

Wireframes & Prototyping

Prof. Matt Franks



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Blackboard

Creative Director

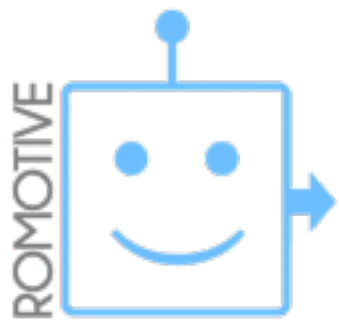


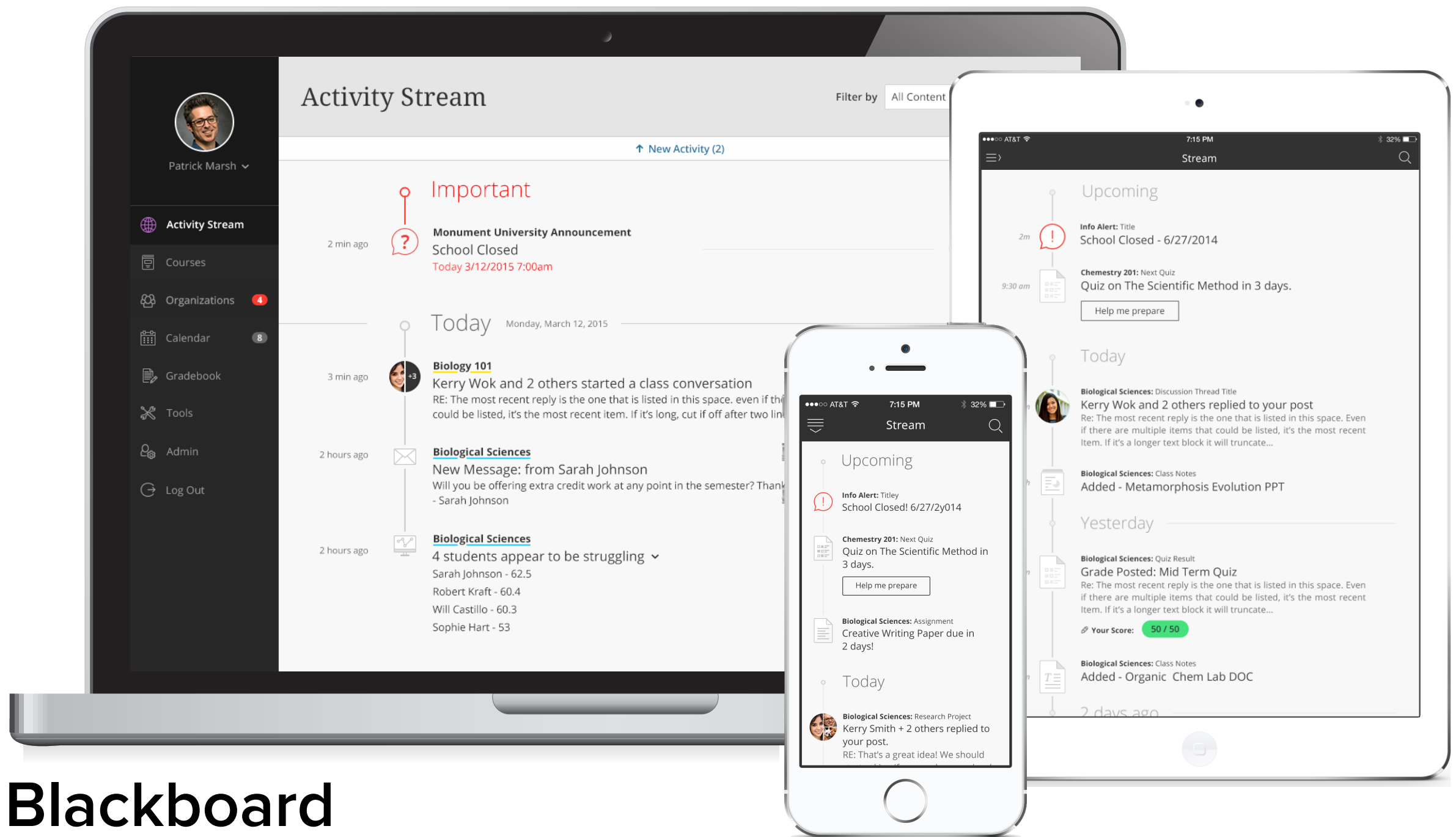
Professor



frog







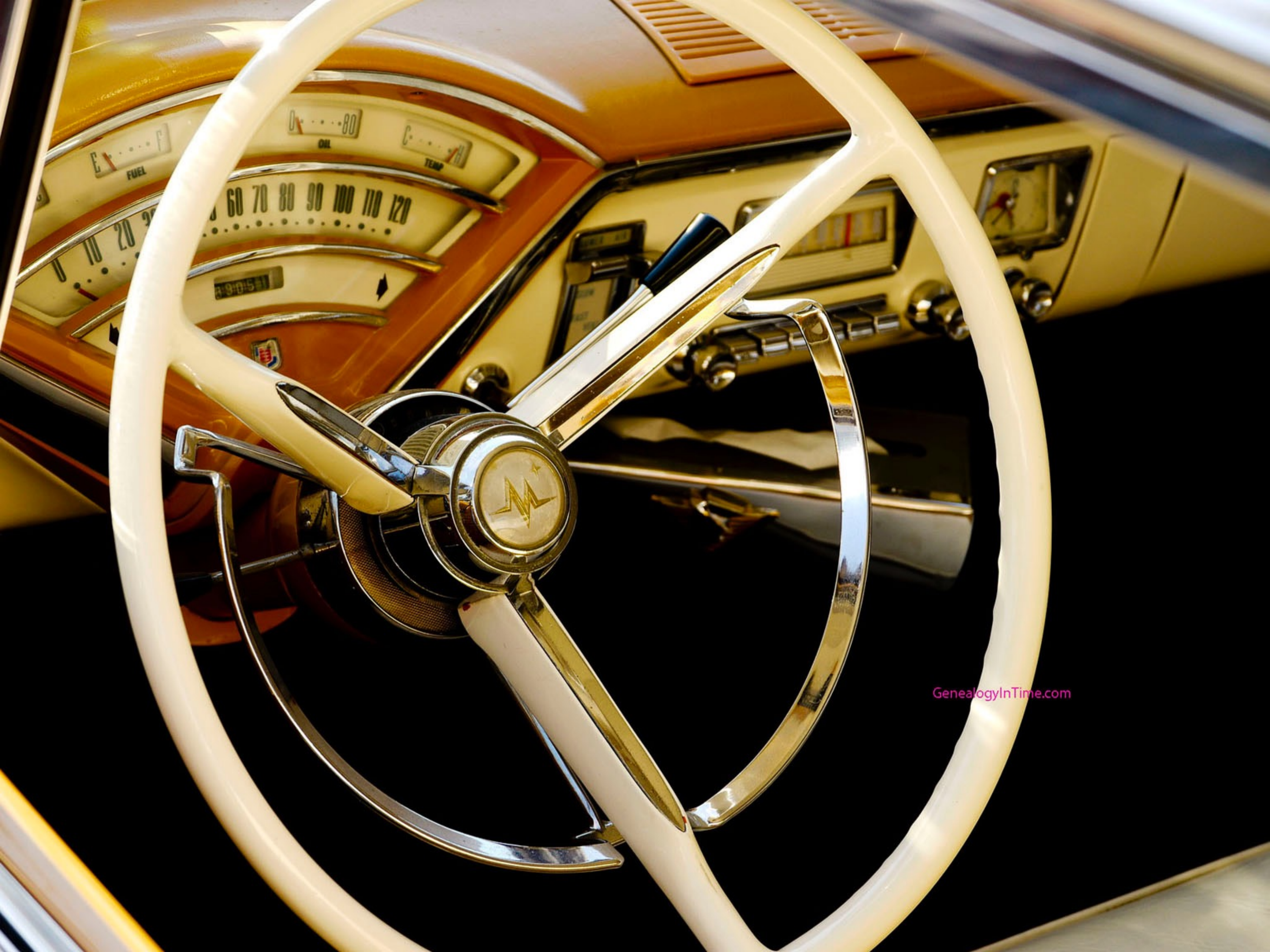
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Today

