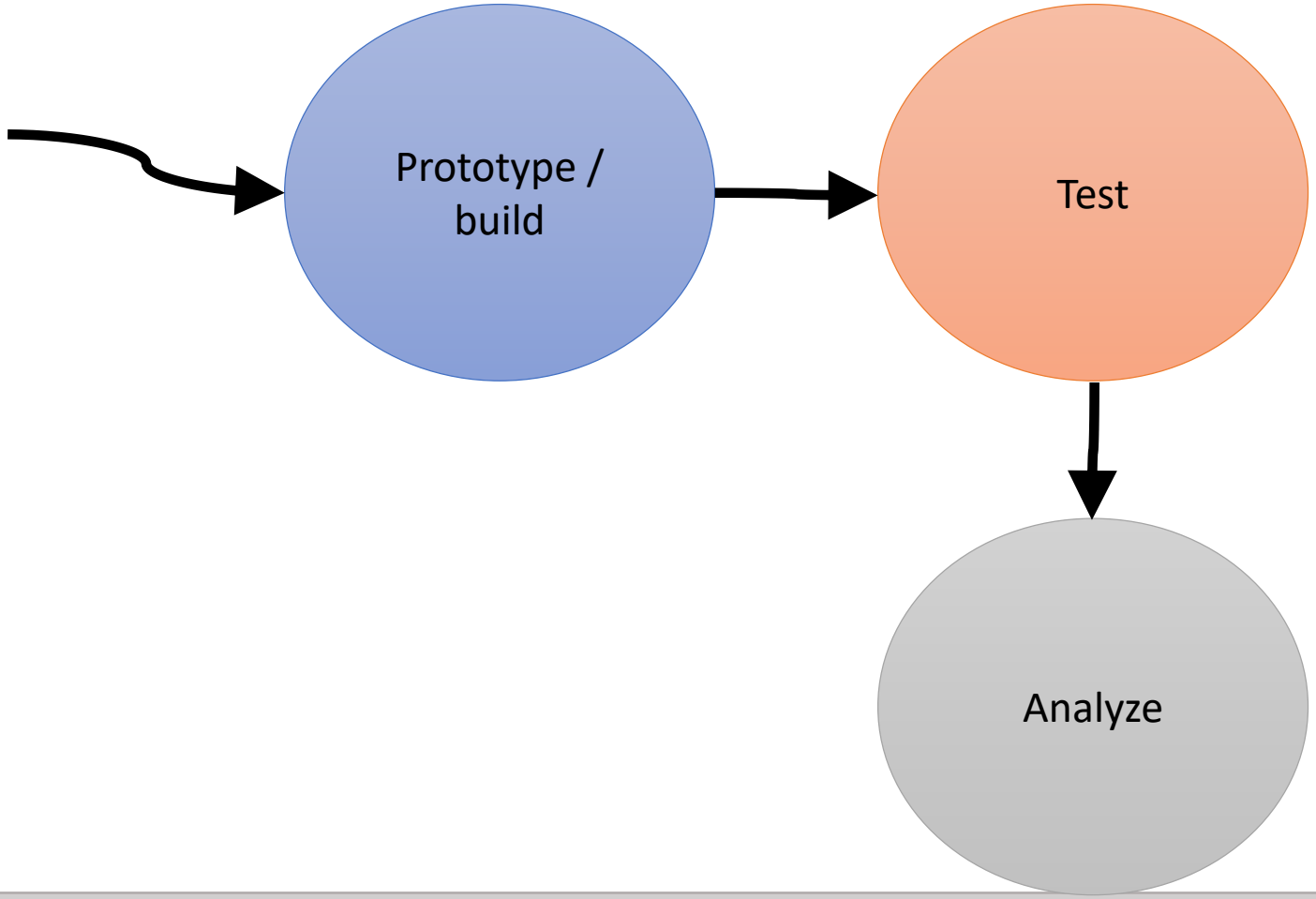
Iterative Design



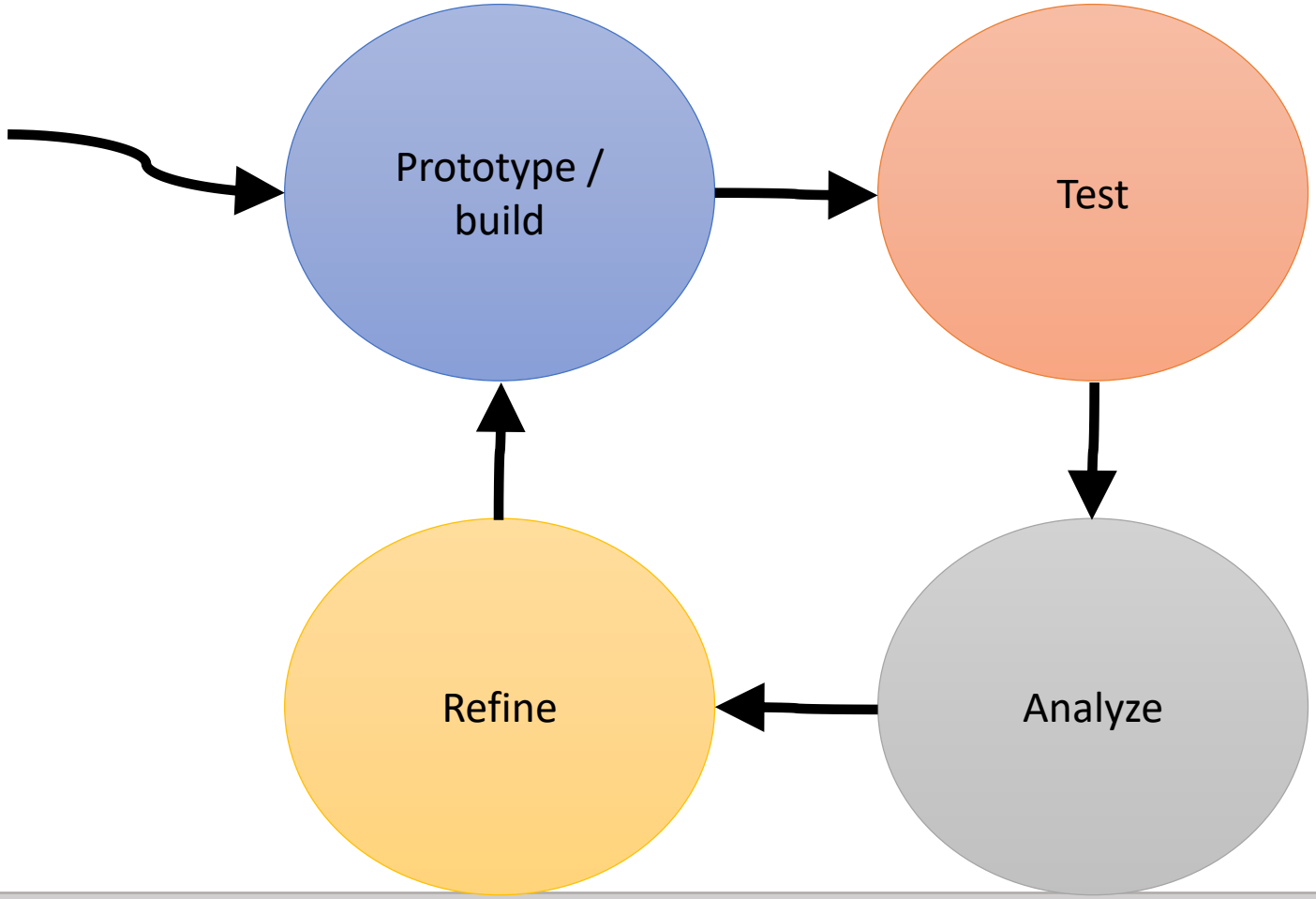
Iterative Design



Iterative Design



Iterative Design



Prioritizing Requirements

MoSCoW analysis – Prioritizing Requirements

- Approach for prioritizing features
- (M)ust have
  - Must have feature
  - Non-negotiable
- (S)hould have
  - Adds up Business value
  - Should be implemented if possible
- (C)ould have
  - Less critical
  - Nice to have
- (W)on't have
  - Least critical
  - Lowest value
  - Considered for the future

Prototyping

- Rapid
- Doesn't have to look good
- Answer a question
- Work out concrete implementation
  - uncover potential problems
- Find what works and amplify it, find what doesn't and remove it

Prototyping- Example

Some famous prototypes

https://www.cultofmac.com/488008/jony-ive-book-excerpt-iphone/

Some famous prototypes

iPad Prototype – 1983

