

Top Ten Tips for Mobile App Development



David Elam
Senior Software Engineer
Consumer Applications Manager

March 2015

Leadership Team: Technology and Payments Experts

Executive Team



DANNY SHADER

- Accept.com
- Good Technology (Motorola)



KURT THAMS

- Euronet



STEVE CAPPS

- Apple
- Microsoft



JOTAKA EADDY

- NAACP
- USAction



SCOTTY PERKINS

- FedEx Kinko's



MICHAEL TIBBOTT

- Apple
- Excite



BRENDA SWINEY

- PwC
- Lucent Alcatel

Board Advisors



BILL CAMPBELL

- Intuit – Chairman
- Apple & Google – Advisor



BEN JEALOUS

- Kapor Capital – Partner
- NAACP – former President and CEO

Investors:



AUGUSTCAPITAL

khosla ventures

maveron

true ventures

We process hundreds of millions of dollars,
representing millions of transactions
for thousands of merchants.



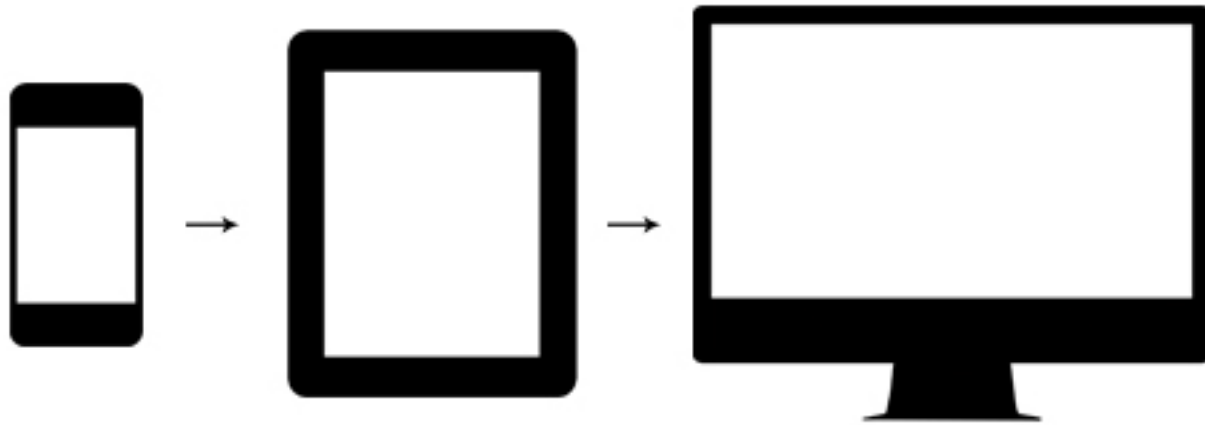
Thousands of Businesses Rely on PayNearMe



Nebraska Child Support Payment Center

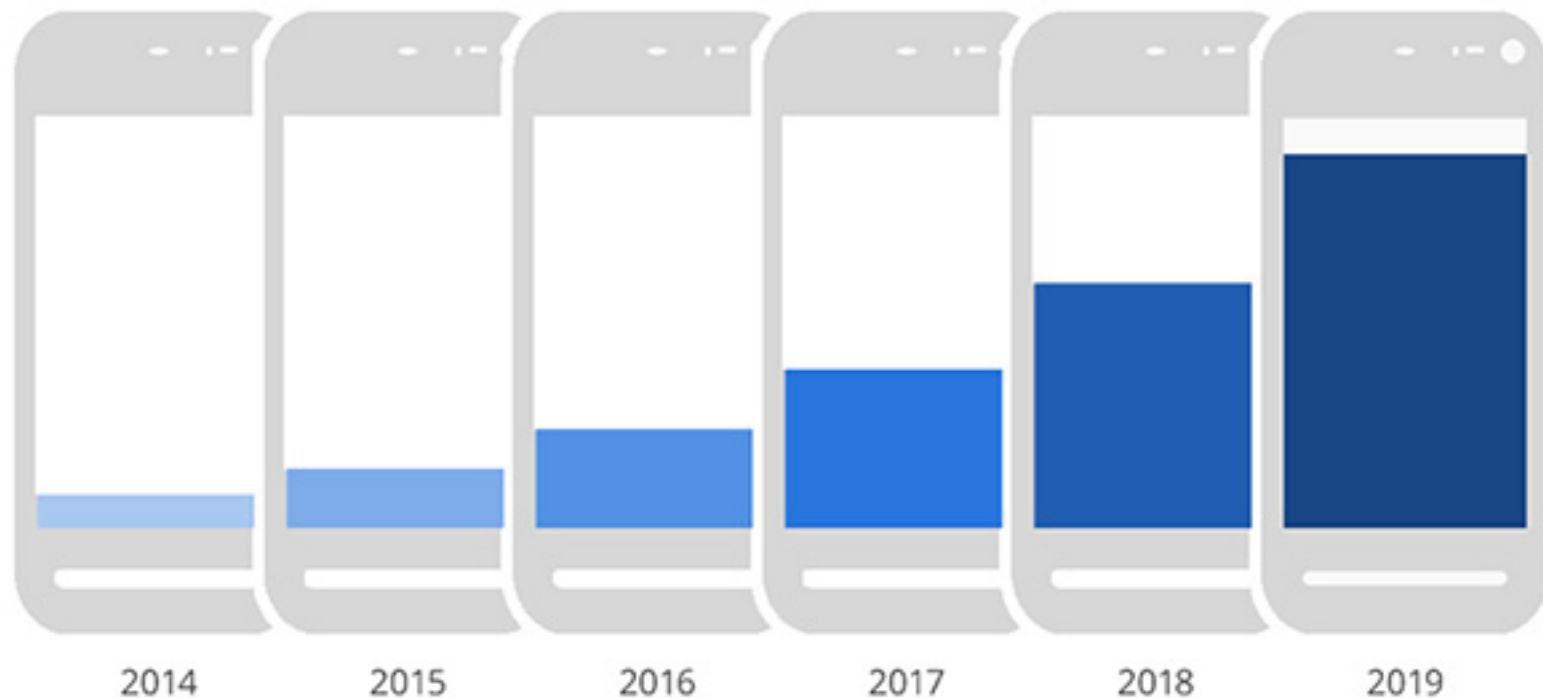


We Want To Be Mobile First



- By 2020, 80% of the global adult population will own a smartphone
 - The Economist

