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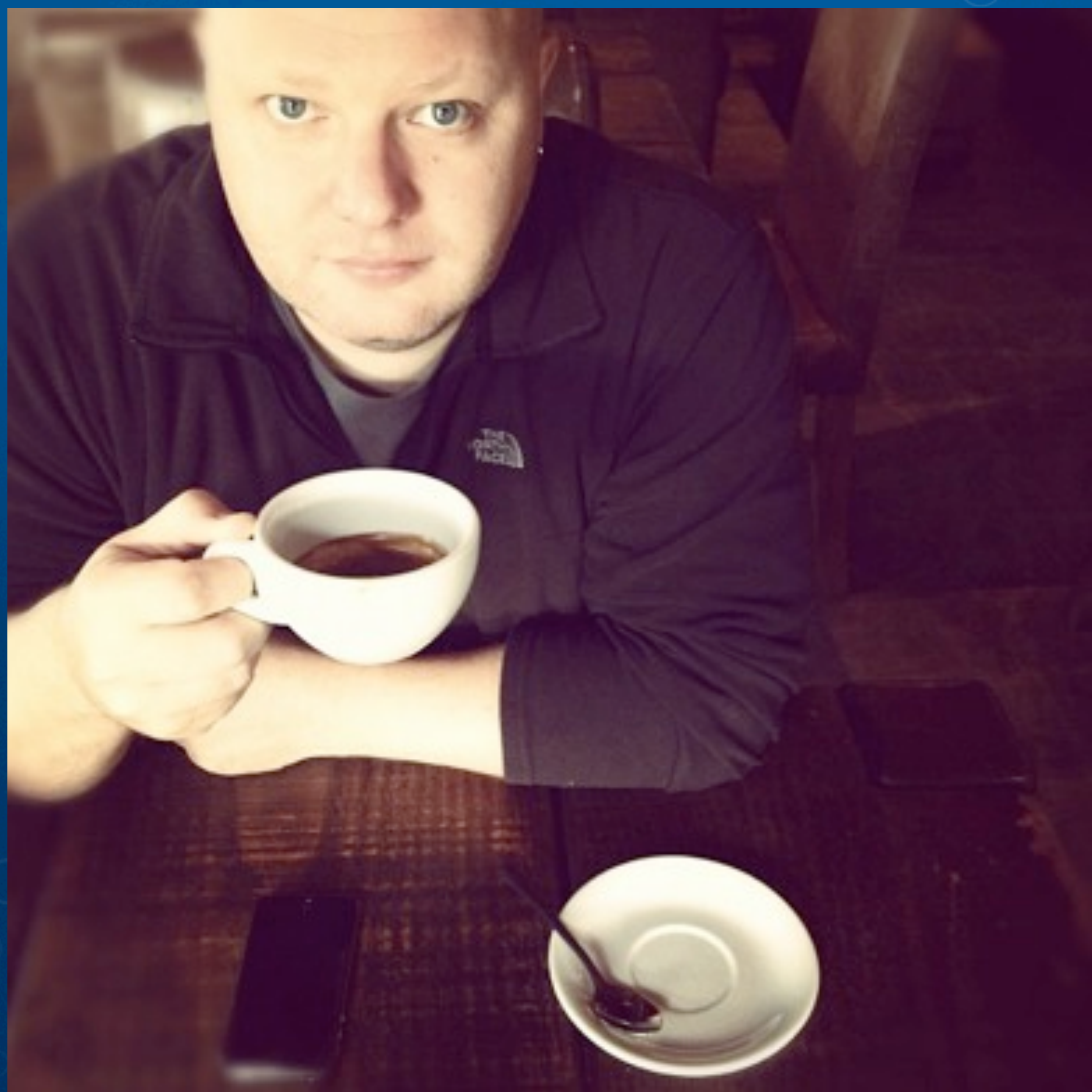
Fast UI Creation with MonoTouch Dialog

Xamarin
EVOLVE 2013

Nic Wise



e. nicw@fastchicken.co.nz
t/a. @fastchicken
b. http://www.fastchicken.co.nz

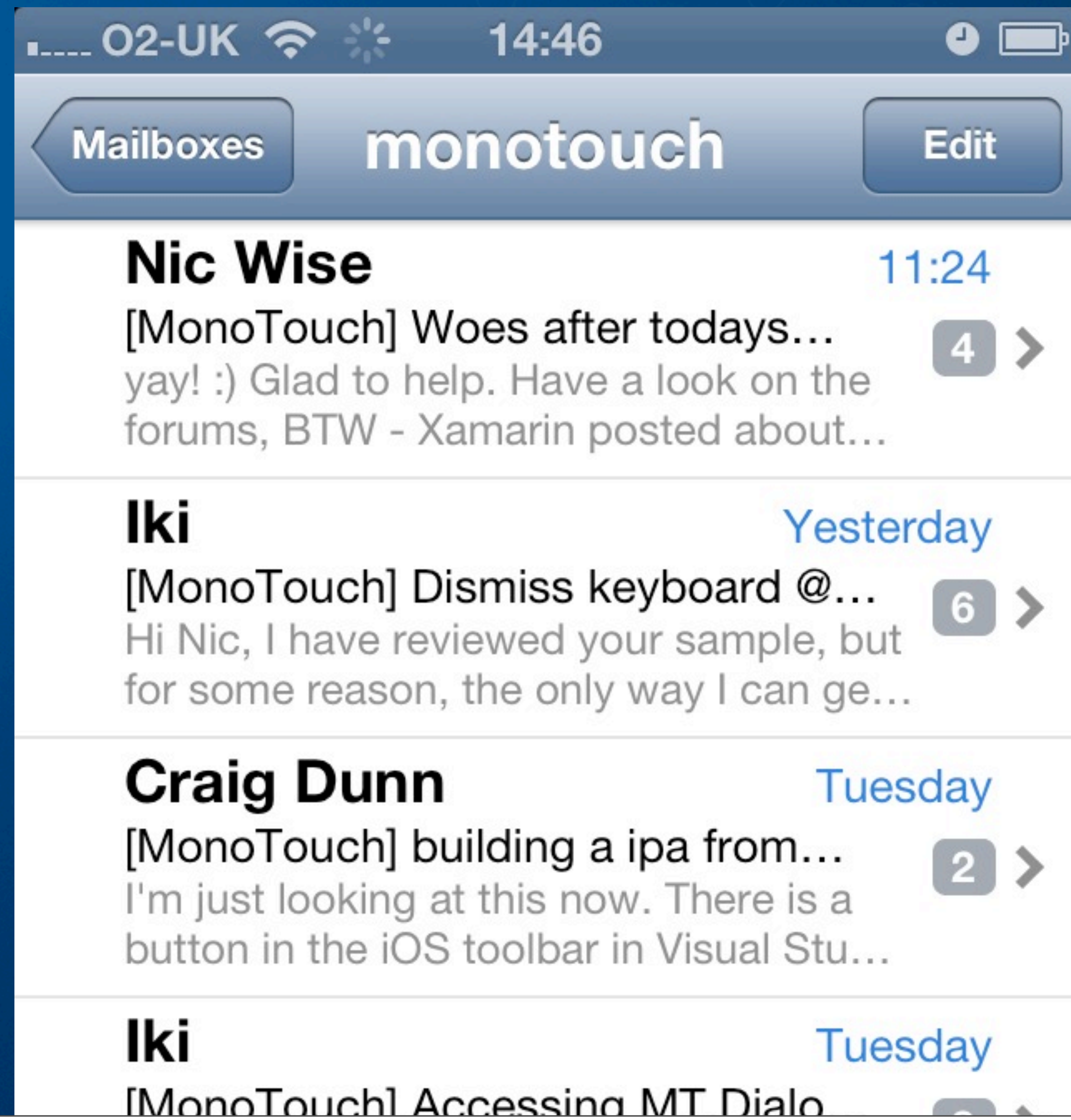
Full source and slides will be on GitHub.