- Mental models
- Raising the fidelity of an idea; Scenarios, Wireframes, and Paper Prototypes
- Quick and dirty testing via Think-a-loud testing
- Additional resources to help you make sense of your problem and build compelling user interfaces

This is not science or engineering; this is design. You are learning to trust your intuition

- You will have to embrace ambiguity
- Suspend your judgement and skepticism
- There is no “right” answer
- Iterate as fast as you can





We have a mental model of how to start the car.

“If the person carries a ‘small-scale model’ of external reality and of his own possible actions within his head, he is able to try out various alternatives, conclude which is [the] best of them, react to future situations before they arise.

Kenneth Craik - 1967

“A mental model can be thought of as an inaccurate yet helpful representation of how something in the world works.... Mental models, as the name implies, are stored in our memory.”

Jon Kolko; *Exposing the magic of design*

GenealogyInTime.com

Our mental models help us
solve problems, perform
tasks, and achieve goals

They are the framework behind our
ability to reason through complexity

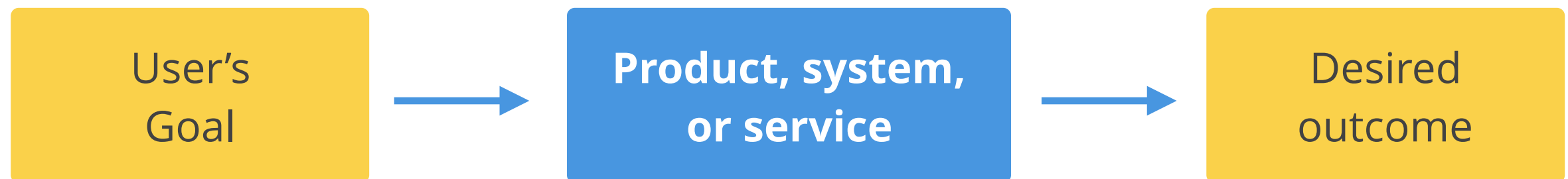
Our mental models are different
from other's mental models...

“The user is not like me”

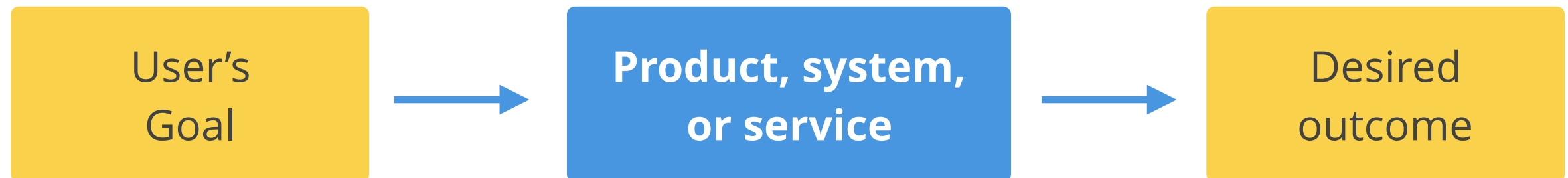
Interaction Design is the creation of a dialogue between a product, system, or service. This dialogue is found in the world of behavior; an interaction that exists over time

To design behavior requires an understanding of the fluidity of natural dialogue; which is reactionary and anticipatory at the same time

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We must balance the technical capability (what “it” can do) with the user’s goal (“what I want”, “how I want to feel”) and the user’s perception of the world (“how I expect to achieve this”)

At this point in the process, you have a general idea of what you want to build..

- An account of what needs to be done
- Some semblance of priority

**You will create your
system by slowly
increasing the
fidelity over time.**

Scenarios -> Sketches -> Wireframes -> Prototypes

Scenarios

A written story that explains how a person uses a product, service, or system to achieve a goal.

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A good scenario...

- Contains the context of use
- Describes the sequence of use from start to finish
- Describes “how” a product is used - step by step
- Describes the controls, states, feedback that are used to create a dialogue between the system and the user

Start with the “hero flow”

Also known as:

- The primary use cases
- The reason for using the system
- “Happy Path” - no edge cases or “what if”

Note: Sign-up and logins are not hero flows - they interface byproducts that act as barriers to achieving a goal. Skip / omit them

Example: *Jack signs up for Comcast*

Meet Jack - he just finished unpacking all the boxes at his apartment and wants to set-up internet service. He's had service from Comcast before and wasn't that impressed, but it's the only provider he can get. Jack goes to comcast.com and finds a clean presentation of the service types that he can purchase.

Jack selects TV & Internet and see's his selections join together. A button appears informing him that he has more options. He clicks "See service options" and the system asks him for his name and address of service. Jack adds his address and clicks "continue". The system displays options for his TV service which includes additional selections for premium content and recording. As jack plays with the choices, he can see his monthly service total reflect in real time.

When jack is finished, he notices the "Internet service options" button at the bottom of the screen. He clicks the button and is taken to a similar screen to select his internet options. As jack plays with the choices, he can see his monthly service total reflect in real time.

When Jack is satisfied with his selection, he looks at the bottom of the page and sees the "Schedule Installation" button. He clicks the button and is taken to a calendar of available install times. He clicks the 16th and the system gives him additional in-line options. Jack can see that there are 3 open time slots. He clicks the 8am time and then the checkout button at the bottom of the page

Jack enters his credit card information and clicks pay now. He see's a count down to installation and options to reschedule his installation. In addition, Jack see's an indicator that let's him start watching television right from his computer.

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Plausible Context

Tone of the system
Starting point

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Ending point

It's tempting to describe every function, feature, and edge case; what the user “could do”

Do not do this!

Only describe what is necessary for the user to achieve the immediate goal

Next...

Repeat this process for
your remaining hero flows,
then start wire framing

Wireframes

A visual representation of a user interface, abstracted to show behavior and controls instead of color or emotion

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A visual representation of a user interface, abstracted to show behavior and controls instead of color or emotion

A good wireframe...