Complete with attachable keyboard, the tablet was named 'Bashful' a reference to the Snow White industrial-design language Apple used between 1984 and 1990.

Nintendo Wii U GamePad – 2012

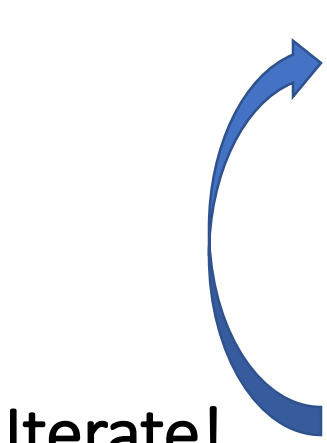
Made from a monitor and two WiiMote controllers attached to either side of the screen, it is this design that most closely resembles the final product.

Motorola DynaTAC – 1973

Martin Cooper built the world's first cell phone in just 90 days. Without large-scale integrated circuits, engineers had to stuff thousands of resistors, capacitors, inductors, and ceramic filters into a 4.4 pound package.

https://www.techeblog.com/10-early-and-rarely-seen-prototypes-of-now-famous-gadgets/

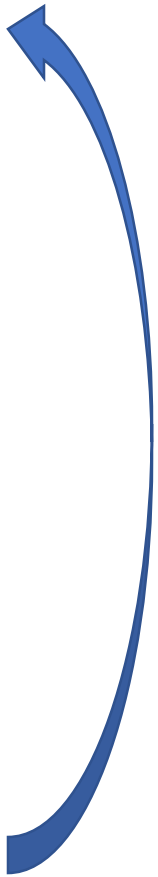
Typical user interface design



- Empathize
- Model **tasks/goals**
- Simplify models
- Prototype on **paper** (lo-fidelity)
- Test in context