Overview

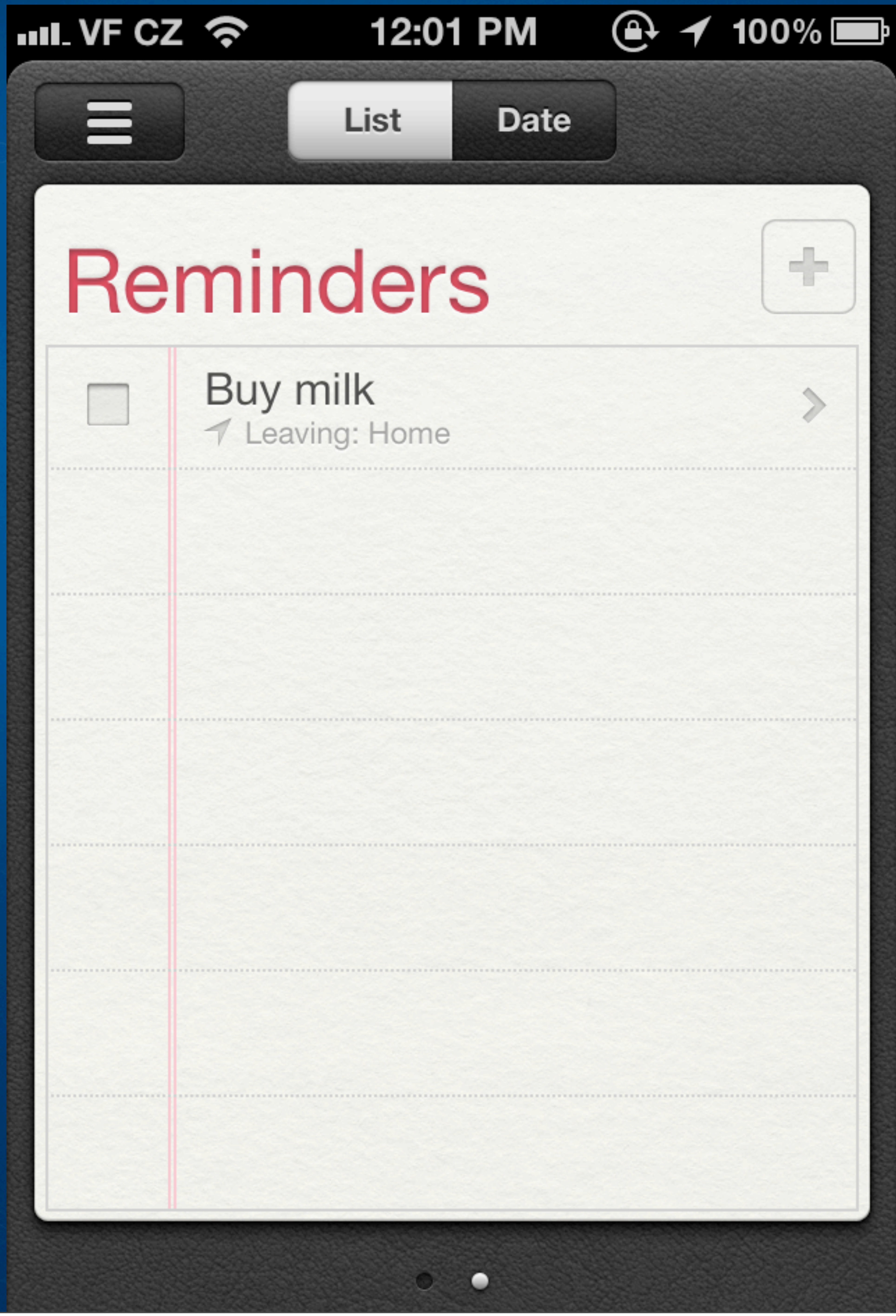
- Overview - what are we trying to solve here?
- The iOS way - UITableView(Controller)
- The easy way - MonoTouch.Dialog
- Elements
- Styling