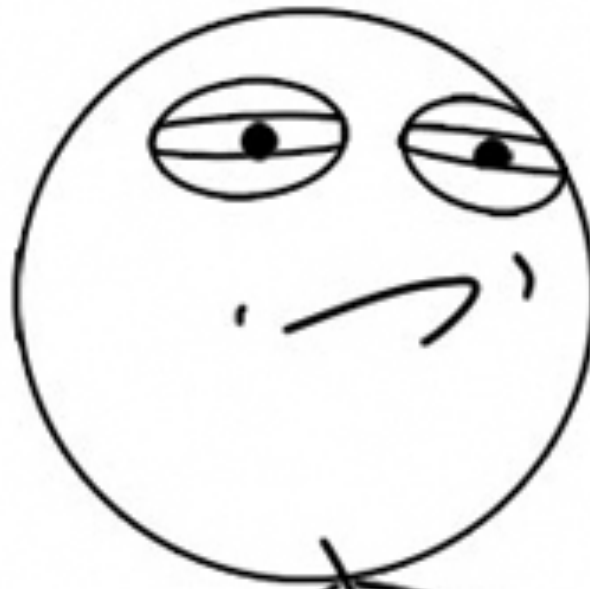
We Want To Be Mobile First



- By 2020, smartphone traffic will increase tenfold
 - statista

We Want To Be Mobile First

CHALLENGE ACCEPTED



LET'S CODE IT

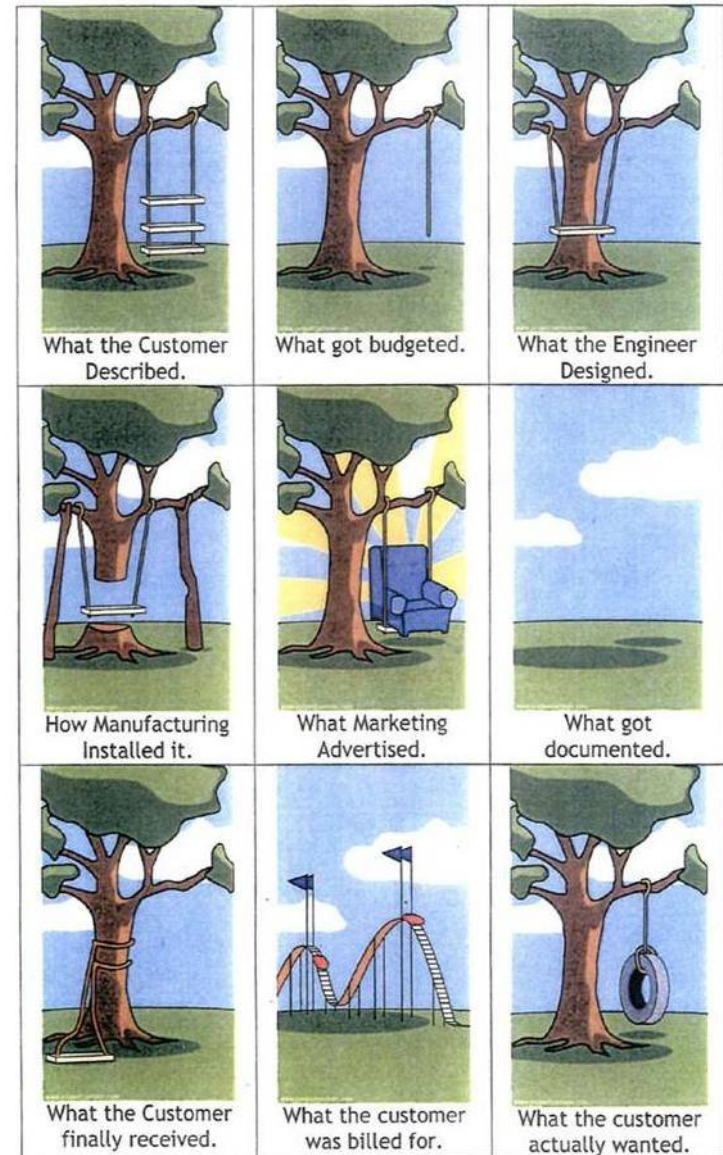
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Top Ten Tips for Mobile Application Development



#1 Get a Mobile Product Strategy

What does your customer want?