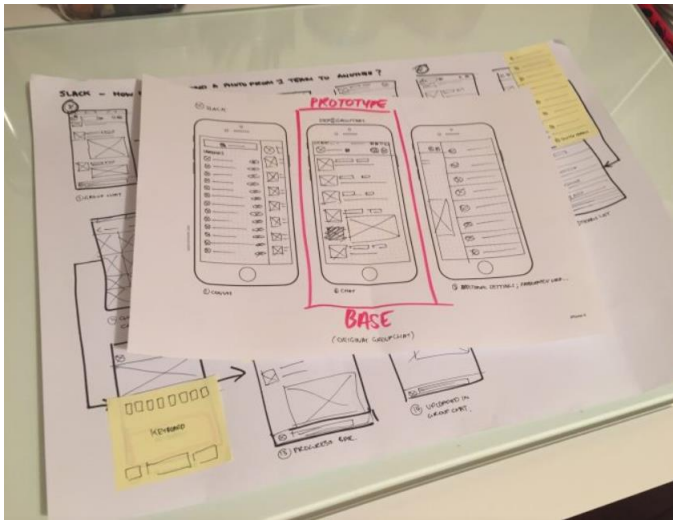
When a great idea is worked out…

- Prototype in computer (high-fidelity)
- Test in context



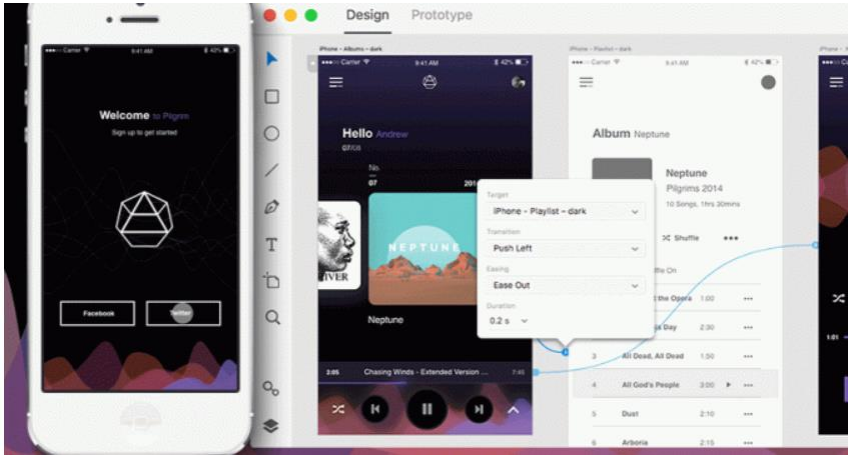
Which prototyping fidelity to use?

- Fidelity -> Look-and –feel of the final product



- **Low fidelity:**
  - Simple, affordable, and low-tech concepts
  - Ideal for early on design prototyping

- **High fidelity:**
  - Implies higher cost for creating
  - realistic and detailed design
  - Meaningful feedback



[theblog.adobe.com/prototyping-difference-low-fidelity-high-fidelity-prototypes-use/]

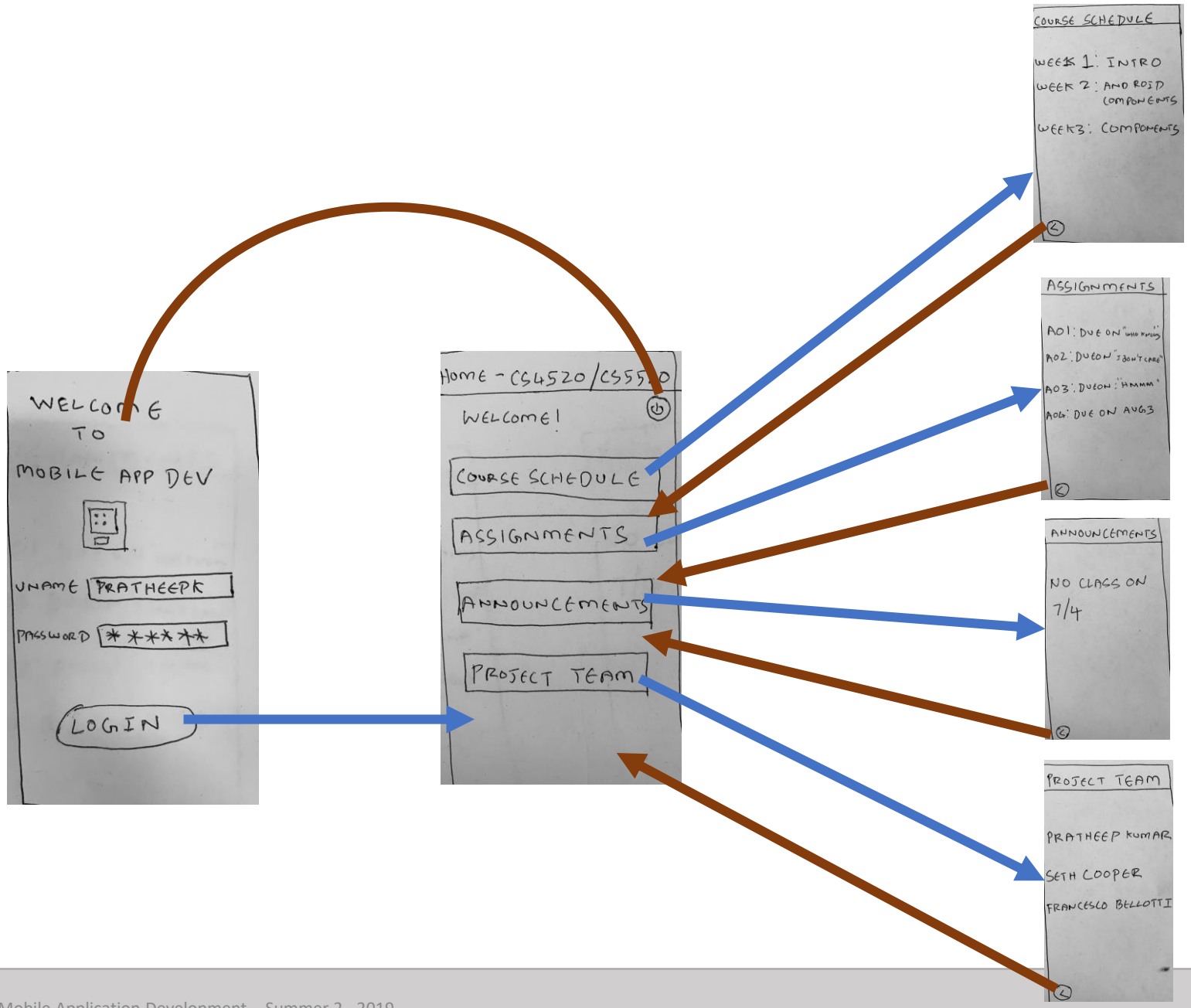
Considerations for prototyping a mobile App