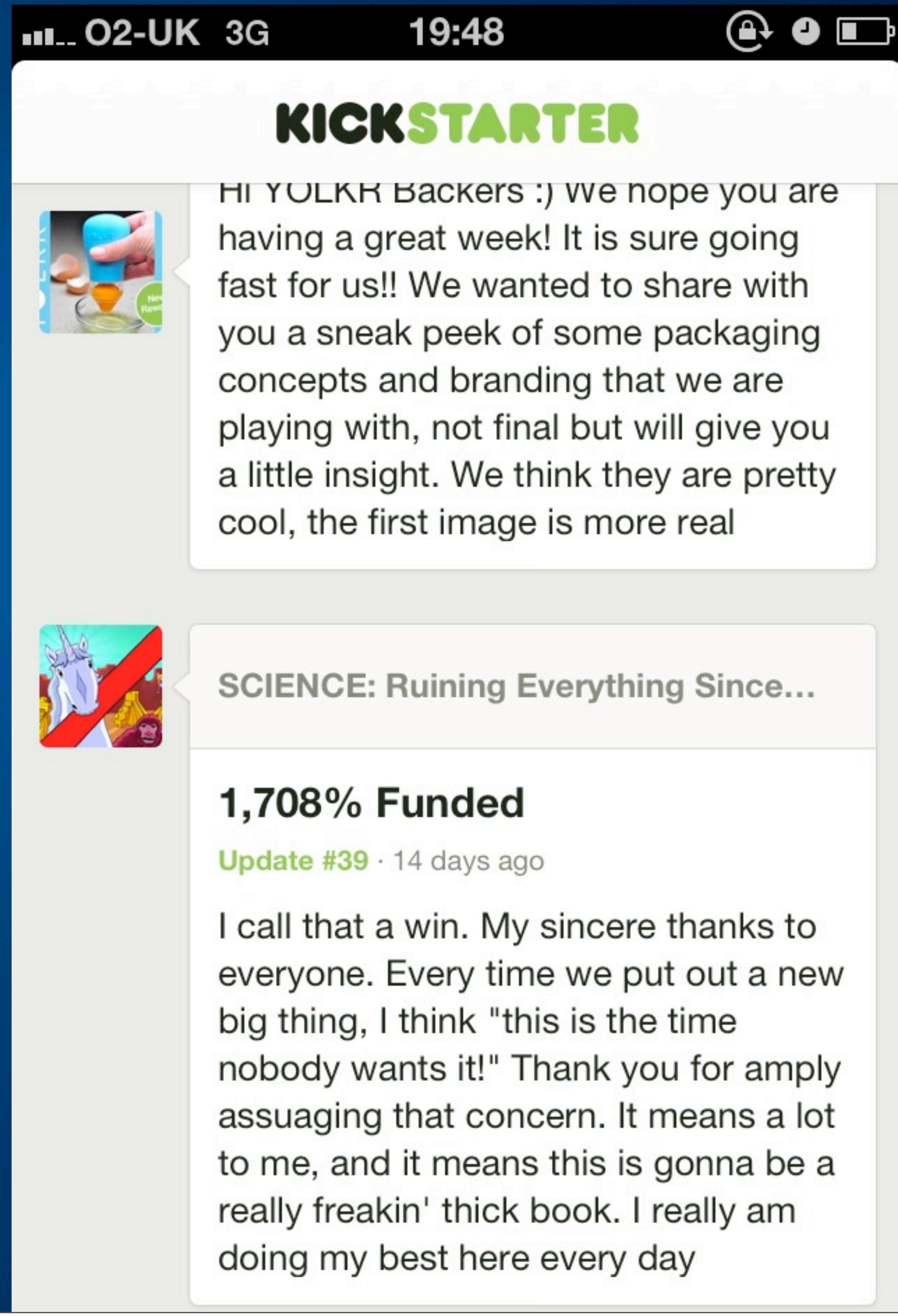
Lists

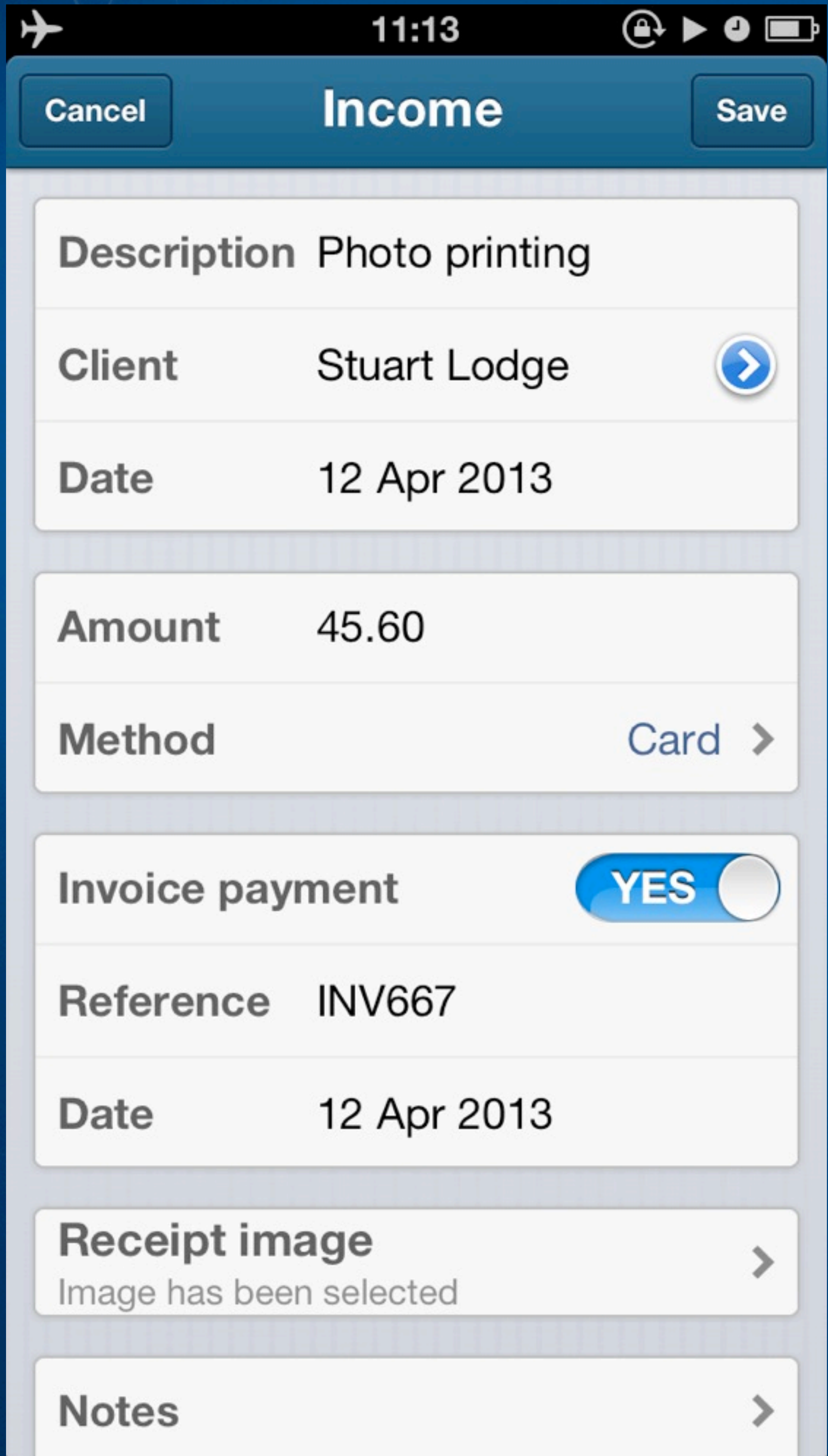
O2-UK
14:45
Settings
Airplane Mode
OFF
Wi-Fi
THECOOP
Bluetooth
Off
Personal Hotspot
Off
VPN
OFF
Carrier
O2 - UK



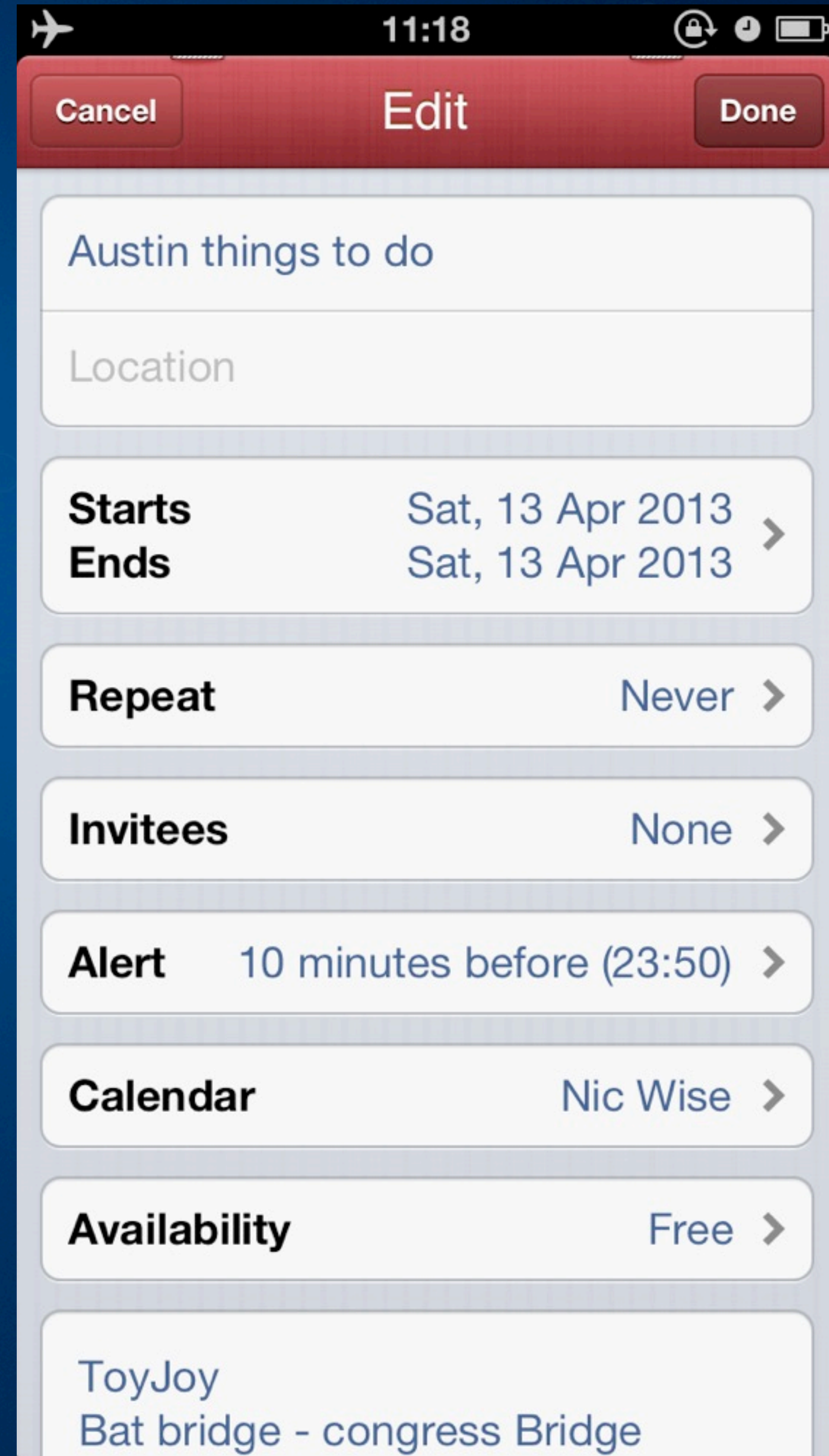
O2-UK
14:46
Mailboxes
monotouch
Edit
Nic Wise
11:24
[MonoTouch] Woes after todays…
yay! :) Glad to help. Have a look on the forums, BTW - Xamarin posted about…
4
Iki
Yesterday
[MonoTouch] Dismiss keyboard @…
Hi Nic, I have reviewed your sample, but for some reason, the only way I can ge…
6
Craig Dunn
Tuesday
[MonoTouch] building a ipa from…
I'm just looking at this now. There is a button in the iOS toolbar in Visual Stu…
2
Iki
Tuesday