- **Starts with the hero flow scenario**
- **Is sketched 2 - 3 iterations before digital**
- **Illustrates the sequence of use from start to finish**
- **Illustrates every action / reaction - no skipping!**
- **Contains real content - no lorem ipsum**

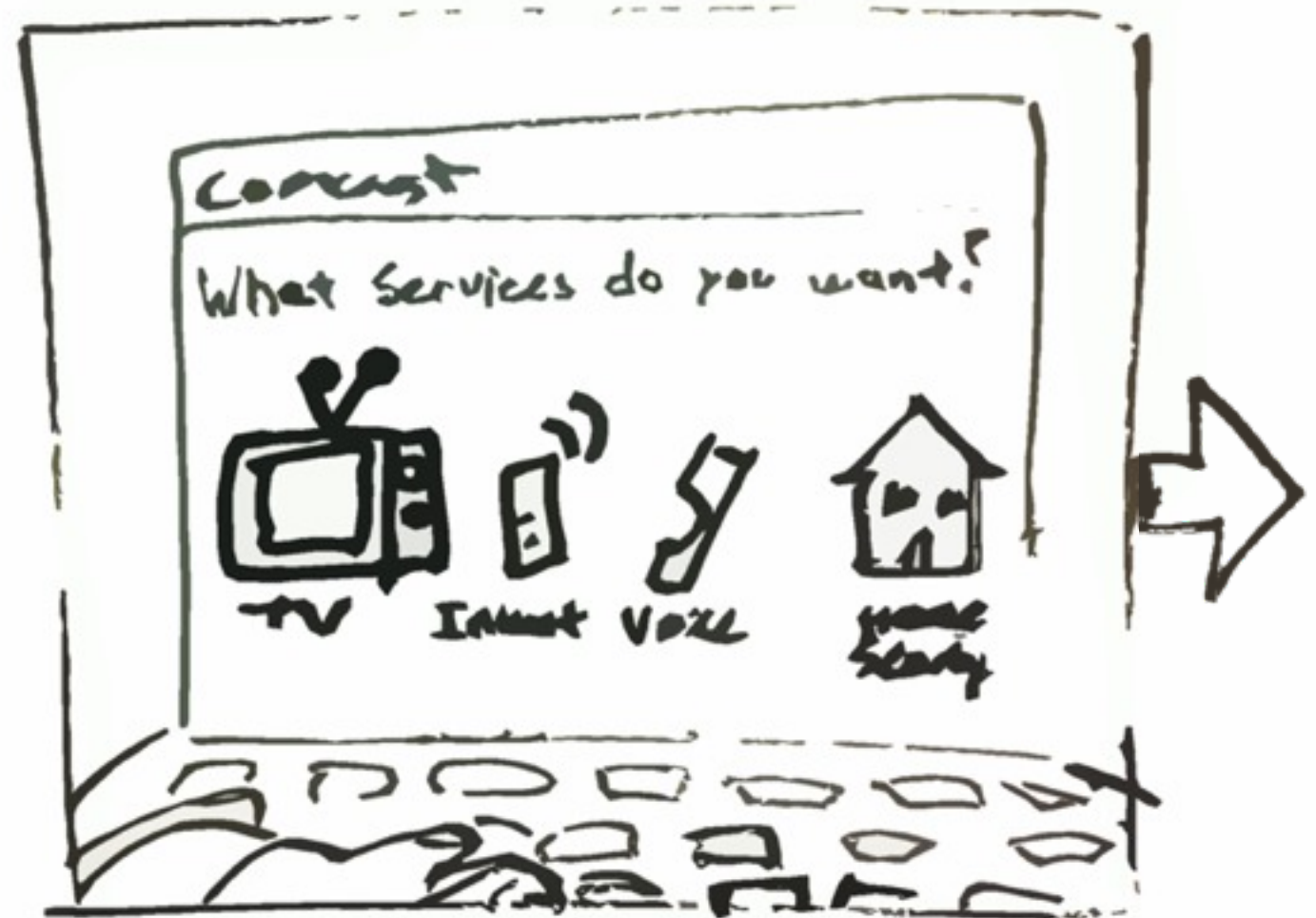
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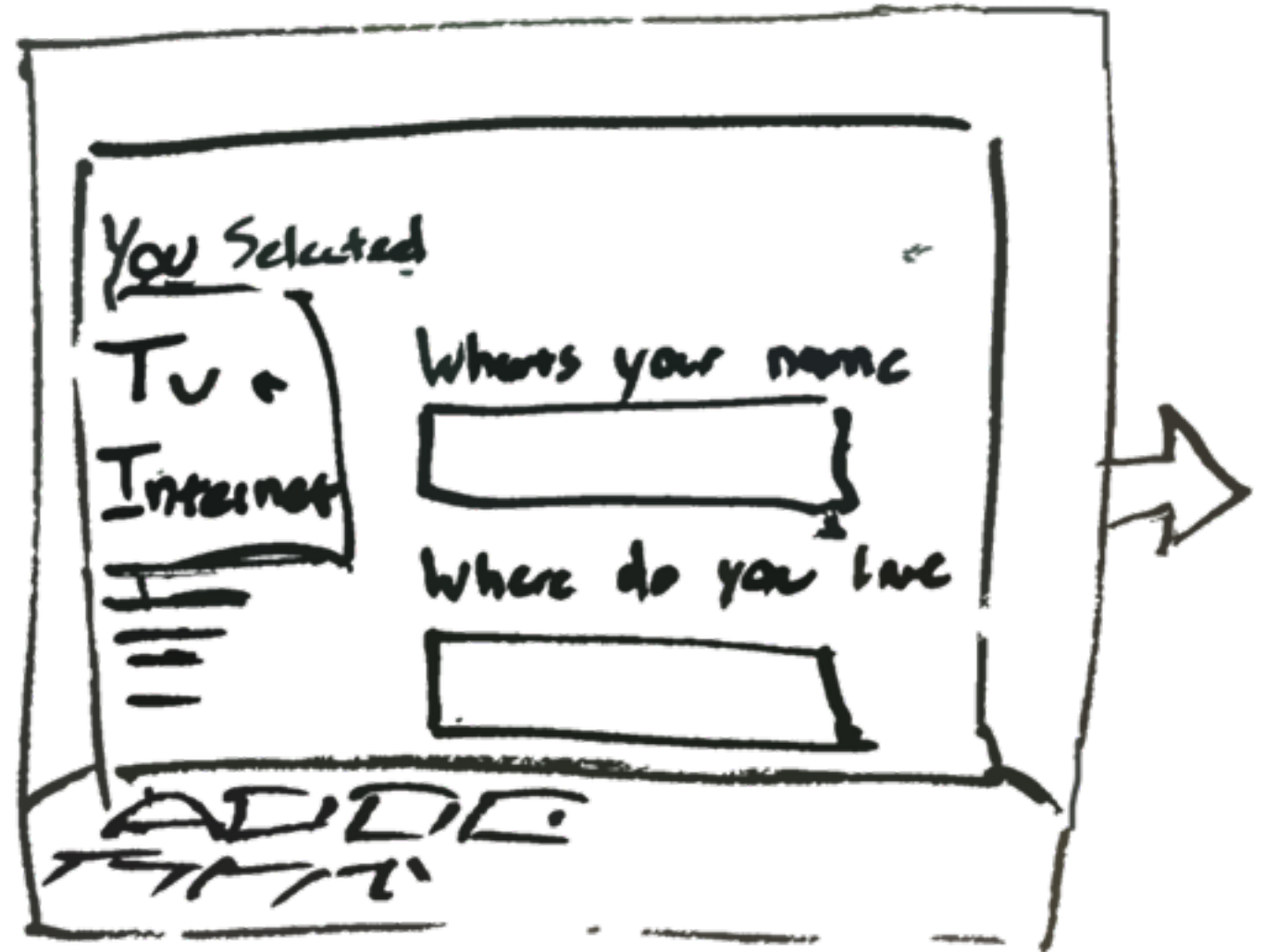
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Example: Jack signs up for Comcast