- Taps and Gestures
- Layouts and Navigation models
- Animations

Let’s try it out

- Pop – prototyping on Paper
  - An app that lets you test your paper protype with some High fidelity options

[youtube.com/watch?v=EGp20lVwUa8]


WELCOME
TO
MOBILE APP DEV
UNAME PRATHEEPK
PASSWORD *****
LOGIN
Home - CS4520/CS5520
WELCOME!
COURSE SCHEDULE
ASSIGNMENTS
ANNOUNCEMENTS
PROJECT TEAM
COURSE SCHEDULE
WEEK 1: INTRO
WEEK 2: ANDROID COMPONENTS
WEEK3: COMPONENTS
ASSIGNMENTS
A01: DUE ON "WHO KNOWS"
A02: DUE ON "I DON'T CARE"
A03: DUE ON: "HMMM"
A04: DUE ON AUG3
ANNOUNCEMENTS
NO CLASS ON 7/4
PROJECT TEAM
PRATHEEP KUMAR
SETH COOPER
FRANCESCO BELLOTTI

In-class exercise

- Step 1: Download the necessary assets from Blackboard
  - **Course Material -> Course Documents -> Media files for in-class exercises -> Week 1 -> paper Prototype (6 images)**
- Step 2: Download the POP app (Search for POP by Marvel)
- Step 3: Follow along with me

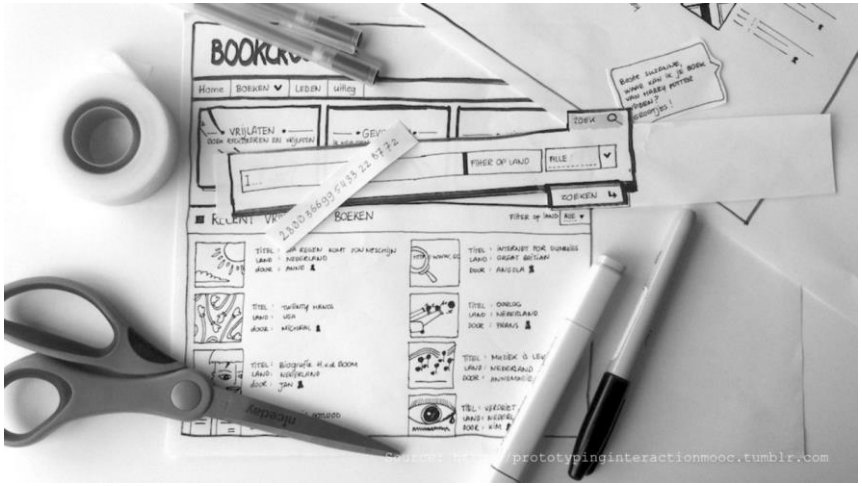
Paper Prototyping

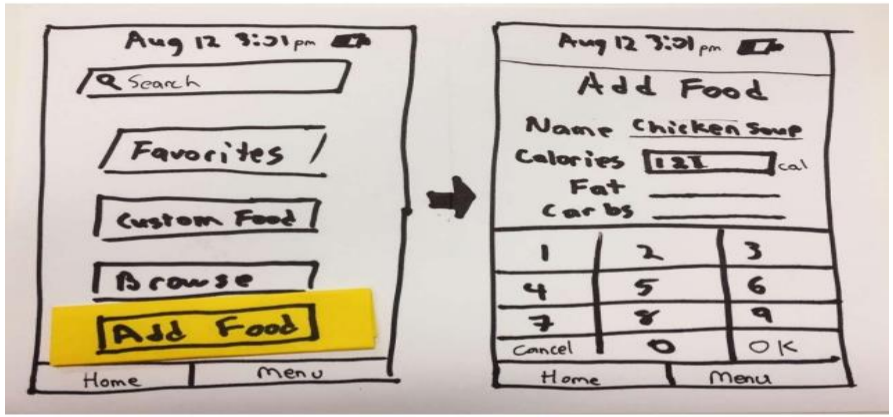
Initial phase to conceptualize digital interfaces

Low-cost approach to rapidly envision your design ideas.

Low-fidelity approach – thus you can do it with a pen and paper.

Focus more on the layout and interactions rather than visual presentation.





[slideshare.net/TristanatFARM/low-fidelity-prototyping-69101384]
[usabilitygeek.com/paper-prototyping-as-a-usability-testing-technique/]

Why paper prototyping?

- Test out flows and interactions.
- Minimal time invested in the process
- Rapidly iterate through ideas.