VF CZ
12:01 PM
100%
List
Date
Reminders
Buy milk
Leaving: Home

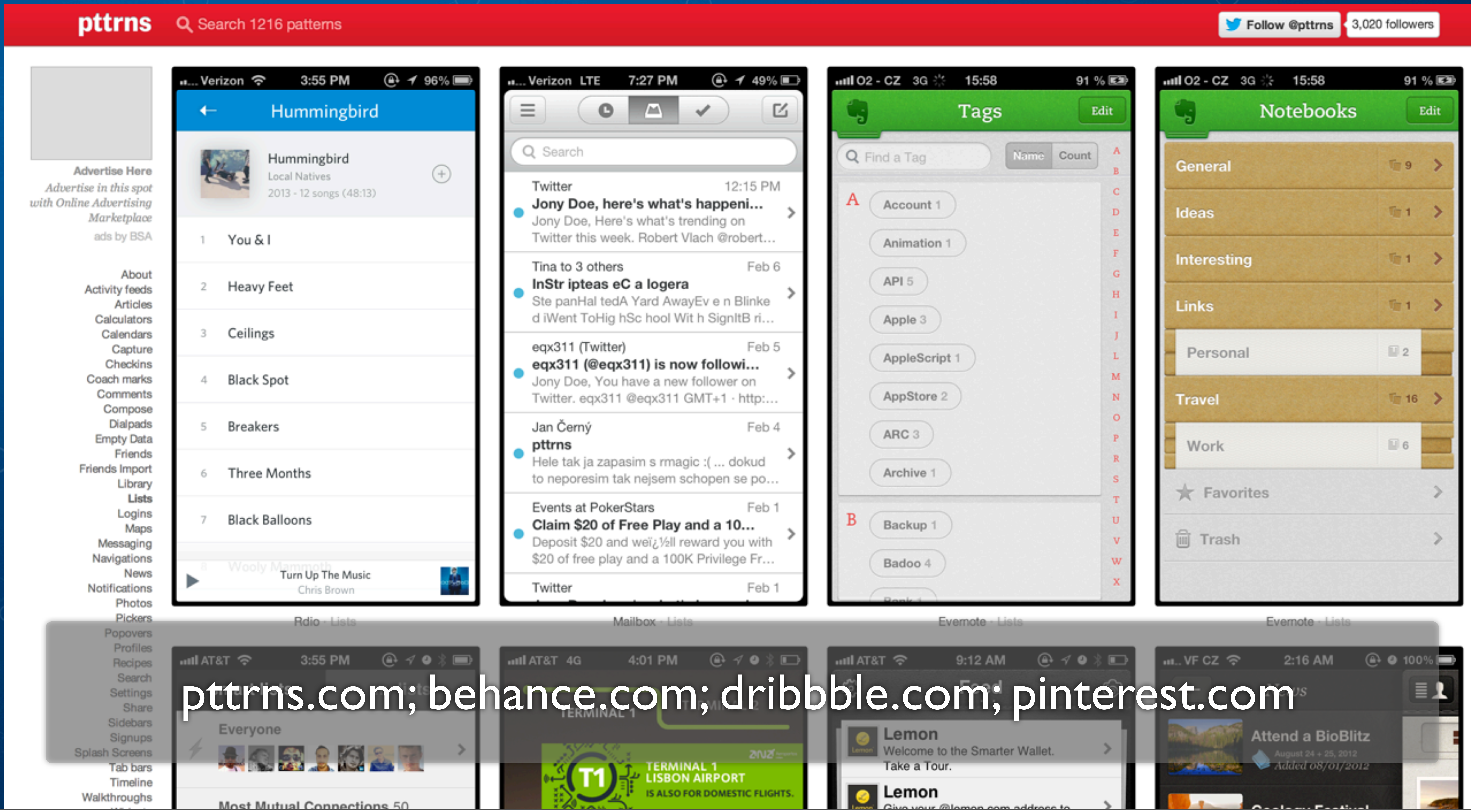

O2-UK 3G
19:48
KICKSTARTER
HI YOLKR Backers :) We hope you are having a great week! It is sure going fast for us!! We wanted to share with you a sneak peek of some packaging concepts and branding that we are playing with, not final but will give you a little insight. We think they are pretty cool, the first image is more real
SCIENCE: Ruining Everything Since...
1,708% Funded
Update #39 · 14 days ago
I call that a win. My sincere thanks to everyone. Every time we put out a new big thing, I think "this is the time nobody wants it!" Thank you for amply assuaging that concern. It means a lot to me, and it means this is gonna be a really freakin' thick book. I really am doing my best here every day


11:13
Cancel
Income
Save
Description Photo printing
Client Stuart Lodge
Date 12 Apr 2013
Amount 45.60
Method Card
Invoice payment YES
Reference INV667
Date 12 Apr 2013
Receipt image
Image has been selected
Notes


11:24
Trip
Start 12 Apr 2013
End 19 Apr 2013
Duration 8 days
Budget 1000.00
Home Currency GBP
USD 1.54 USD = 1 GBP
Add new currency
Download latest rates


11:18
Cancel
Edit
Done
Austin things to do
Location
Starts Sat, 13 Apr 2013
Ends Sat, 13 Apr 2013
Repeat Never
Invitees None
Alert 10 minutes before (23:50)
Calendar Nic Wise
Availability Free
ToyJoy
Bat bridge - congress Bridge

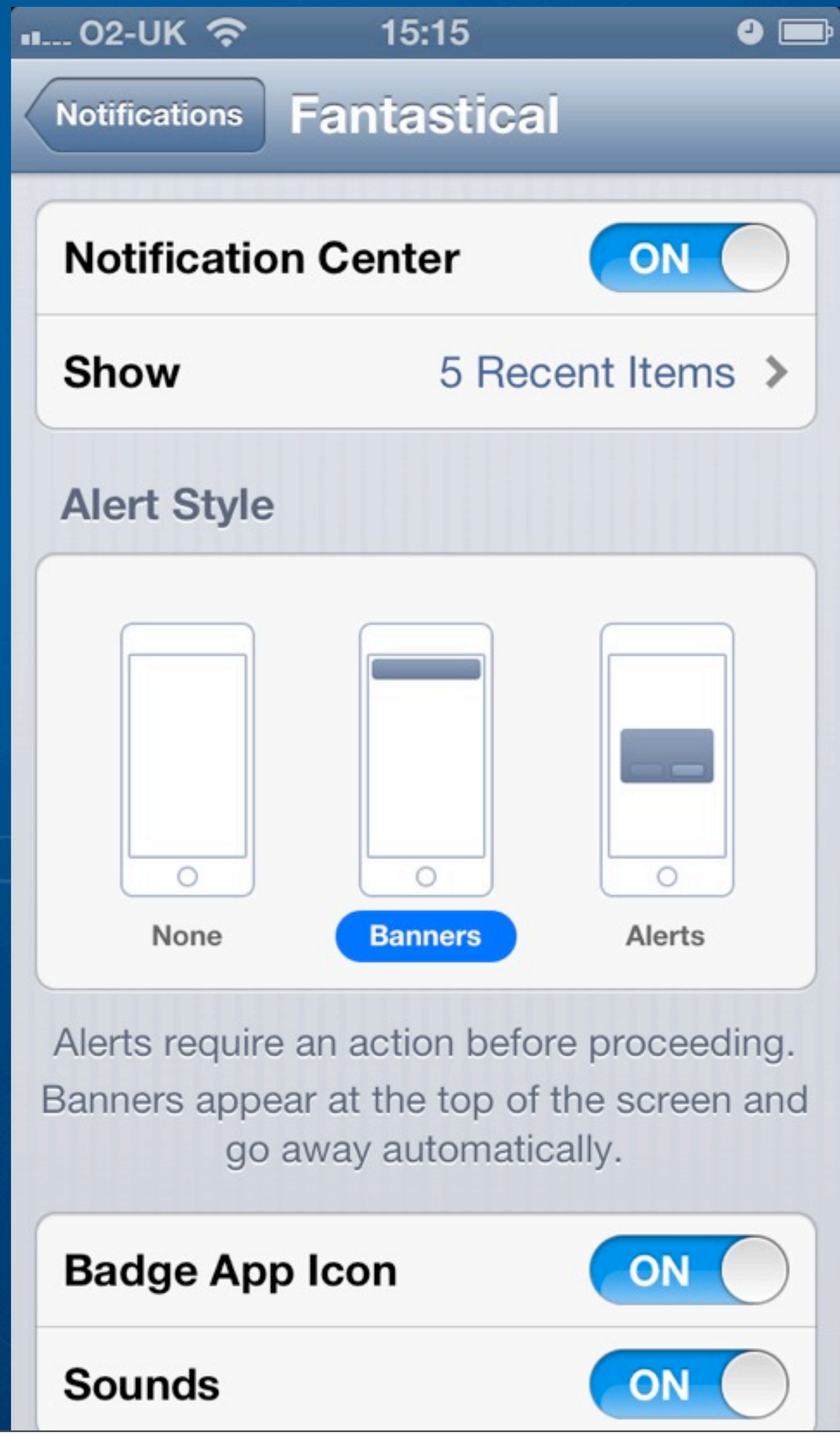
Inspiration



pttrns.com; behance.com; dribbble.com; pinterest.com

Lists are the core mobile interaction

UITableView(Controller)