Average
consumer pays

20

bills per month



11%

of bill-payment value
collected

in person

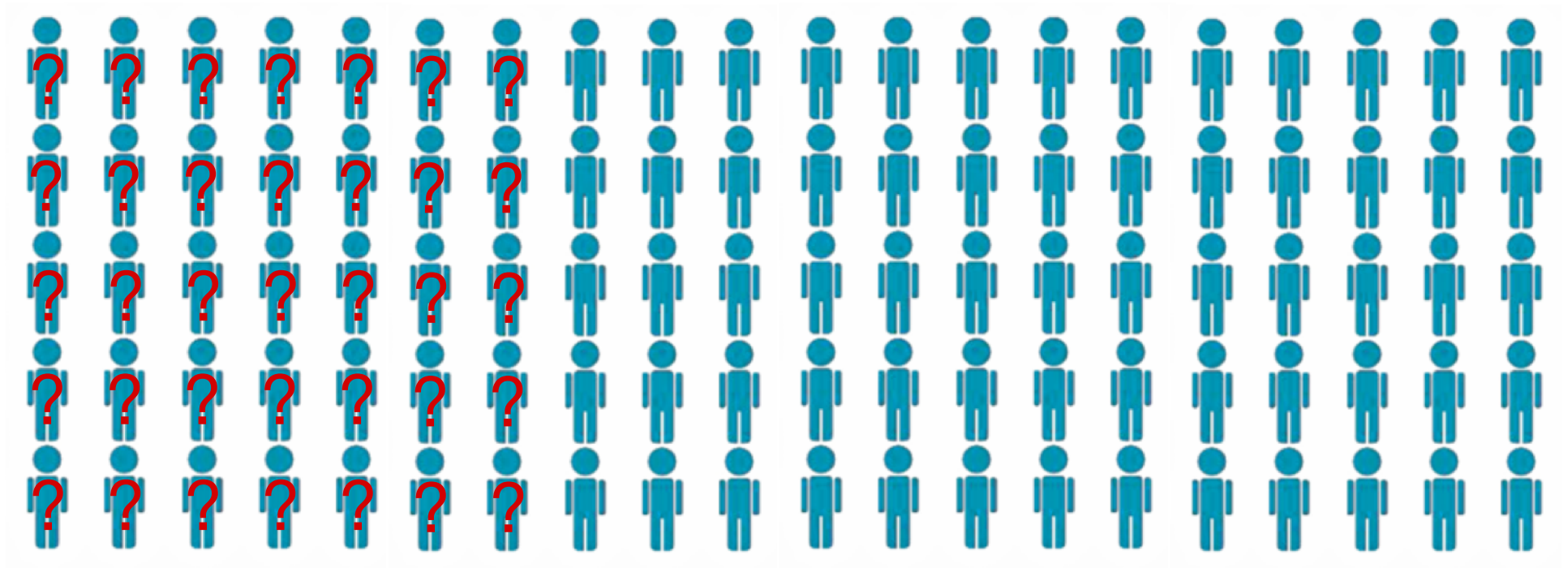
28%

of Americans
are un/
underbanked

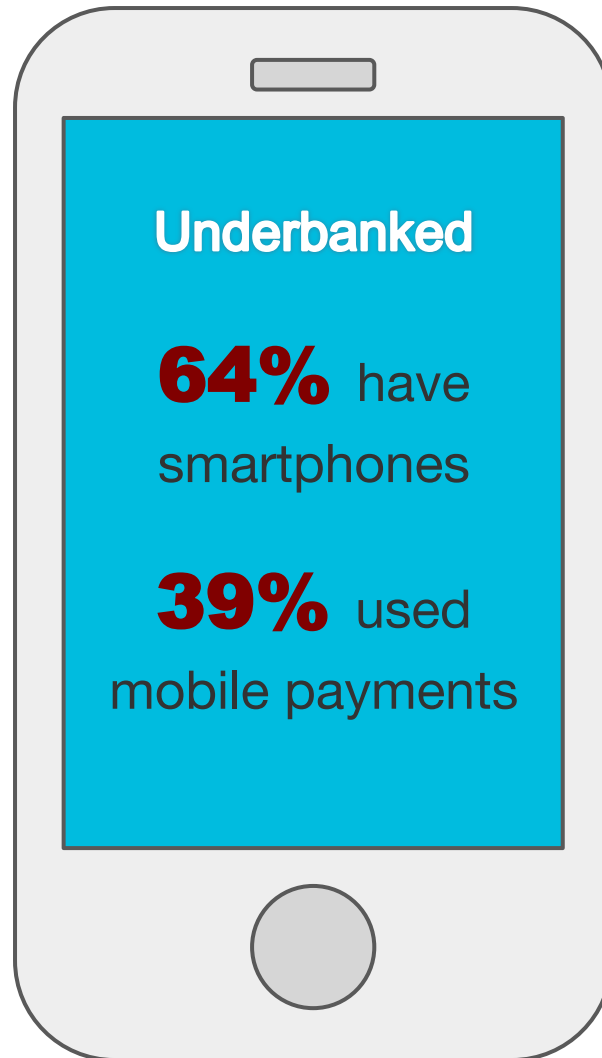
How can they pay their bills

if they **don't have the same access**

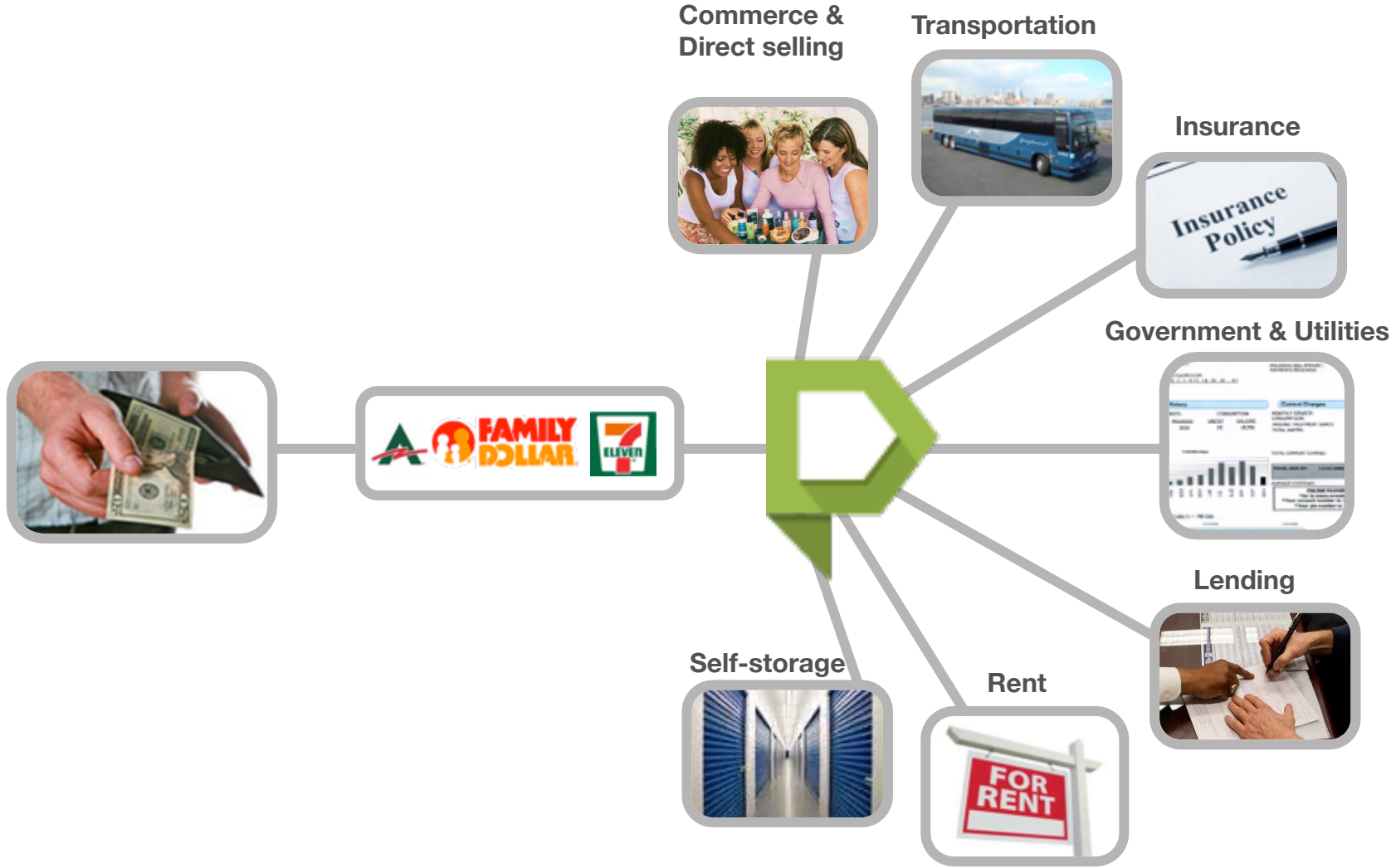
as those with bank accounts and credit cards?