Advantages of Paper Prototyping

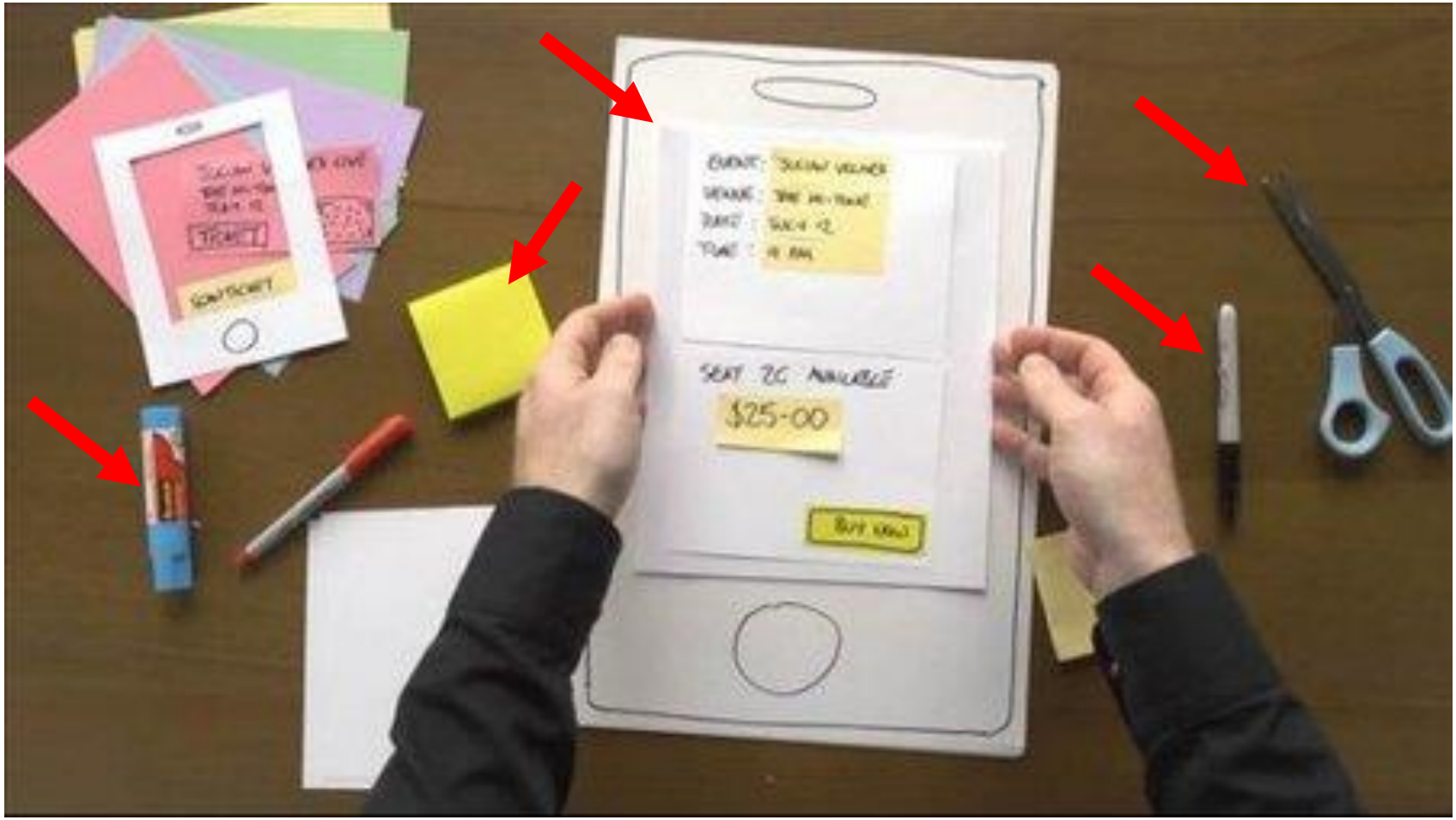
- Limit expense of development
- Refine usability of product
- Communication tool within team

Challenges of Paper prototyping

- Testing quick interactions
- Interface behavior limitations
  - Slow
  - Imperfect simulation
- To programmers, doesn't feel like *progress*

Steps for Paper Prototyping

What do you need for this?



[avaxhome.unblocker.xyz/ebooks/ux-design-techniques-paper-prototyping.html]

Construction Kit

- White, unlined, heavy paper that is bigger than letter size (11 by I7 inches)
- Index cards for construction material and note taking
- Various adhesives. Tape: clear, colored, double-backed, pin strip tape
- Glue sticks, and most importantly, Post-It glue-a stick
- Rolls of white correction tape
- Various markers-colored pens and pencils, highlighters, and
- thick markers, pastels
- Lots of sticky note pads of various sires and colors
- Transparencies
- Scissors, x-acto knives, metal straightedges (band aids)
- Other possibilities found in art stores:
  - Rub on texture
  - Modeling clay (if using physical devices)
  - Sound clicker