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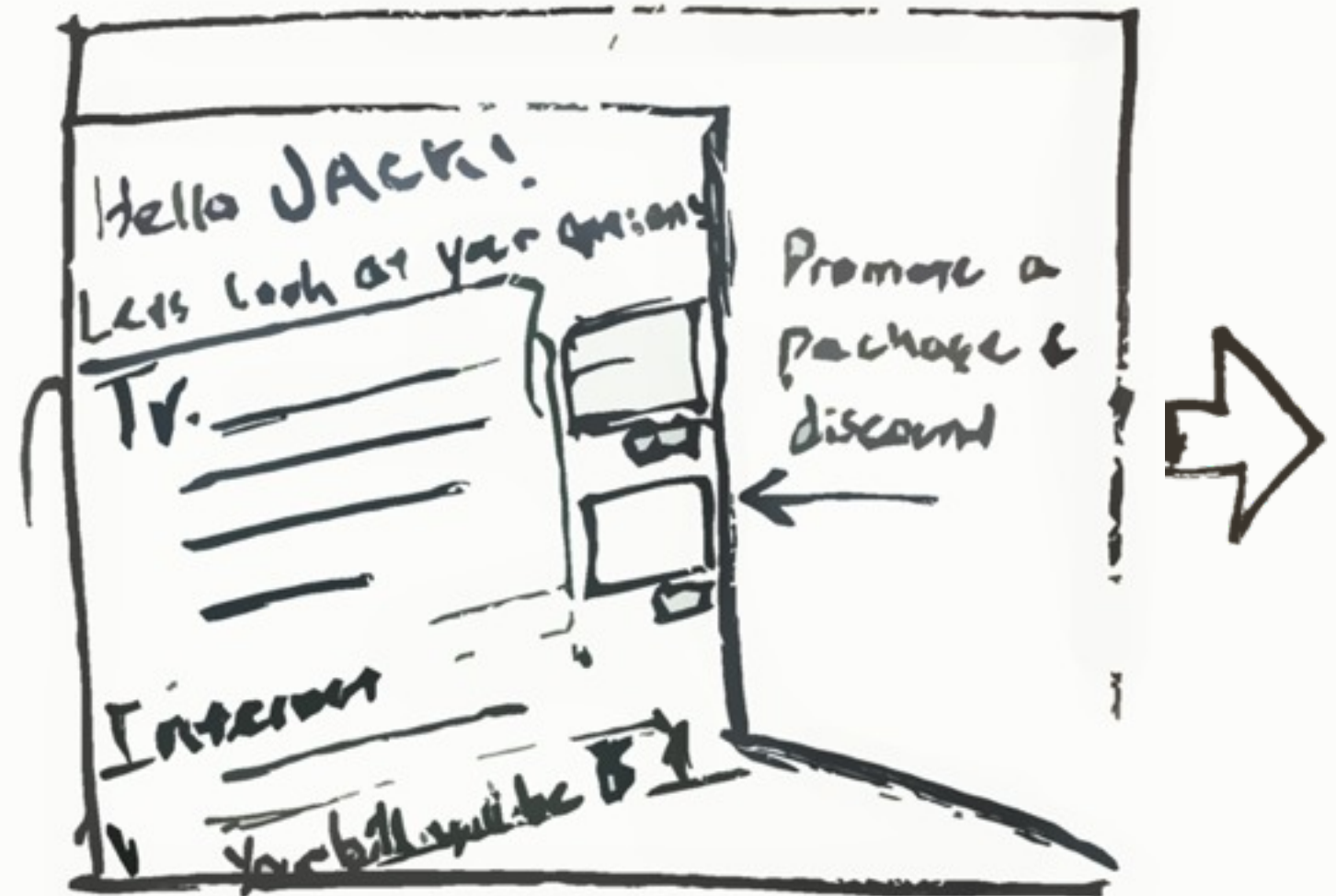


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The system displays options for his TV service which includes additional selections for premium content and recording. As jack plays with the choices, he can see his monthly service total reflect in real time.

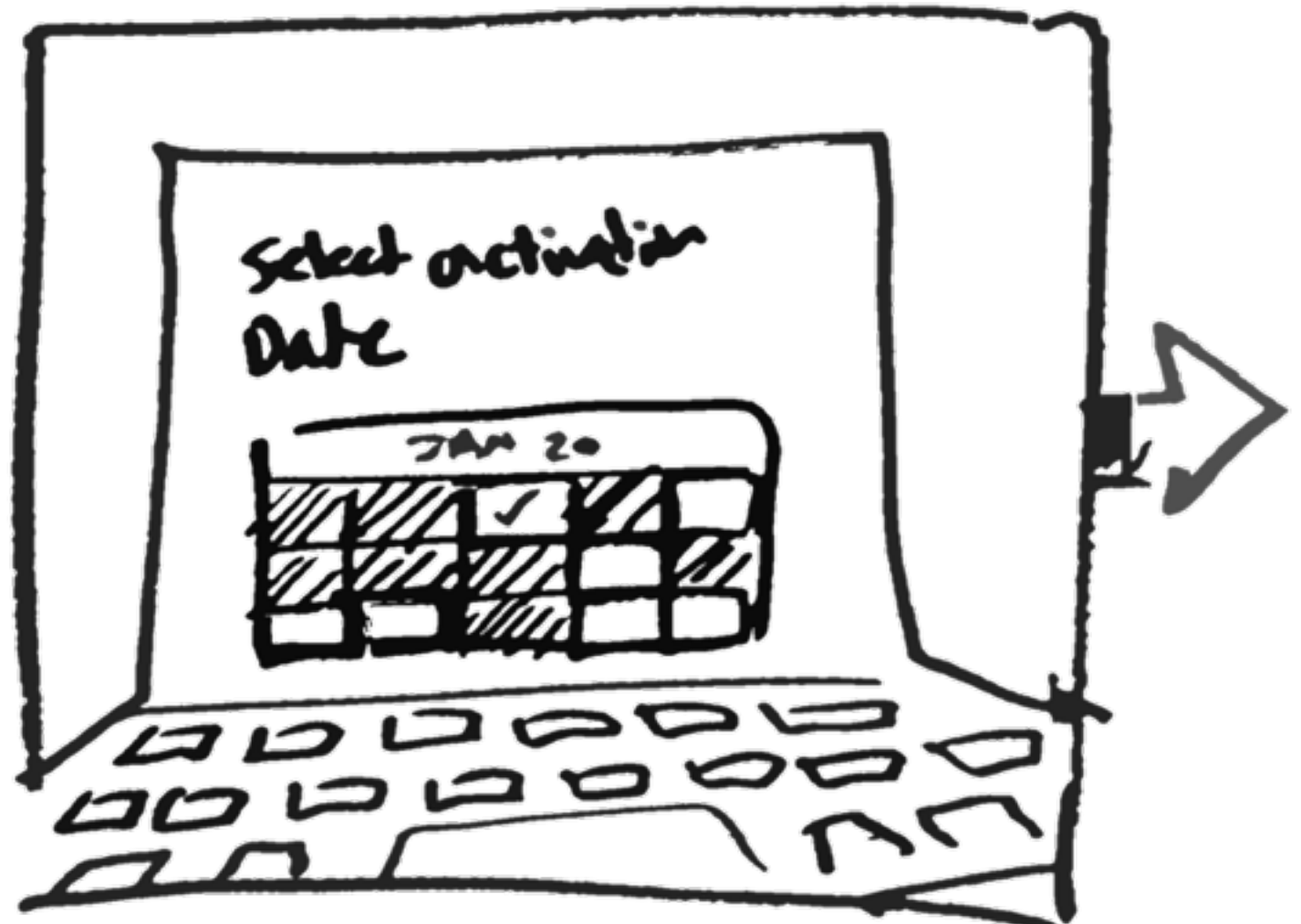
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Example: Jack signs up for Comcast