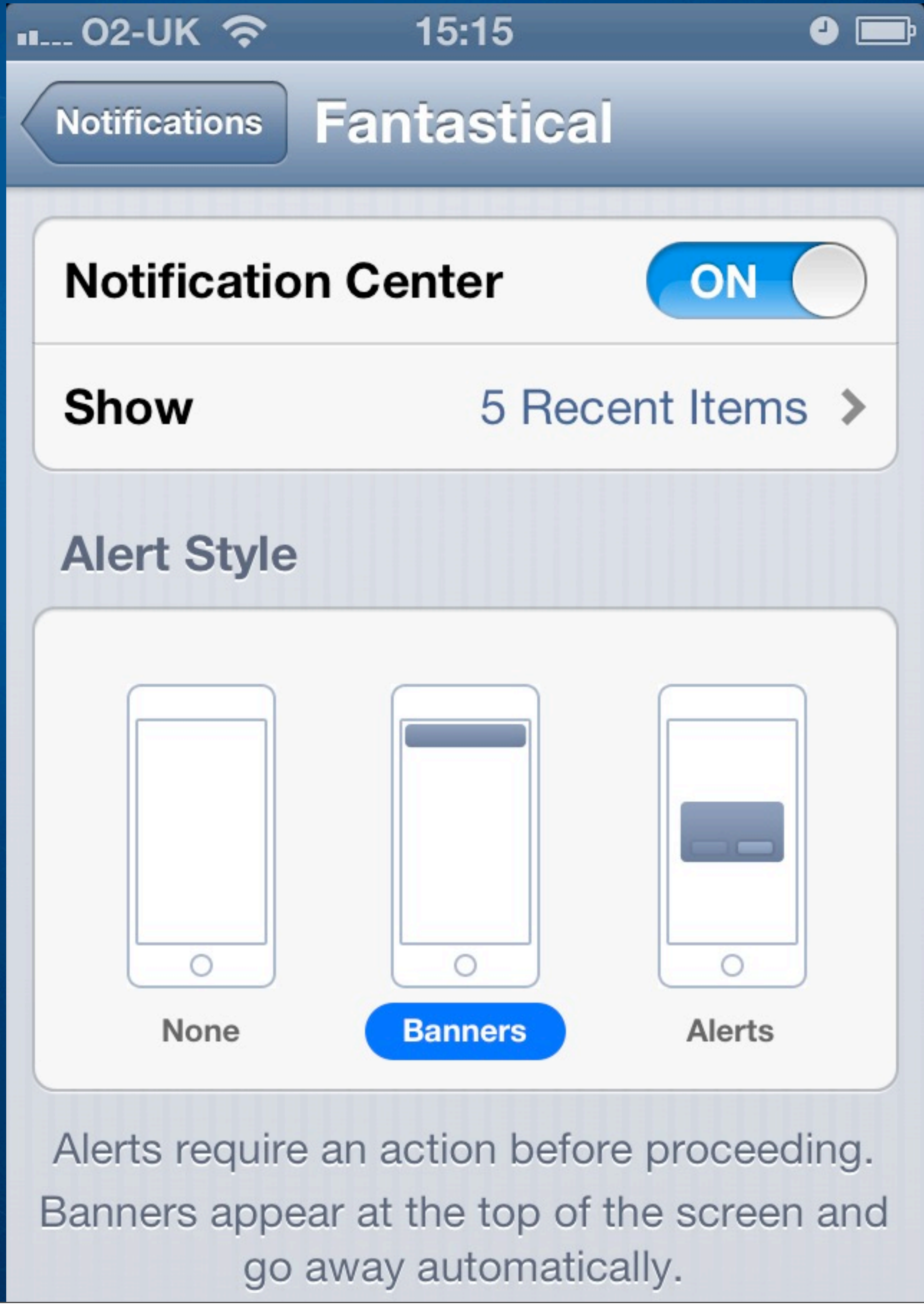
Navigation Bar

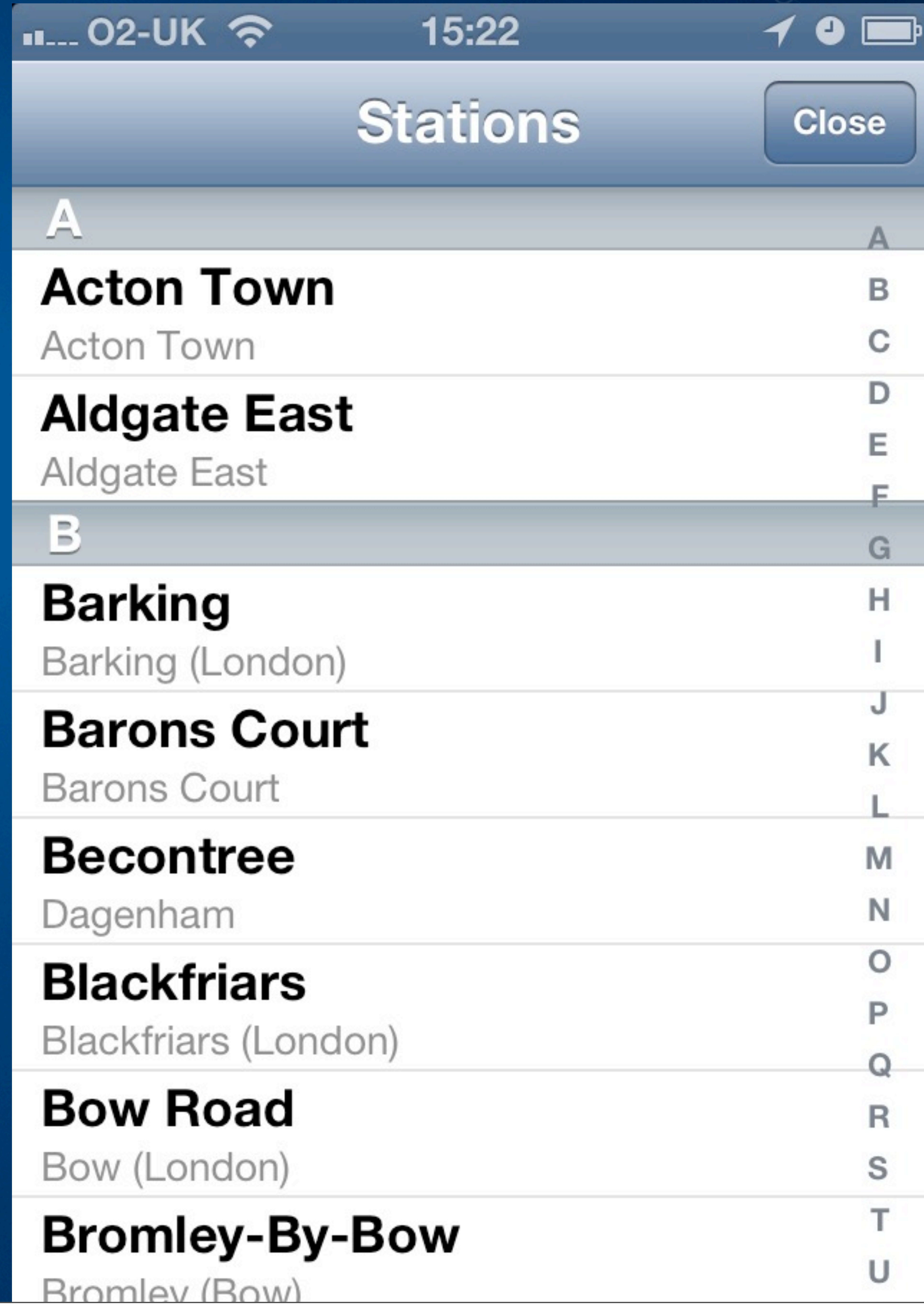
Section header

Section

Cell

Section footer


O2-UK 15:15
Notifications
Fantastical
Notification Center
ON
Show
5 Recent Items
Alert Style
None
Banners
Alerts
Alerts require an action before proceeding.
Banners appear at the top of the screen and go away automatically.