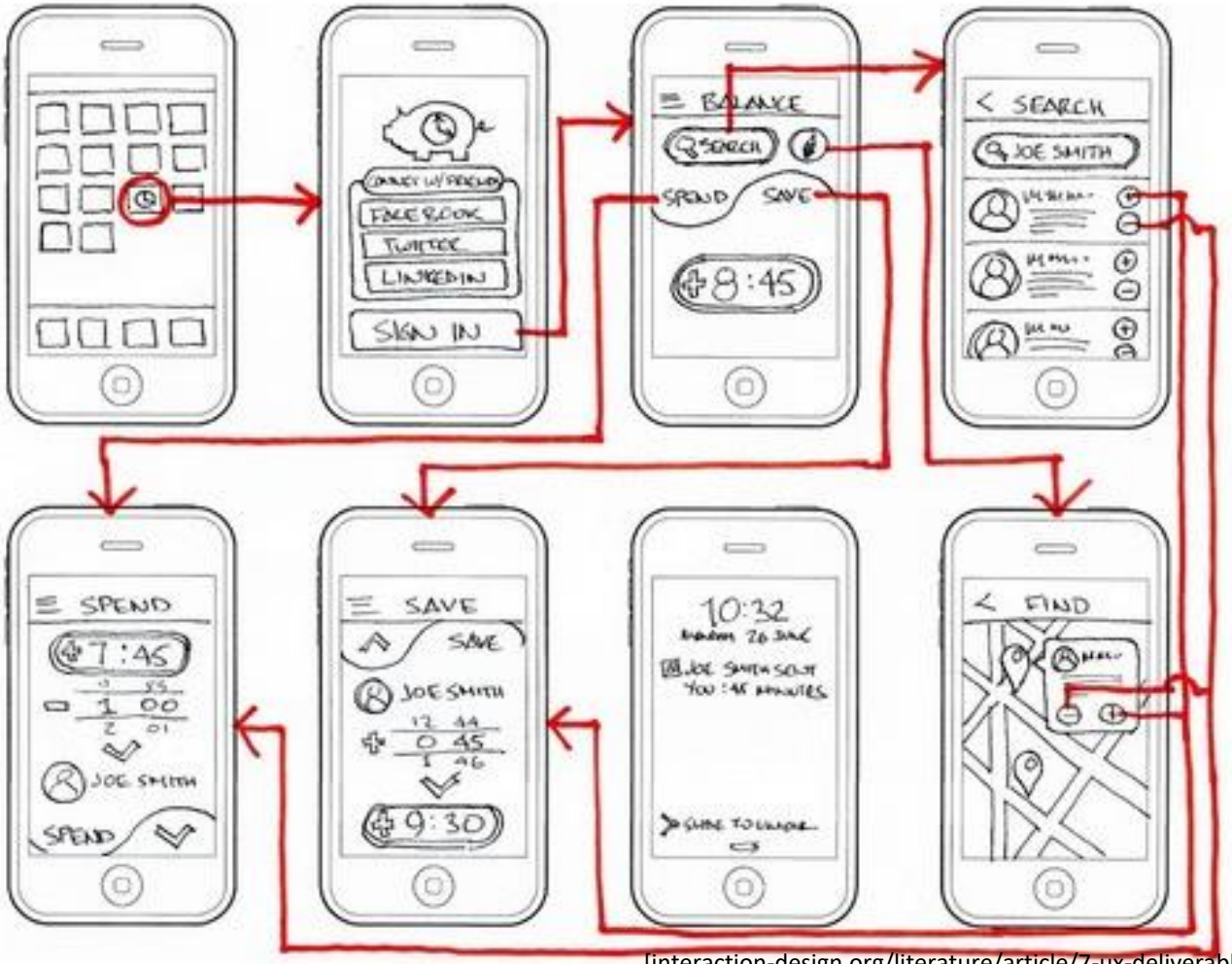
Steps for Paper Prototyping

- **Step 1: Scenarios/ Storyboards**

[clickz.com/getting-to-grips-with-mobile-design-methods-and-lingo-empathy-maps-and-storybo/98439/]