He clicks the 16th and the system gives him additional in-line options. Jack can see that there are 3 open time slots. He clicks the 8am time and then the checkout button at the bottom of the page



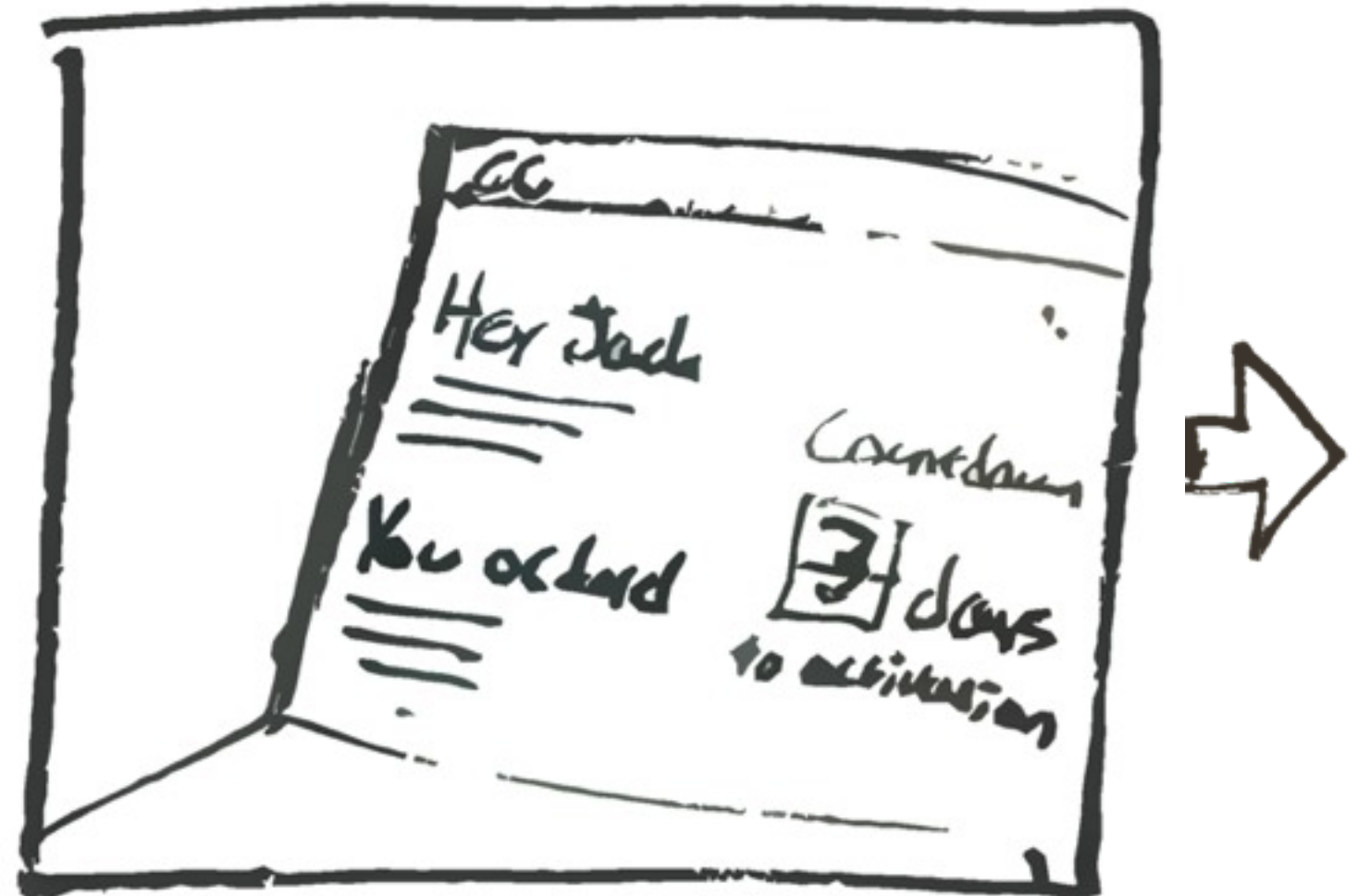
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Jack enters his credit card information and clicks pay now.



Example: Jack signs up for Comcast

He see's a count down to installation and options to reschedule his installation. In addition, Jack see's an indicator that let's him start watching television right from his computer.



Sketch the remaining hero flows. Pay attention to navigation, buttons, placement.

Tips & Tricks

- It's ok to be traditional, novel controls and experiences get old fast
- Look at Pinterest and Dribbble for examples of controls and interaction patterns
- Micro interactions by Dan Saffer is a great resource

This is an iterative process!

Expect to sketch each flow 6 - 7x,
making changes to previous flows
as new flows are added.

It's tempting to design for every function, feature, and edge case; what the user “might want to do”

Do not do this!

Only illustrate what is necessary for the user to achieve the immediate goal

No one needs settings or preferences. If you are creating them, you are being lazy; offloading complexity onto your users.