The Underbanked Are Mobile-Savvy

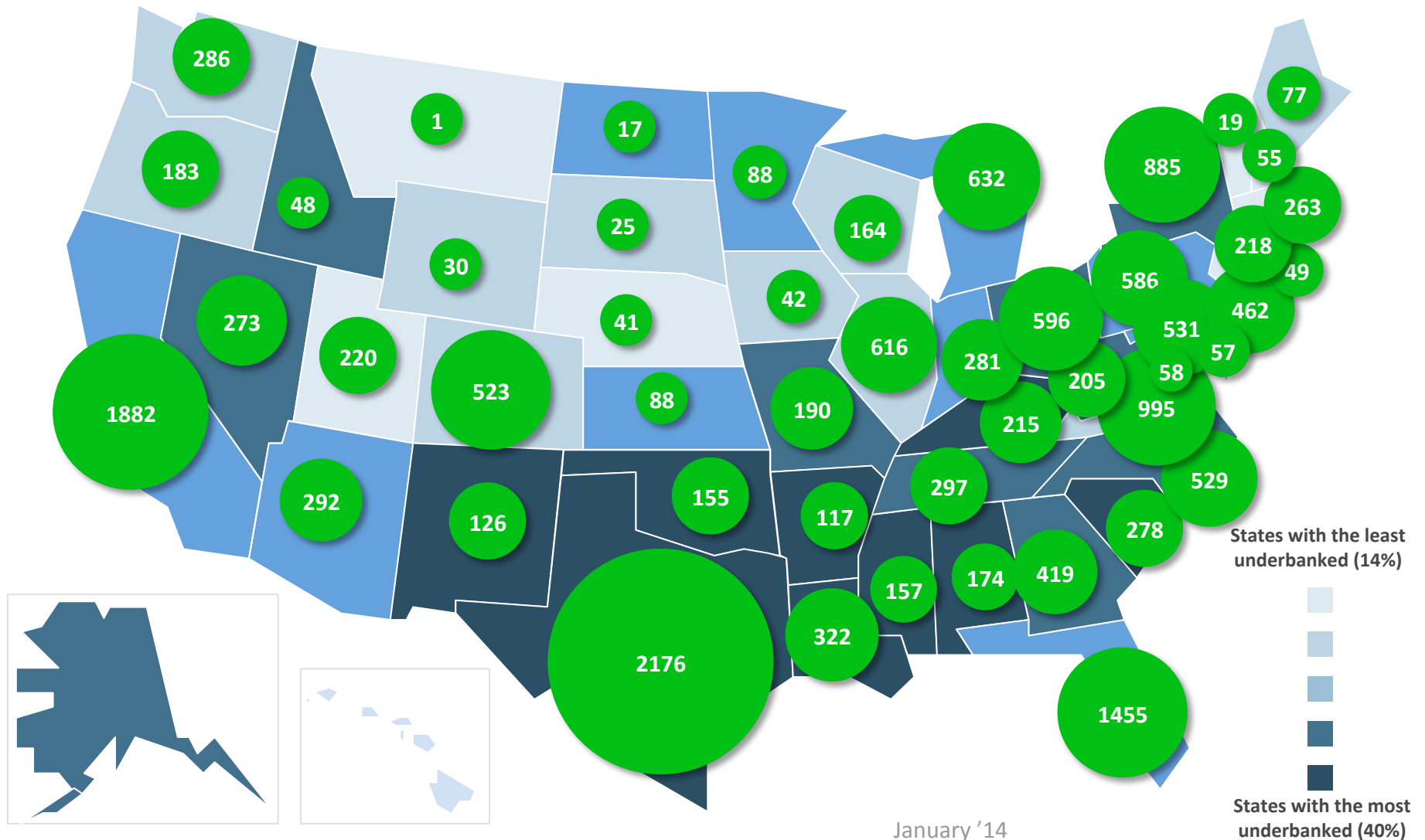


PayNearMe: Electronic Cash-Transaction Network





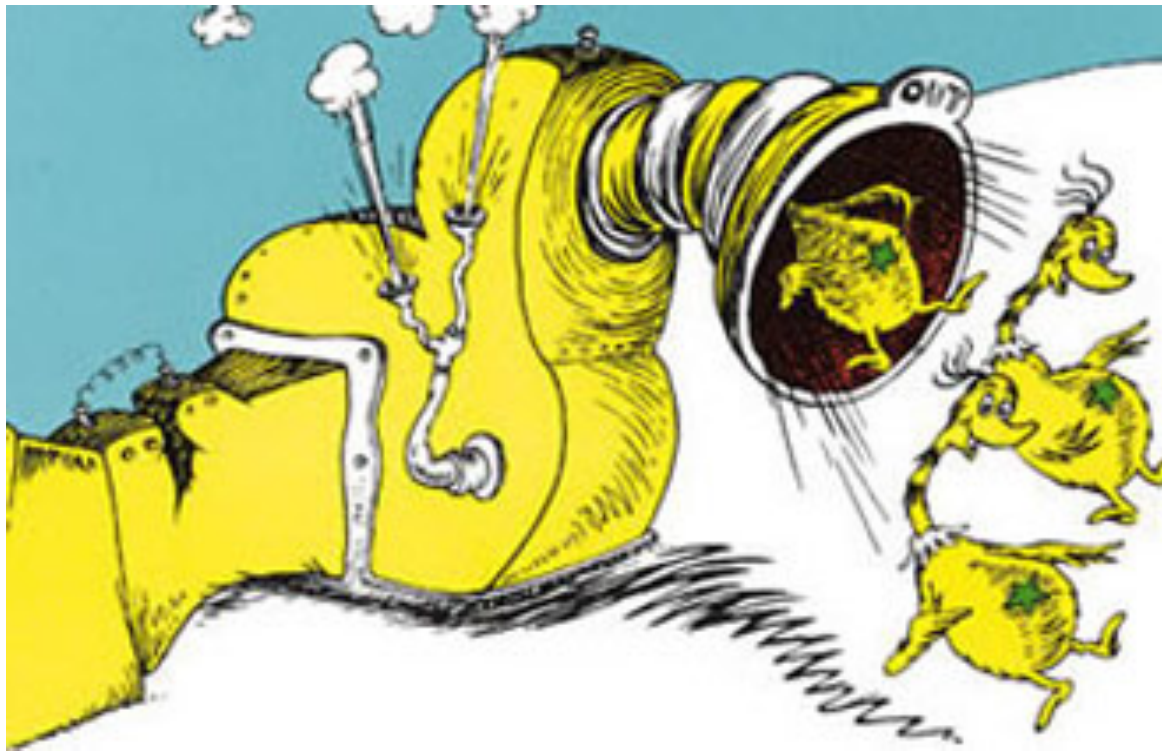
17,400 Trusted Payment Locations



January '14

#1 Get a Mobile Product Strategy

- Capture customers to pay bills

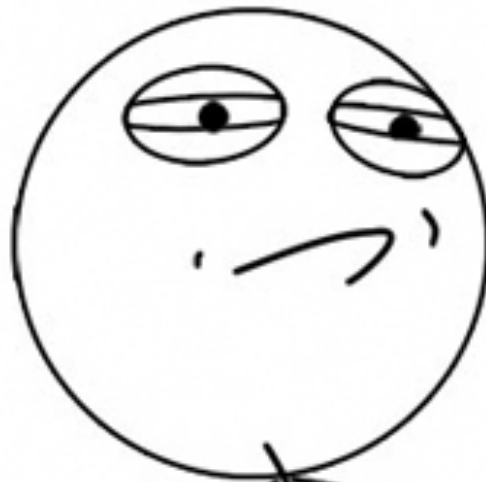


#1 Get a Mobile Product Strategy

- Demo

#1 Get a Mobile Product Strategy

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#2 Build a Great Team

- “People are our most important asset”
- Marc Andreessen “What's most dangerous: a bad team, a weak product, or a poor market?”

#2 Build a Great Team

- How do we get a happy/highly productive team
 - Adopt an agile framework
 - Monday Planning
 - Daily Standups
 - Every other Wednesday pencils up for a release candidate
 - Every other Friday security review
 - Friday show and tell