Steps for Paper Prototyping

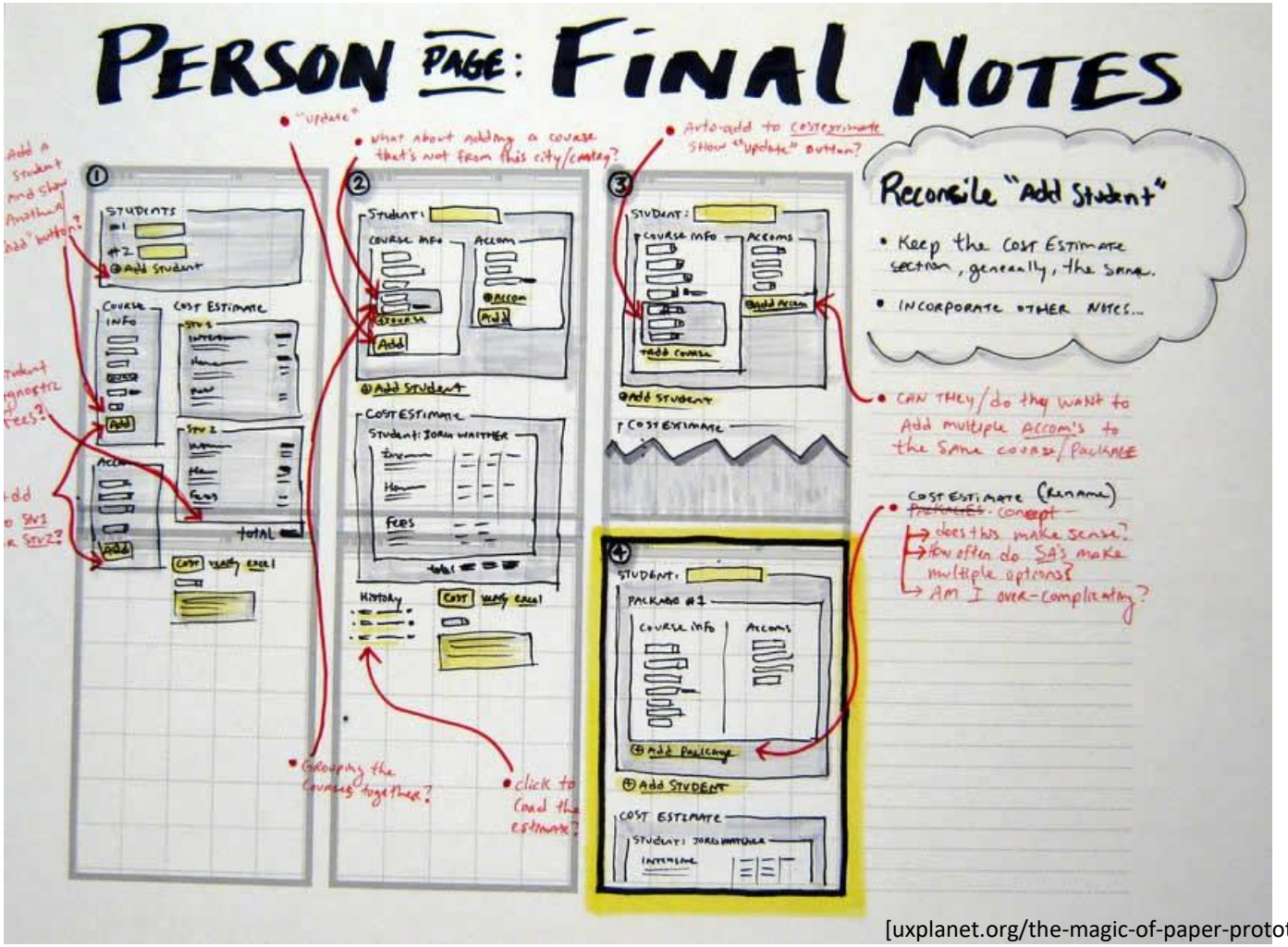
- **Step 2: Interaction pattern**



[interaction-design.org/literature/article/7-ux-deliverables-what-will-i-be-making-as-a-ux-designer]

Steps for Paper Prototyping

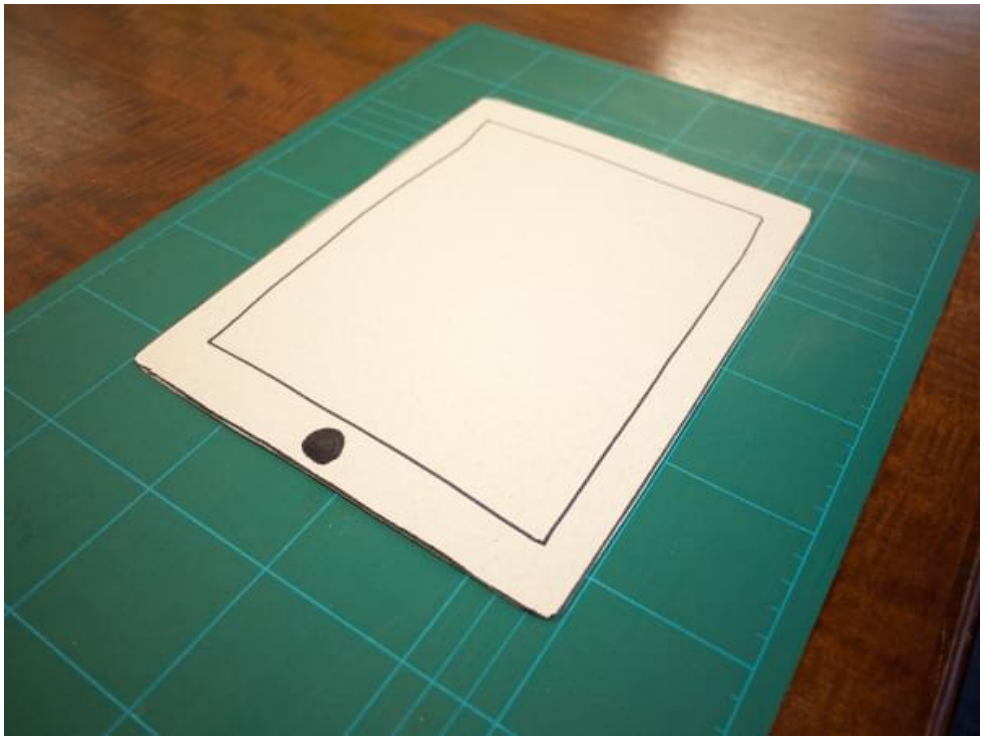
- **Step 2: Interaction pattern**

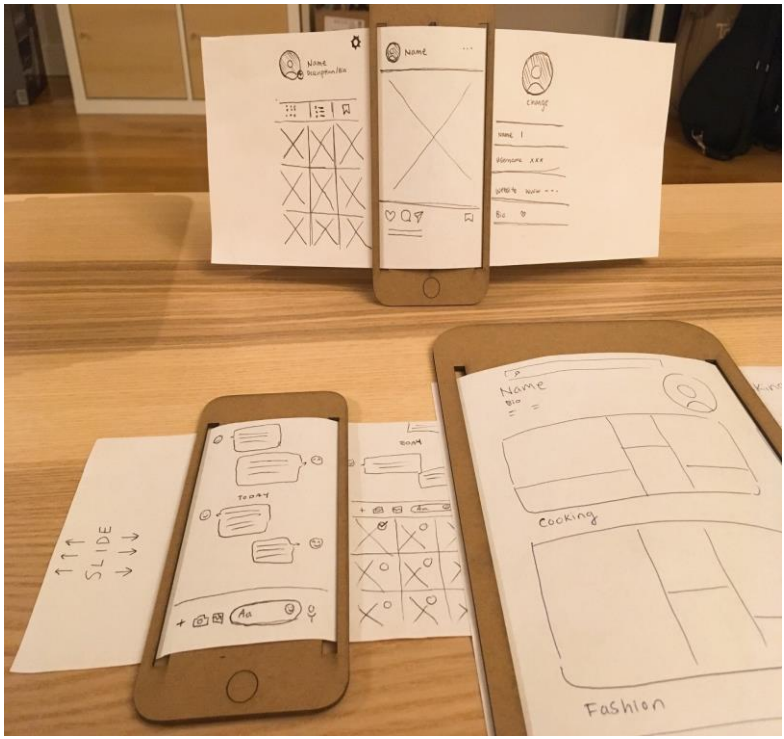


[uxplanet.org/the-magic-of-paper-prototyping-51693eac6bc3]

Steps for Paper Prototyping

- **Step 3: Template of the target screen**





[sitepoint.com/how-to-make-paper-prototypes/]

Steps for Paper Prototyping

- **Step 4: Sketching the screens of your app(based on the storyboard)**

[sitepoint.com/how-to-make-paper-prototypes/]