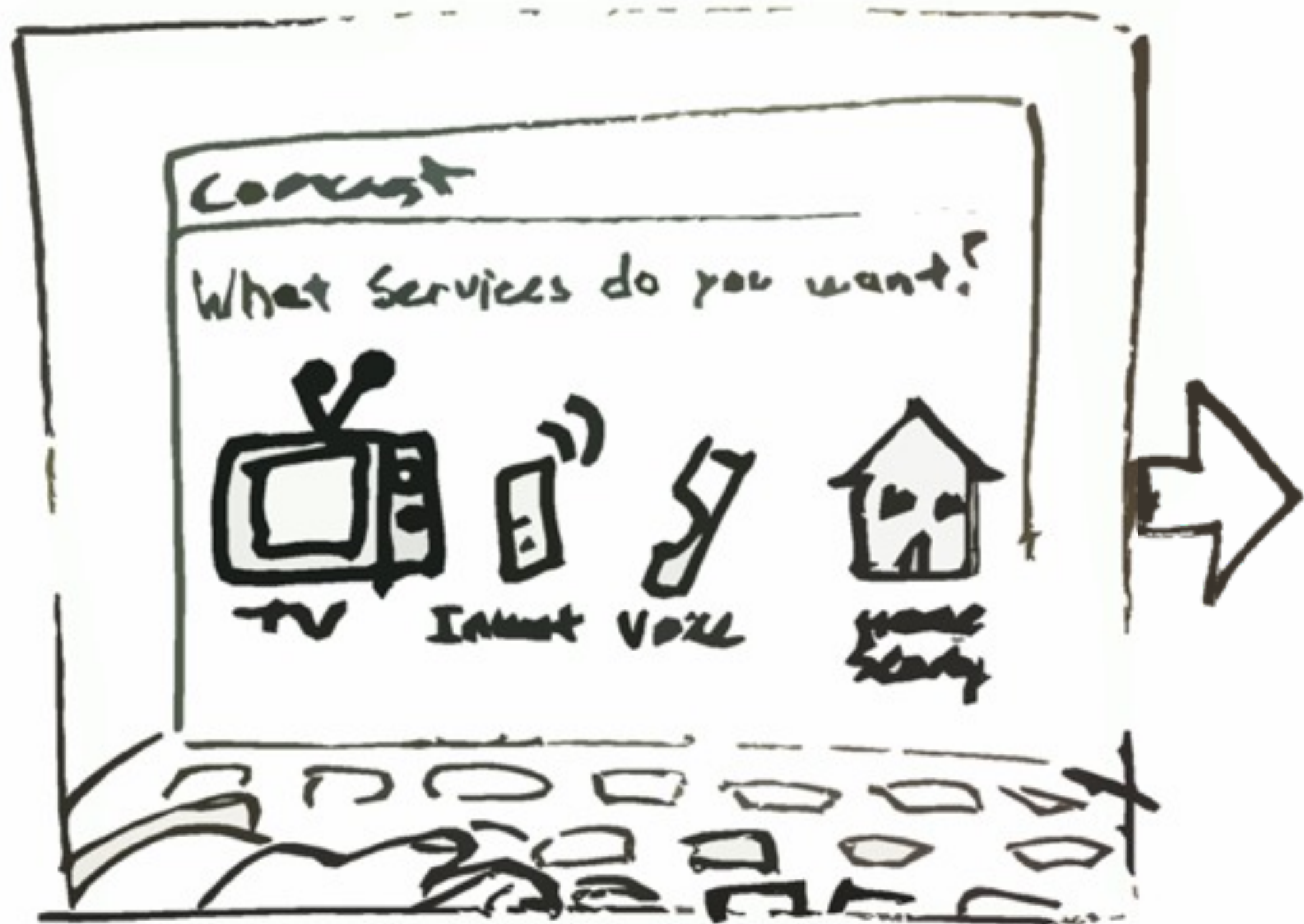
Next..

Slowly increase the fidelity for all your hero flow wireframes by digitizing them. Start with the 1st hero flow.

Tips & Tricks

- Consider using Adobe Illustrator, Sketch, Balsamiq or Omnigraffle
- The less you have on the screen, the more likely the user will be able to make a decision - *Fits Law*
- *Settings are a byproduct of bad system design - less is more*
- log in / change password are not hero flows - skip this

Example: *Jack signs up for Comcast*





- Shop
- Products and Services
- Corporate Info
- Help

What services are you looking for?



☐ Television

HD Television
Basic Television
Sports
Movies
Music

[More Info..](#)



☐ Internet

High Speed Internet
Mobile Internet
Comcast Email
Anti-Virus

[More Info..](#)



☐ Voice

Home Phone
Voicemail

[More Info..](#)



☐ Home Security

24 Hour Home Monitoring
Additional Service Option

[More Info..](#)


[I can't find what I'm looking for](#)

See Service Options >



- Shop
- Products and Services
- Corporate Info
- Help


What services are you looking for?



☐ Television **Click**

HD Television
Basic Television
Sports
Movies
Music


[More Info..](#)



☐ Internet **Click**

High Speed Internet
Mobile Internet
Comcast Email
Anti-Virus


[More Info..](#)



☐ Voice

Home Phone
Voicemail

[More Info..](#)



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Additional Service Option

[More Info..](#)

[I can't find what I'm looking for](#)

See Service Options >



- Shop
- Products and Services
- Corporate Info
- Help

What services are you looking for?



☒ Television



☒ Internet



☐ Voice

Home Phone
Voicemail

[More Info..](#)



☐ Home Security

24 Hour Home Monitoring
Additional Service Option

[More Info..](#)

You've Selected Television &
High Speed Internet!

See Service Options >

Click



Your Services:
Television
High Speed
Internet

In-order to show you the right service options, we need some additional information.

[< Go Back](#)

What’s your name?

First Name

Last Name

[Why am I being asked this?](#)

Where will the service be located?

Address

City

State

Zipcode

[Why am I being asked this?](#)

[Cancel](#)

Continue to Service Options >



Your Services:
Television
High Speed
Internet

In-order to show you the right service options, we need some additional information.

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First Name

Last Name

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Where will the service be located?

Address

City

State


Zipcode

[Why am I being asked this?](#)

✓ **Service is available here!**

[Cancel](#)

Continue to Service Options >

 Click



Jack, Select your TV package

[< Go Back](#)

Your Name:
Jack Harrison

Service Location:
4313 Shoalwood ave
Austin Tx
78756

Your Services:
Television
Bundle 1:
80 Channels

<div>Selected !</div>	Channel Bundle 1	80 Channels		29.99/Month
<div>Select</div>	Channel Bundle 2	160 Channels	5 Premium Channels	39.99/Month
<div>Select</div>	Channel Bundle 3	200 Channels	20 Premium Channels	84.99/Month



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Want More Premium Content?

+ Add Basic Sports

+ \$10 /Month

abc FOX CNN ESPN ESPN ESPN ESPN ESPN ESPN ESPN ESPN

+ Add 24 Sports

+ \$10 /Month

abc FOX CNN ESPN ESPN ESPN ESPN ESPN ESPN ESPN ESPN ESPN

[More premium content options](#)

Want a Better Experience?

+ Add HD Quality

+ \$10 /Month

+ Add a DVR

+ \$10 /Month

[More experience options](#)

[Cancel](#)

[Internet Service Options >](#)



Jack, Select your TV package

[< Go Back](#)

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Bundle 2:
160 Channels
5 Premium Channels

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Selected !	Channel Bundle 2	160 Channels	5 Premium Channels	39.99/Month
Select	Channel Bundle 3	200 Channels	20 Premium Channels	84.99/Month



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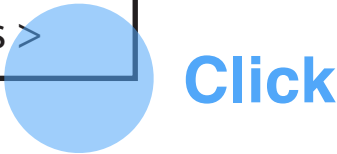
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+ \$10 /Month

[More experience options](#)

[Cancel](#)

Internet Service Options >





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4313 Shoalwood ave
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78756

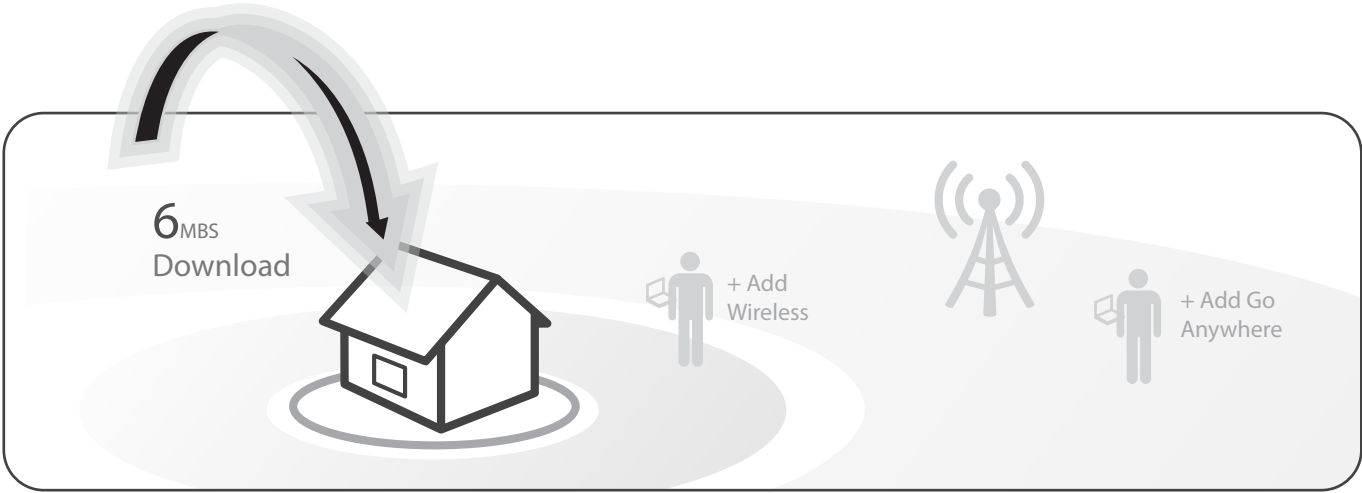
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Television
Bundle 2:
160 Channels
5 Premium Channels
+ HD Quality
+ Digital DVR