O2-UK 15:22
Stations
Close
A
Acton Town
Acton Town
Aldgate East
Aldgate East
B
Barking
Barking (London)
Barons Court
Barons Court
Becontree
Dagenham
Blackfriars
Blackfriars (London)
Bow Road
Bow (London)
Bromley-By-Bow
A B C D E F G H I J K L M N O P Q R S T U

UITableView

- Based around a callback / delegate model
  - “How many sections do you have”
  - “Give me cell 4 for section 2”
- A cell is just a view container
- Cells are recycled
- You have to maintain your own model

Seriously powerful.
A little tedious to work with.

That's all a bit repetitive...

"Although the widget is pretty powerful, creating UIs with it is a chore and a pain to maintain. The pain to maintain and the repetitive nature of the process leads to developers either spending too much time customizing each view, bare minimum configuration and lack of polish on certain configurations ...

... my fingers developed calluses, and at night I kept thinking that there should be a better way."

Miguel de Icaza
http://tirania.org/blog/archive/2010/Feb-23.html

MonoTouch.Dialog

- Make it easy to create forms and list-based views
- Make it flexible enough to do anything that UITableView can do
- Flip the API model from callback to model-driven

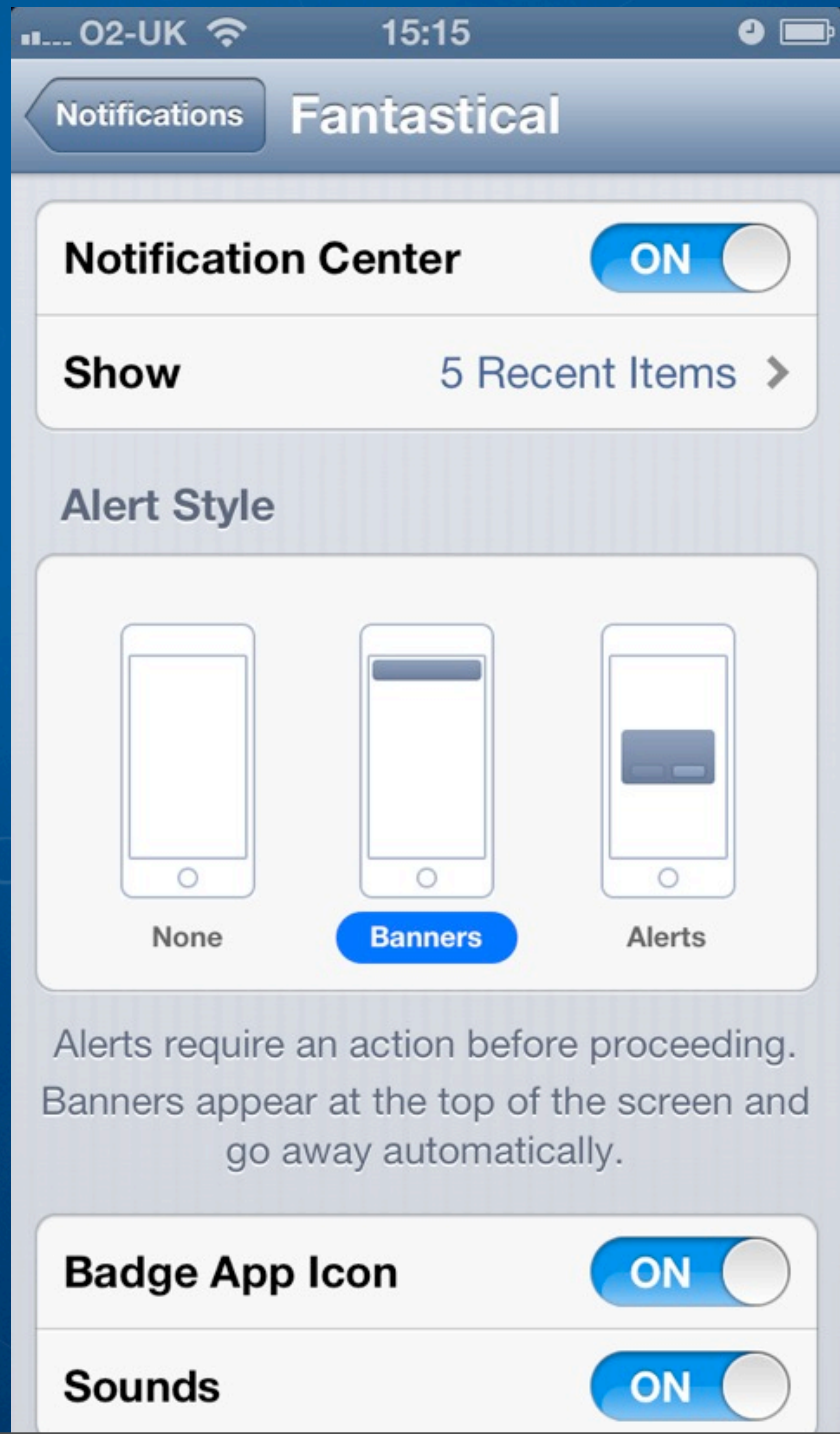
Concepts

- DialogViewController
- Element
- RootElement
- Section

Building with Elements

- The RootElement is at the top of the tree, it contains...
  - ... Section(s), which contain ...
    - ... Elements (which wrap cells)

MonoTouch.Dialog



RootElement

Section Element

Element

Section Element

Section Element

Element

So, how do we put this all together?