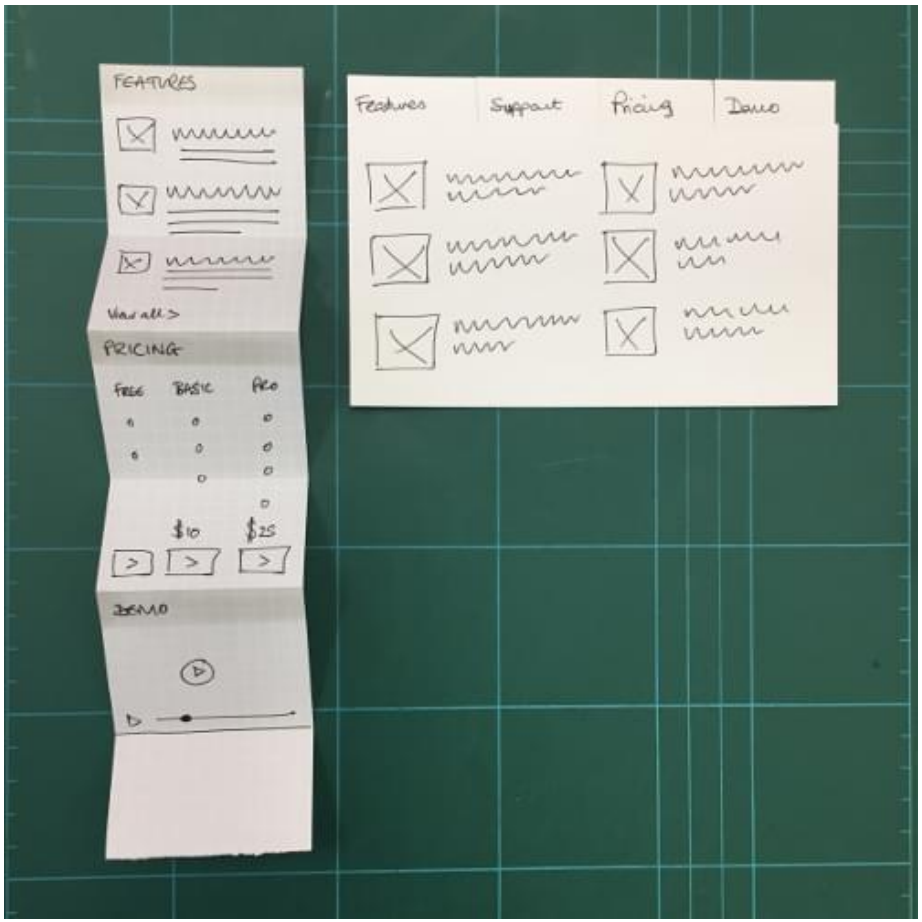
Steps for Paper Prototyping

- **Step 4: Sketching the screens of your app(based on the storyboard)**

[sitepoint.com/how-to-make-paper-prototypes/]

Steps for Paper Prototyping

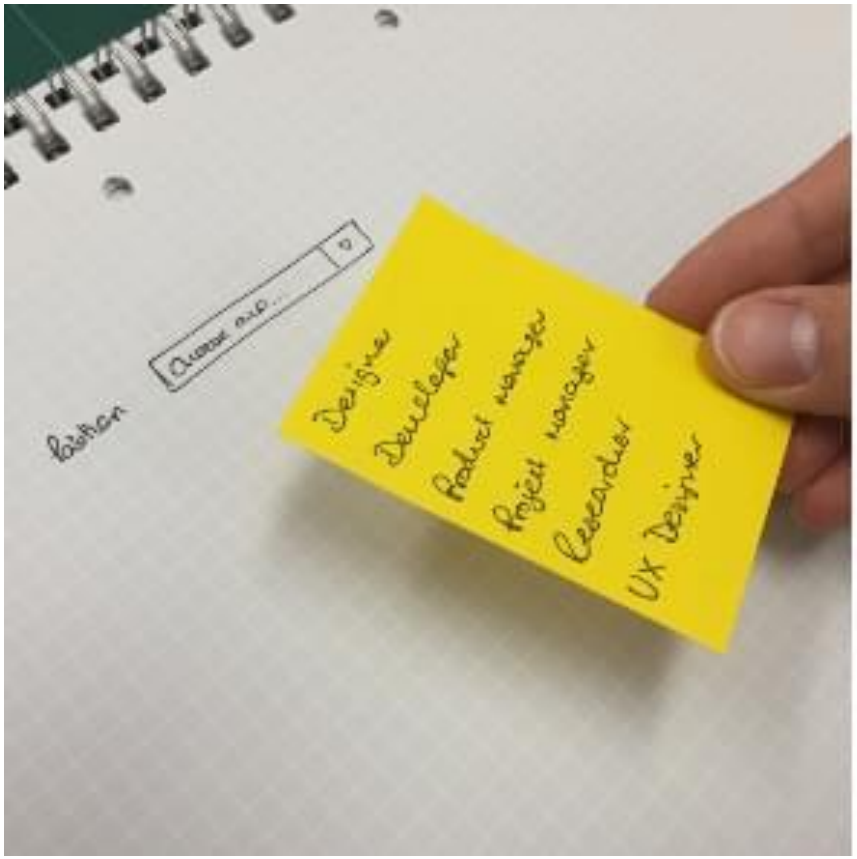
- **Step 4: Sketching the screens of your app(based on the storyboard)**



[sitepoint.com/how-to-make-paper-prototypes/]

Steps for Paper Prototyping

- **Step 4: Sketching the screens of your app(based on the storyboard)**



[sitepoint.com/how-to-make-paper-prototypes/]

User interactions should support the story, which your framed in storyboard

Examples