 - Retrospective

#2 Build a Great Team

- How Do We Get to Happy/Highly Productive
 - Put the tools and processes in place for your team to be successful
 - [Jira](#)
 - Bug tracking
 - Backlog management
 - Sprint board

#2 Build a Great Team

- How Do We Get to Happy/Highly Productive
 - Get people to talk to each other
 - Pair Program
 - Share a screen (Screenhero)

#2 Build a Great Team

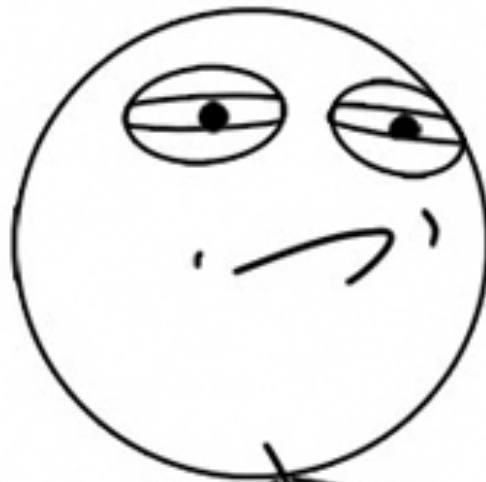
- How Do We Get to Happy/Highly Productive
 - Pay well
 - Give them a slice of the pie/skin in the game
 - Say “Thank You”

#2 Build a Great Team

- “Always be closing” – Glengarry Glen Ross
- 2 Mobile Senior Software Engineer positions available
- 1 QA Automation Engineer position available

#2 Build a Great Team

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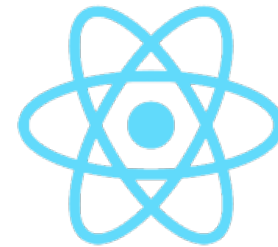
#3 Understand Mobile Technology