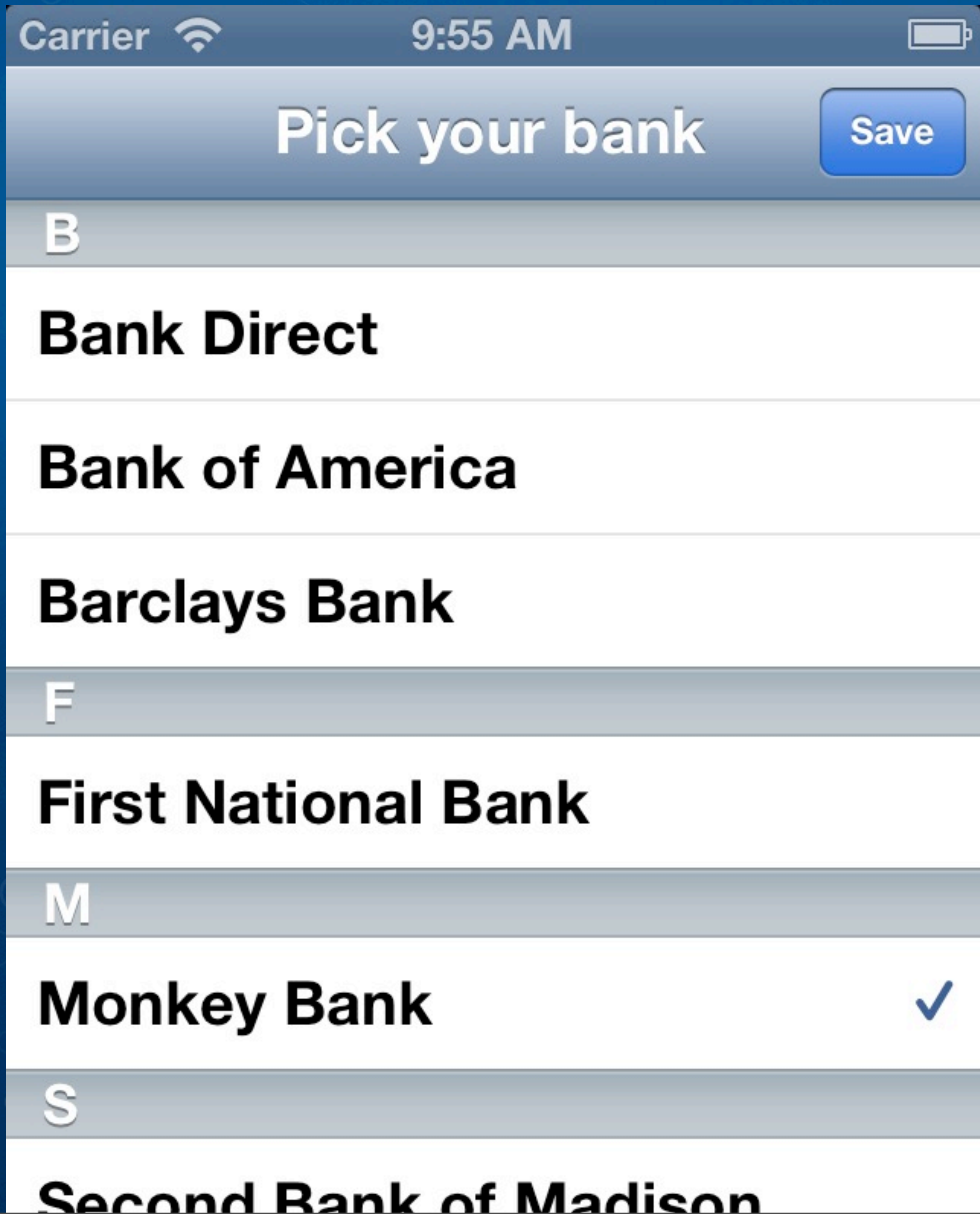
Manually building a form


```
public override void LoadView ()
{
    base.LoadView ();

    RadioGroup preferenceGroup = new RadioGroup (0);

    Root = new RootElement ("Account")
    {
        new Section
        {
            new BooleanElement("Airplane Mode", false)
        }, new Section("Data Entry", "Your credentials")
        {
            new EntryElement("Login", "Enter your login name", ""),
            new EntryElement("Password", "Enter your password", "", true)
        }, new Section()
        {
            new RootElement("Preference", preferenceGroup)
            {
                new Section()
                {
                    new RadioElement("Aisle"),
                    new RadioElement("Window"),
                    new RadioElement("Centre")
                }
            }
        }
    };
}
```

Reflection API

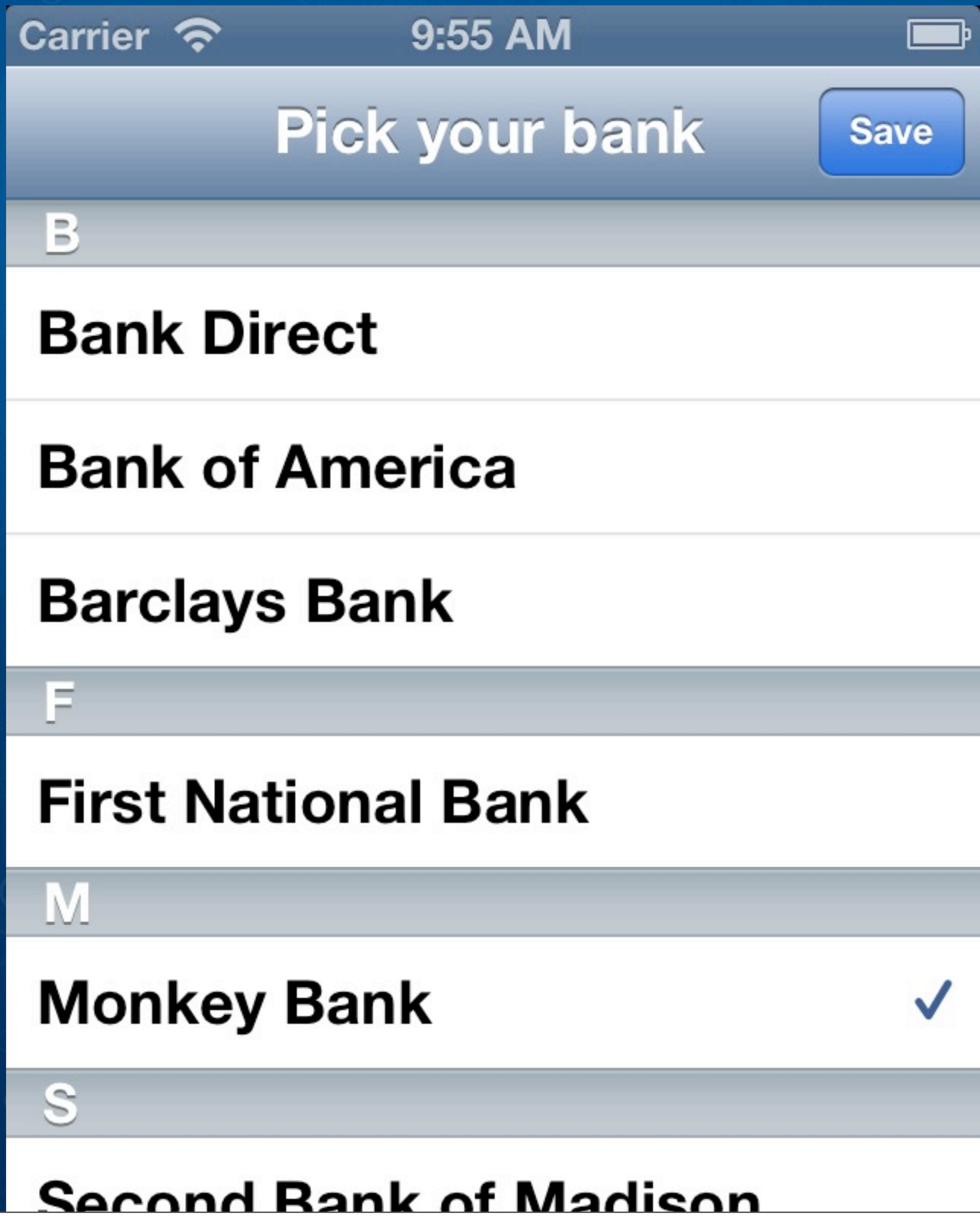

```
public class AccountInfoModel
{
    [Section]
    public bool AirplaneMode;

    [Section("Data Entry", "Your Credentials")]
    [Entry("Enter your email")]
    public string Login;

    [Caption("Password")]
    [Password("Enter your password")]
    public string Password;

    [Section("Travel Options")]
    public SeatPreference Preference;

    [Section]
    [OnTap("Tapped")]
    public string PressMe;


    public void Tapped()
    {
        var alert = new UIAlertView ("Tapped", "Yes, you tapped it",
                                     null, "Ok");
        alert.Show ();
    }
}

public enum SeatPreference
{
    Aisle,
    Window,
    Centre
}
```

Lists




```
RadioGroup bankSelection;

public override void LoadView ()
{
    base.LoadView ();

    bankSelection = new RadioGroup (0);

    Section section = null;
    string lastLetter = "";
    Root = new RootElement("Account", bankSelection);

    foreach(var name in data)
    {
        string currentFirstLetter = name.Substring(0,1);
        if (currentFirstLetter != lastLetter)
        {
            if (section != null && section.Count > 0) Root.Add (section);

            lastLetter = currentFirstLetter;
            section = new Section(currentFirstLetter);
        }

        section.Add (new RadioElement(name));

    }

    if (section != null && section.Count > 0) Root.Add (section);

}
```