High Speed Internet

Data Package 1:
1.5mb Download
.75mb Upload

<div>Selected!</div>	Data Package 1	1.5 _{MBS} Download	.75 _{MBS} Upload	29.99/Month
<div>Select</div>	Data Package 2	6 _{MBS} Download	1 _{MBS} Upload	39.99/Month
<div>Select</div>	Data Package 3	15 _{MBS} Download	2 _{MBS} Upload	49.99/Month
<div>Select</div>	Data Package 4	25 _{MBS} Download	3 _{MBS} Upload	59.99/Month
<div>Select</div>	Data Package 5	50 _{MBS} Download	5 _{MBS} Upload	79.99/Month
<div>Select</div>	Data Package 6	100 _{MBS} Download	5 _{MBS} Upload	109.99/Month



Want a Better Experience?

- +

Add a wireless router

+ \$3 /Month
- +

Add Clear & Go Anwwhere

+ \$30 /Month

[More experience options](#)

[Cancel](#)

Schedule Installation >



Select your Internet package

[< Go Back](#)

Your Name:
Jack Harrison

Service Location:
4313 Shoalwood ave
Austin Tx
78756

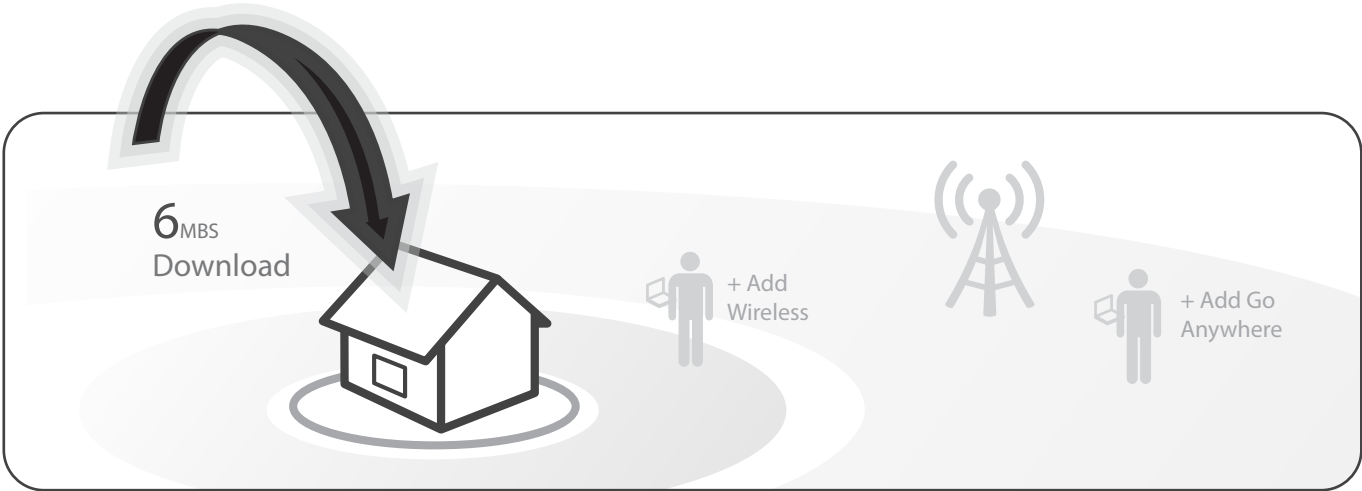
Your Services:

Television
Bundle 2:
160 Channels
5 Premium Channels
+ HD Quality
+ Digital DVR

High Speed Internet

Data Package 2:
6mb Download
1mb Upload

Select	Data Package 1	1.5 _{MBS} Download	.75 _{MBS} Upload	29.99/Month
Selected !	Data Package 2	6 _{MBS} Download	1 _{MBS} Upload	39.99/Month
Select	Data Package 3	15 _{MBS} Download	2 _{MBS} Upload	49.99/Month
Select	Data Package 4	25 _{MBS} Download	3 _{MBS} Upload	59.99/Month
Select	Data Package 5	50 _{MBS} Download	5 _{MBS} Upload	79.99/Month
Select	Data Package 6	100 _{MBS} Download	5 _{MBS} Upload	109.99/Month



Want a Better Experience?

- + Add a wireless router + \$3 /Month
- + Add Clear & Go Anwwhere + \$30 /Month

[More experience options](#)

[Cancel](#)

Schedule Installation >

Click



Choose how and when to get your service

[< Go Back](#)

Your Name:
Jack Harrison

Service Location:
4313 Shoalwood ave
Austin Tx
78756

Your Services:

Television
Bundle 2:
160 Channels
5 Premium Channels
+ HD Quality
+ Digital DVR

High Speed
Internet
Data Package 2:
6mb Download
1mb Upload

Select	Self Install Kit	5-7 Business days	One Time Charge	29.99
Selected !	In-home Installation	Select a day & time	One Time Charge	39.99

◀ December ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Click

[Cancel](#)

Checkout >



Choose how and when to get your service

[< Go Back](#)

Your Name:
Jack Harrison

Service Location:
4313 Shoalwood ave
Austin Tx
78756

Your Services:

Television
Bundle 2:
160 Channels
5 Premium Channels
+ HD Quality
+ Digital DVR

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Internet

Data Package 2:
6mb Download
1mb Upload

Select	Self Install Kit	5-7 Business days	29.99
Selected !	In-home Installation	Select a day & time	One Time Charge 39.99

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17

16 Friday
December 16

Choose a time:

8-11 am

11-1 pm

1-3 pm

3-5 pm

5-7 pm

18	19	20	21	22	23	24
25	26	27	28	29	30	31

[Cancel](#)

Checkout >

Click



Shop

Products and Services

Corporate Info

Help

Your Name:
Jack Harrison

Service Location:
4313 Shoalwood ave
Austin Tx
78756

Your Services:
Television

Bundle 2:
160 Channels
5 Premium Channels
+ HD Quality
+ Digital DVR

High Speed
Internet

Data Package 2:
6mb Download
1mb Upload

Installation:
Friday, Dec 16
8 - 11am

Your order is complete!
Your order confirmation number is 3849293 - [Print confirmation](#)

2 Days 1 Hour

Countdown to Installation

[Reschedule Installation](#)
[Modify your services](#)

Cant Wait?

Watch Now Online

The hero flow establishes the user's expectations for future interactions

While there are common conventions for how interface components are “put together” on the canvas, the use, selection, and arrangement of controls is an art.