- Native rules but changes quickly



#3 Understand Mobile Technology

- The rise of Javascript Frameworks



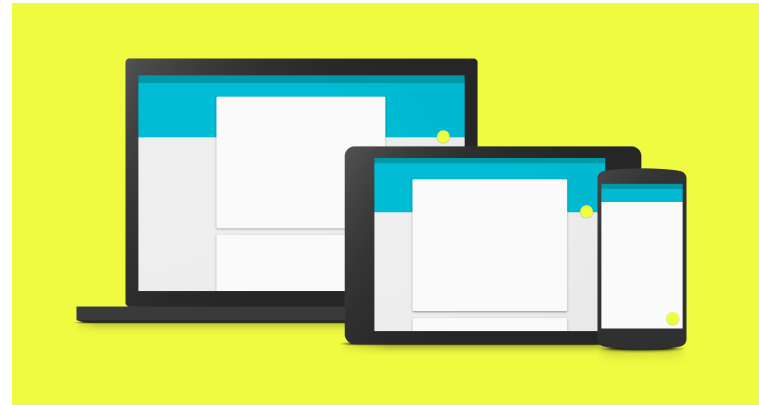
React



PhoneGap

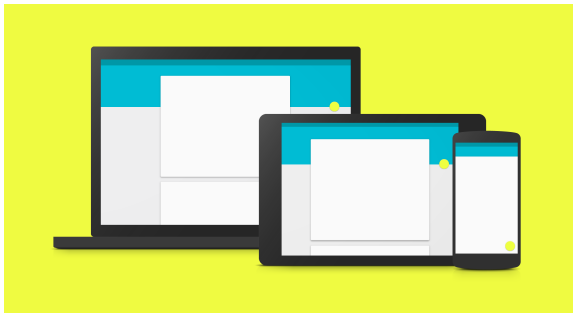
#3 Understand Mobile Technology

- The rise of UI Frameworks



#3 Understand Mobile Technology

- The rise of UI Frameworks

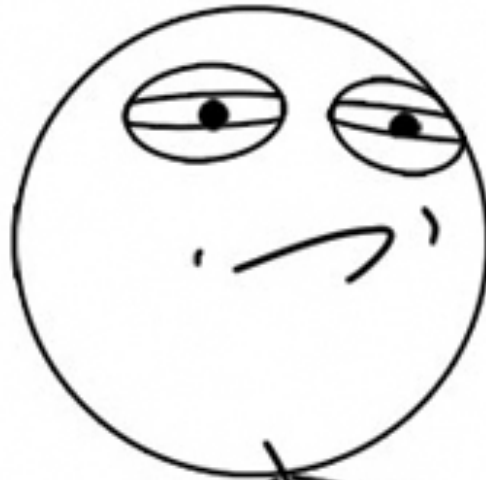


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#3 Understand Mobile Technology

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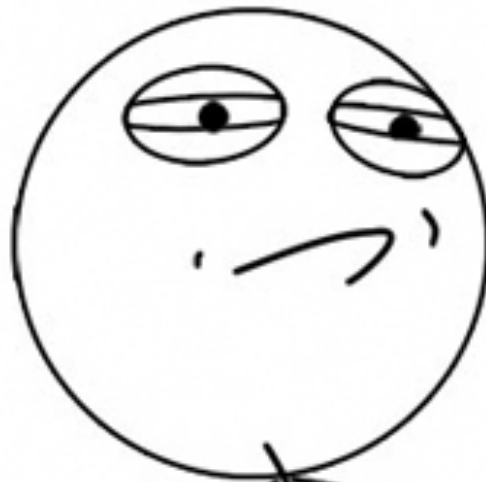
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#4 Prototype



#4 Prototype

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#5 Architect for Native vs Cross Platform Development

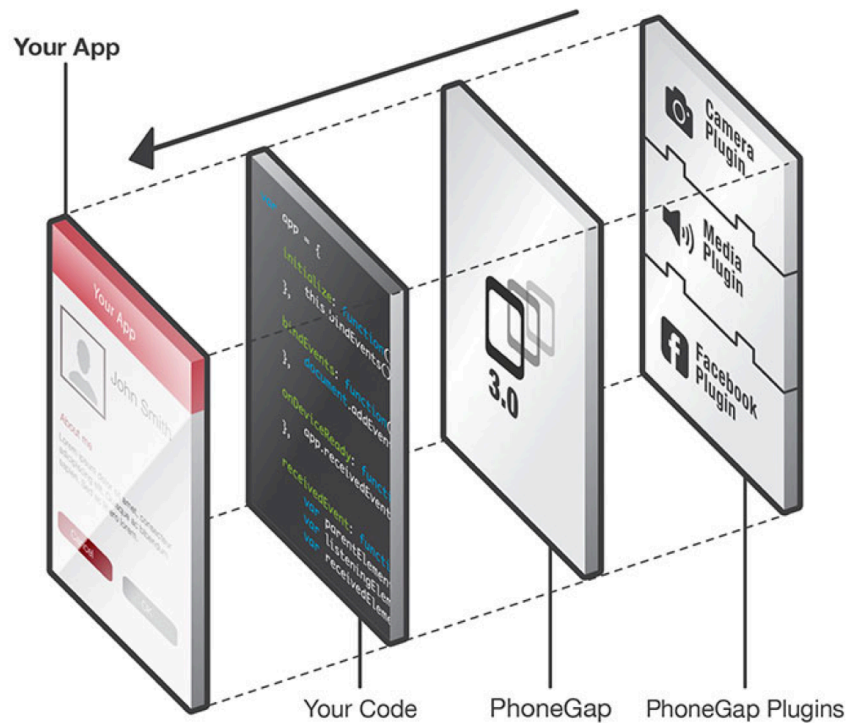
- Mobile platforms
 - Native iOS
 - Native Android
 - iOS web in Safari
 - Android web in native browser, Chrome, etc
 - * Desktop web for our customers

#5 Architect for Native vs Cross Platform Development

- Native options
 - Pure native
 - All code is native
 - Pure Hybrid (Ionic: AngularJS/Cordova/PhoneGap)
 - CSS/HTML/JS compiled into a native application
 - Navigation, tabs, sidebar, etc are HTML
 - Native/Hybrid
 - Navigation, tabs, sidebar, search, lists, maps are native
 - HTML5/CSS3 displayed in web views served from the phone

#5 Architect for Native vs Cross Platform Development

- Native/Hybrid Architecture

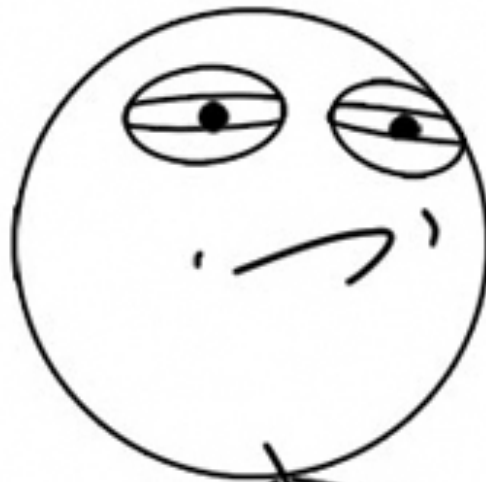


#5 Consider Native vs Cross Platform Development

- Pros and Cons
- Pure Native
 - Most popular. Takes full advantage of the device.
 - Have to write code three times: iOS, Android and web
- Pure Hybrid
 - Easy development. All code is shared. Runs anywhere.
 - Doesn't take full advantage of the device
- Native/Hybrid
 - Lets web do what web does well. Lets native do what native does well
 - PhoneGap can be flaky