Following the convention will not guarantee success.

Digitize the remaining hero flows. Pay attention to navigation, buttons, placement, type, etc..

Tips & Tricks

- This is an iterative process, expect 10 - 20 iterations on your wireframes
- With each new flow, tweak previous flows for consistency
- It's ok to be traditional, novel controls and experiences get old fast
- Look at Pinterest and Dribbble for examples of controls and interaction patterns
- Micro interactions by Dan Saffer is a great resource

Next..

Check your assumptions by testing with real users

Tips & Tricks

- Test early and often - after the first or second iteration of your digital wireframe
- You'll need to create each "step" in the sequence in-order to use the think-a-loud method
- Don't gloss over any step - You will miss something

Think-a-loud Testing

Evaluating the usability of your work by encouraging a person to think out loud as they use your product or service.

Think-a-loud Testing

Evaluating the usability of your work by encouraging a person to think out loud as they use your product or service.

Think A loud Testing

- Is evaluative, in that it responds to an existing artifact
- Identifies defects that impact comprehension
- Is considered a “quick and dirty” method
- Requires interaction with real users
- Can be done with digital or paper prototypes



Background: Allen Newell & Herb Simon

- 1972 Newell & Simon wanted to understand how people solve problems - to simulate human problem solving: AI
- Developed experiments where participants “verbalized their thoughts as they go about a task”
- Found that people can successfully verbalize their reasoning, while performing a task, without changing the outcome of the task. (As long as there is no introspection)
- **Put another way, this is a way of understanding the contents of working memory.**



Planning a user testing session

1. Create a prototype

- You'll need all of the screens that a user will see completed, but they don't need to be working - do it with paper!

Planning a user testing session

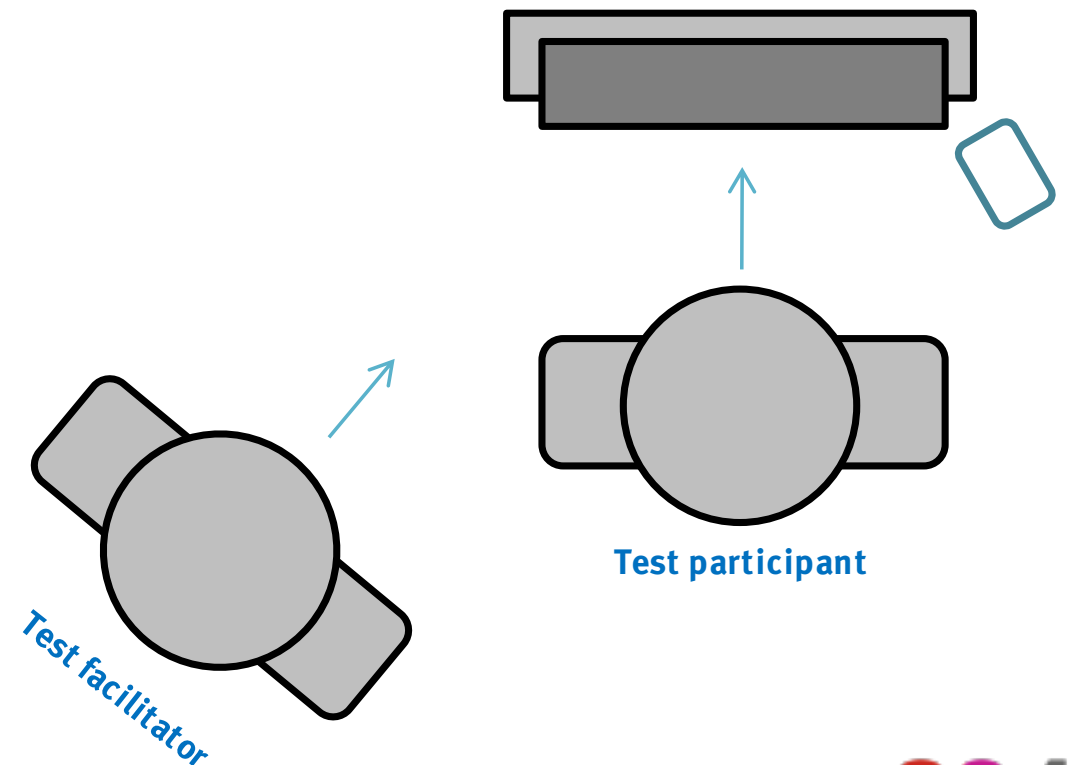
1. Create a prototype
2. Develop tasks that represent real user goals
 - Use your hero flows - (this is why we design with real data)
 - There must be a complete path through the interface
 - Print the tasks on a sheet

Planning a user testing session

1. Create a prototype
2. Develop tasks that represent real user goals
3. Schedule sessions with users that match the target audience
 - 2 - 8 users, one per session
 - Diminishing returns after 6 - 8 people

Planning a user testing session

1. Create a prototype
2. Develop tasks that represent real user goals
3. Schedule sessions with users that match the target audience
4. Organize yourself
 - Audio record your session (make sure you have batteries)
 - Get written consent to record
 - Set up the environment



Planning a user testing session

1. Create a prototype
2. Develop tasks that represent real user goals
3. Schedule sessions with users that match the target audience
4. Organize yourself
5. Start by explaining the rules
 - Who you are & what you are doing
 - That you are testing an interface and not them
 - They can quit at any time
 - That you won't be able to help them
 - You require them to keep talking, and you will remind them to "please keep talking" if they fall silent
 - To simply verbalize what they are doing, as they are doing it

Planning a user testing session

1. Create a prototype
2. Develop tasks that represent real user goals
3. Schedule sessions with users that match the target audience
4. Organize yourself
5. Start by explaining the rules
6. Run the session
 - Take notes!
 - If the user falls silent for 3 seconds, prompt them to “please keep talking”
 - Do not help them complete a task - prompt them to try what they think is correct if they ask for help
 - Do not defend your designs - this is not a critique of your skills; don’t even mention that these are your designs

Do not say things like:

Please explain what you are doing

Note any design problems

Tell us if you have any suggestions

Why are you doing what you are doing

By asking questions like this, we call into play Mediated Processes, such as cognitive processes, which can disrupt the information state and alter the data. Specifically we lose track of what was in working memory, and replace it with something else.

Planning a user testing session

1. Create a prototype
2. Develop tasks that represent real user goals
3. Schedule sessions with users that match the target audience
4. Organize yourself
5. Start by explaining the rules
6. Run the session
7. Identify critical incidents

Some examples of a critical incident:

- The user articulates a goal and cannot succeed in attaining that goal within two minutes
- The user articulates a goal, tries several things and explicitly gives up
- The user articulated a goal and has to try three or more things before finding a solution
- The user does not succeed in the task
- The user expresses surprise
- The user expresses some negative sentiment, either about the interface or about their own skills
- The user makes a design decision

This is an iterative process!

Expect to design and test 4 - 5x

Recap

- Provide a frame of reference in the process and theory of interaction design
- Raising the fidelity of an idea; Scenarios, Wireframes, and Paper Prototypes
- Quick and dirty testing via Think-a-loud testing
- Additional resources to help you make sense of your problem and build compelling user interfaces

Additional Resources

- Exposing the magic of design - *Jon Kolko*
- Micro Interactions - *Dan Saffer*
- <http://library.ac4d.com/>
- www.matt-franks.com/presentations

Thanks!