#5 Consider Native vs Cross Platform Development

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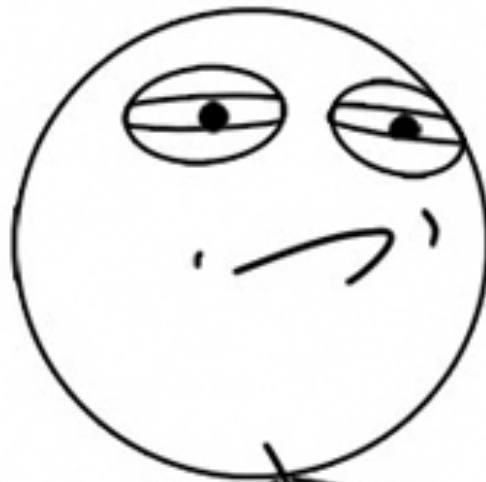
#6 Keep it DRY

- Don't Repeat Yourself



#6 Keep it DRY

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#7 Focus on Architecture and Design

- Design and object model
- Design an API to expose your object model
 - Restful/Resourceful
 - CORS
 - Authentication/Authorization
 - Stateless; Token based authentication
 - Versioning and backwards compatibility
 - Security
 - Slice all incoming request parameters
 - Whitelist all JSON output
 - [Create a testbed](#)
 - Swagger
 - Spec test everything

#7 Focus on Architecture and Design

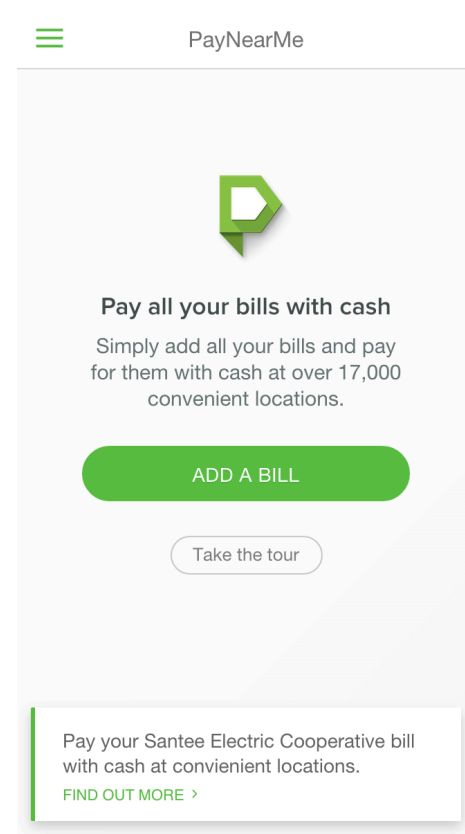
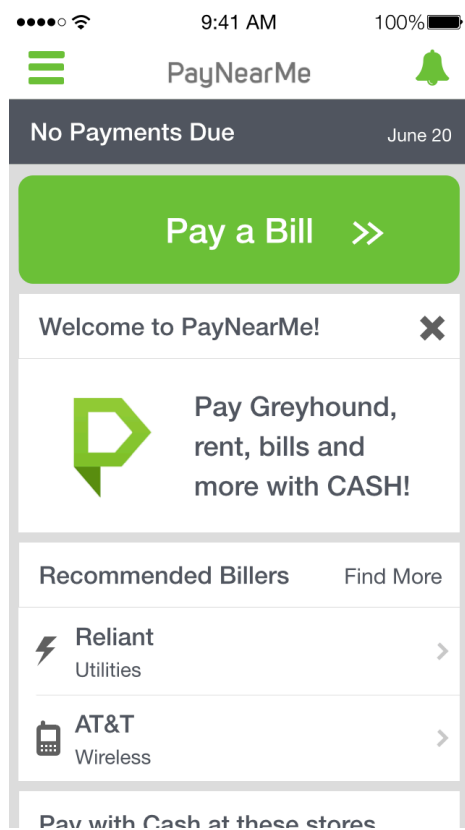
- Choose your libraries carefully
 - Persistence
 - Encryption?
 - SqlLite
 - ORM (Object Relational Mapping)
 - CoreData
 - JsonCache
 - Active Android

#7 Focus on Architecture and Design

- Performance Performance Performance
 - Cache
 - Internet connectivity

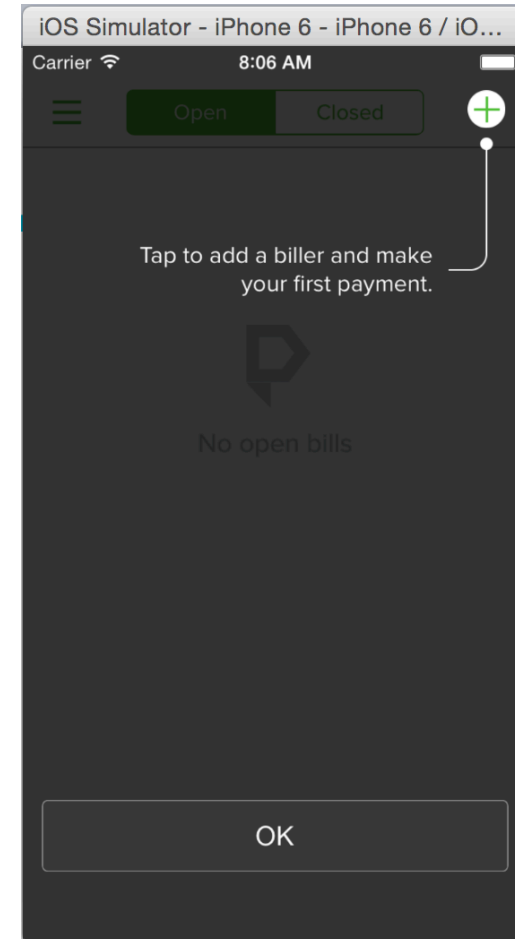
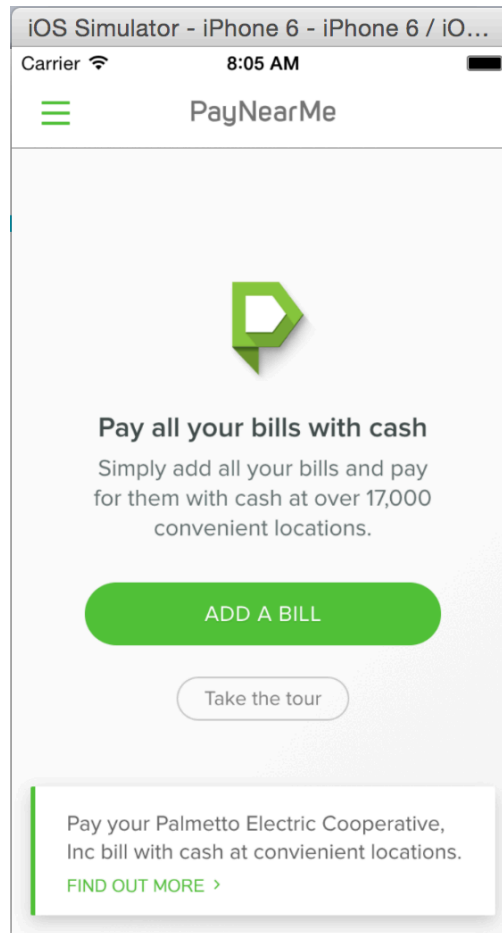
#8 Iterate

- Go back to your design



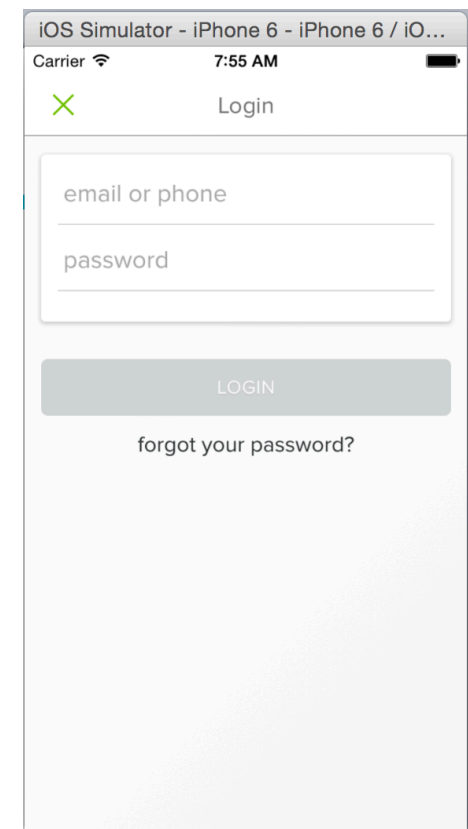
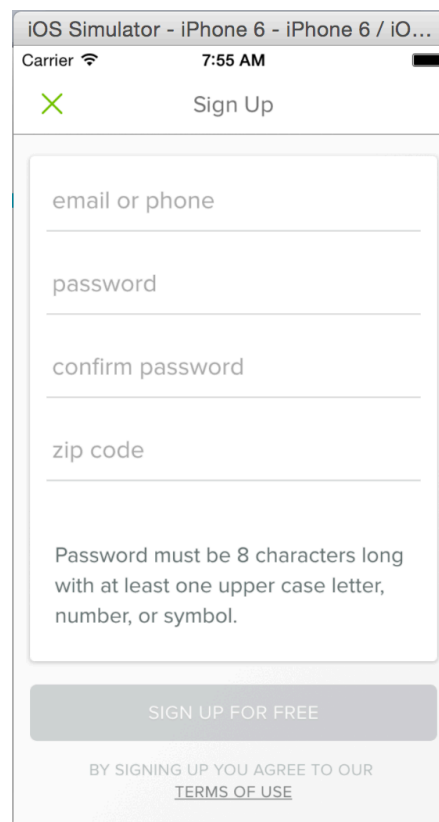
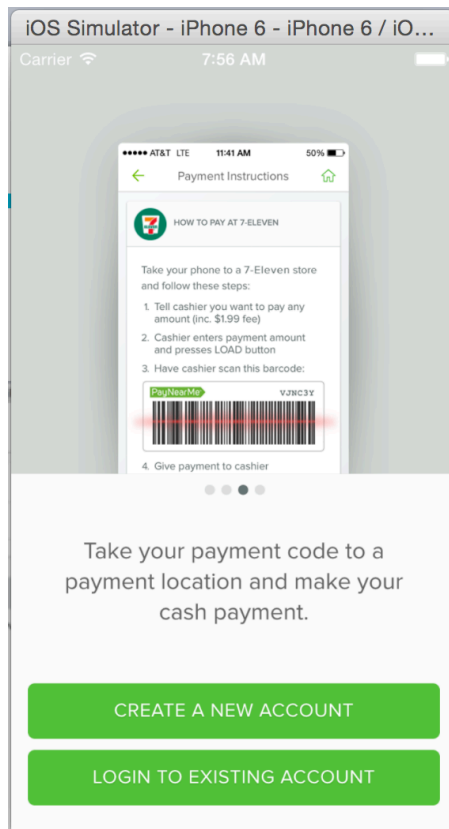
#8 Iterate

- CTA's (Call to Action) & Coachmarks



#8 Iterate

- Determine how to remove friction
 - Registrations/Login



#8 Iterate

- FTUE (First Time User Experience)
 - Show the flow
 - Highlight what's coming
 - Demo

#9 Automate

- Automate as much as you can
- Pick naming conventions that stand the test of time
- Branch, tag, and release

#10 Focus on Quality

- QA



- TTD



- Continuous integration



Jenkins

Summary

- #1 Get a Mobile Product Strategy
- #2 Build a Great Team
- #3 Understand Mobile Technology
- #4 Prototype
- #5 Consider Native vs Cross Platform Development
- #6 Keep it DRY
- #7 Focus on Architecture and Design
- #8 Iterate
- #9 Automate
- #10 Focus on Quality

Summary

- Mobile development is hard
- Follow these tips to make it a little less hard

Postscript

- Each topic is huge
- Charleston needs a mobile community
- Let's build one! Meet up?

David Elam

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