LINQ API

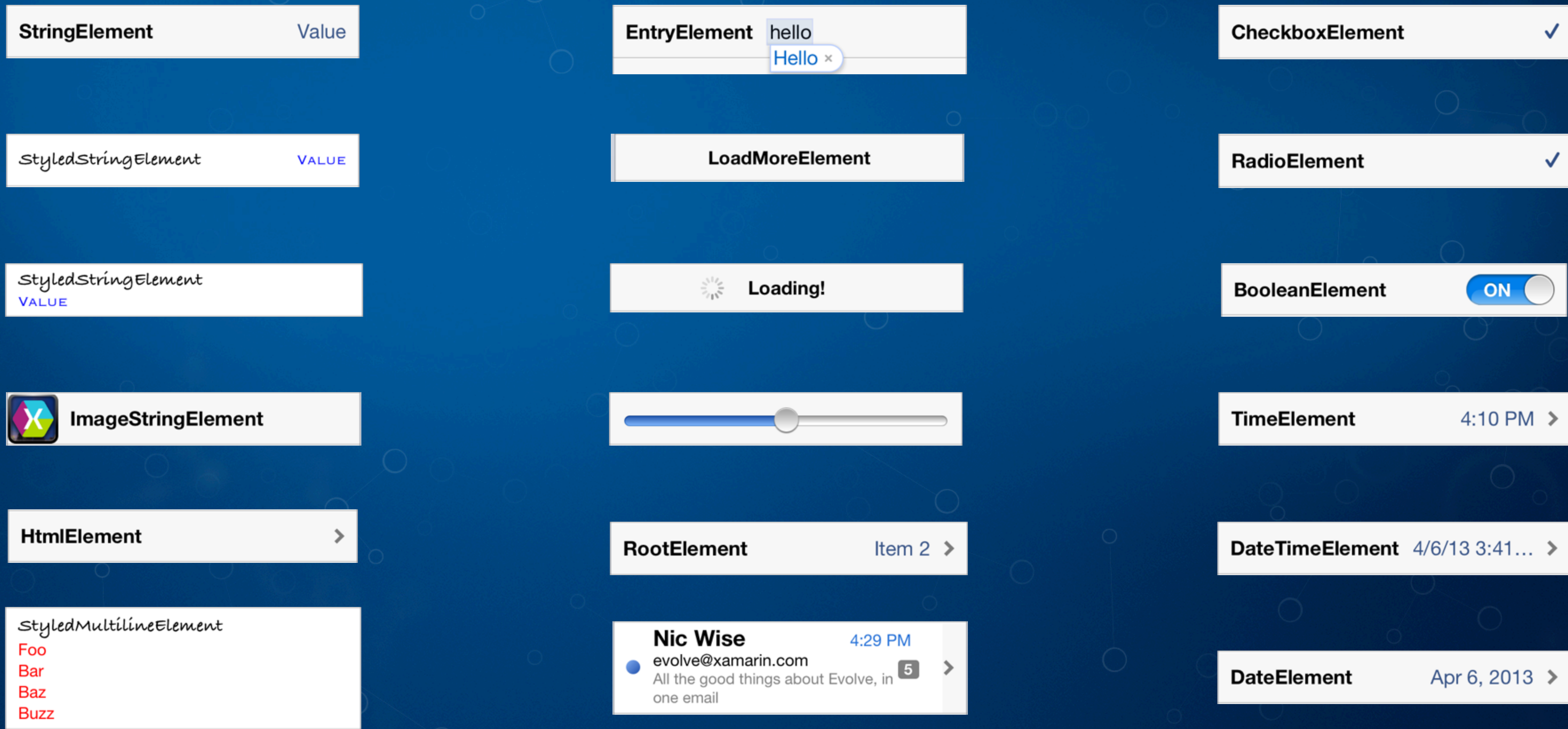



```
RadioGroup bankSelection;
List<string> dummyData;

public override void LoadView ()
{
    base.LoadView ();

    Root = new RootElement("Account", bankSelection)
    {
        from name in dummyData
        group name by name.Substring(0,1) into grp
        orderby grp.Key
        select new Section(grp.Key)
        {
            from elementValue in grp
                select new RadioElement(elementValue)
        }

    };

}
```

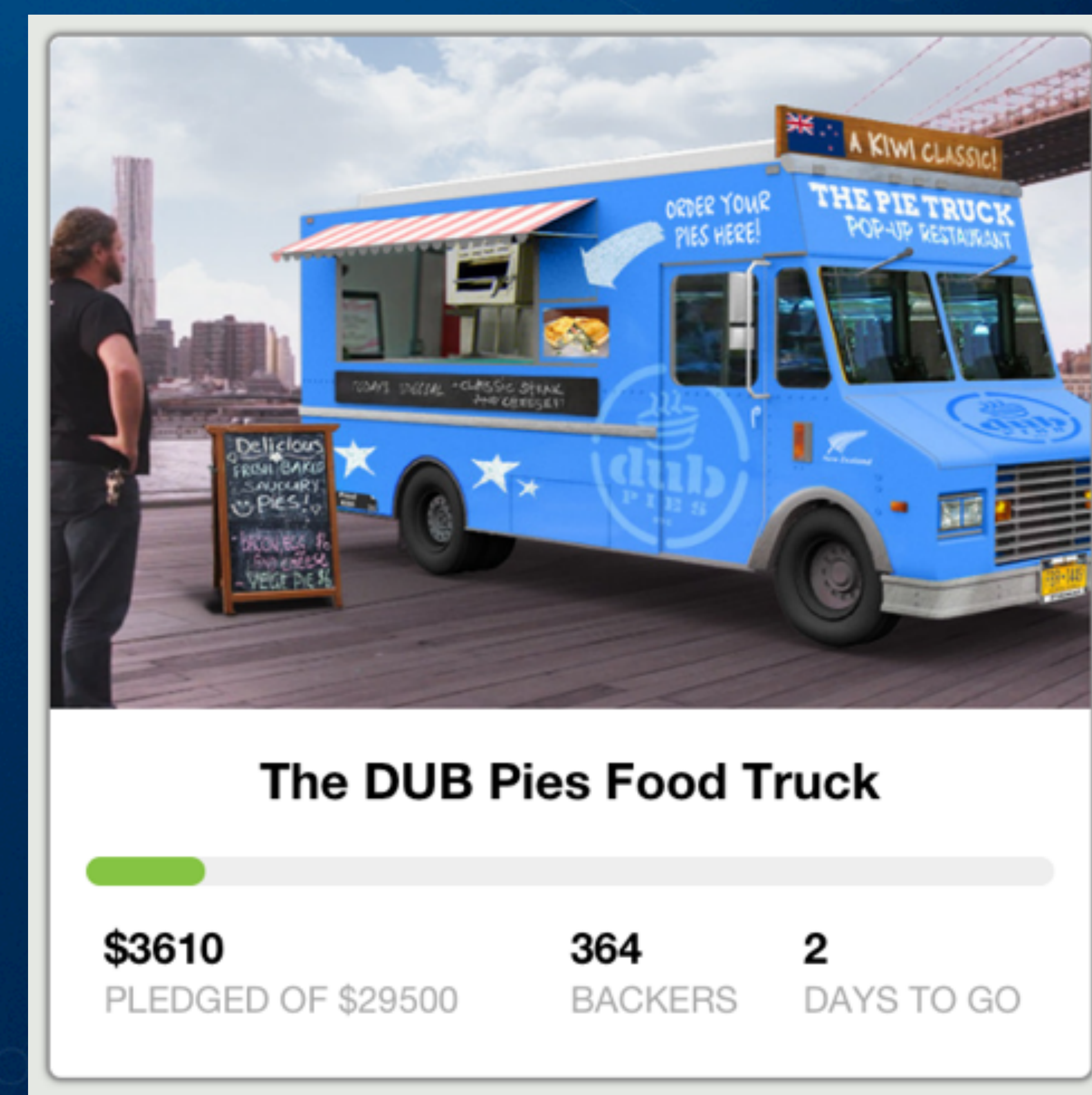
Mix and Match
This is an && decision, not an ||

The RootElement tree is Mutable

Elements


StringElement
Value
EntryElement
hello
Hello ×
CheckboxElement
StyledStringElement
VALUE
LoadMoreElement
RadioElement
StyledStringElement
VALUE
Loading!
BooleanElement
ON
ImageStringElement
TimeElement
4:10 PM
HtmlElement
RootElement
Item 2
DateTimeElement
4/6/13 3:41…
StyledMultilineElement
Foo
Bar
Baz
Buzz
Nic Wise
4:29 PM
evolve@xamarin.com
All the good things about Evolve, in one email
5
DateElement
Apr 6, 2013

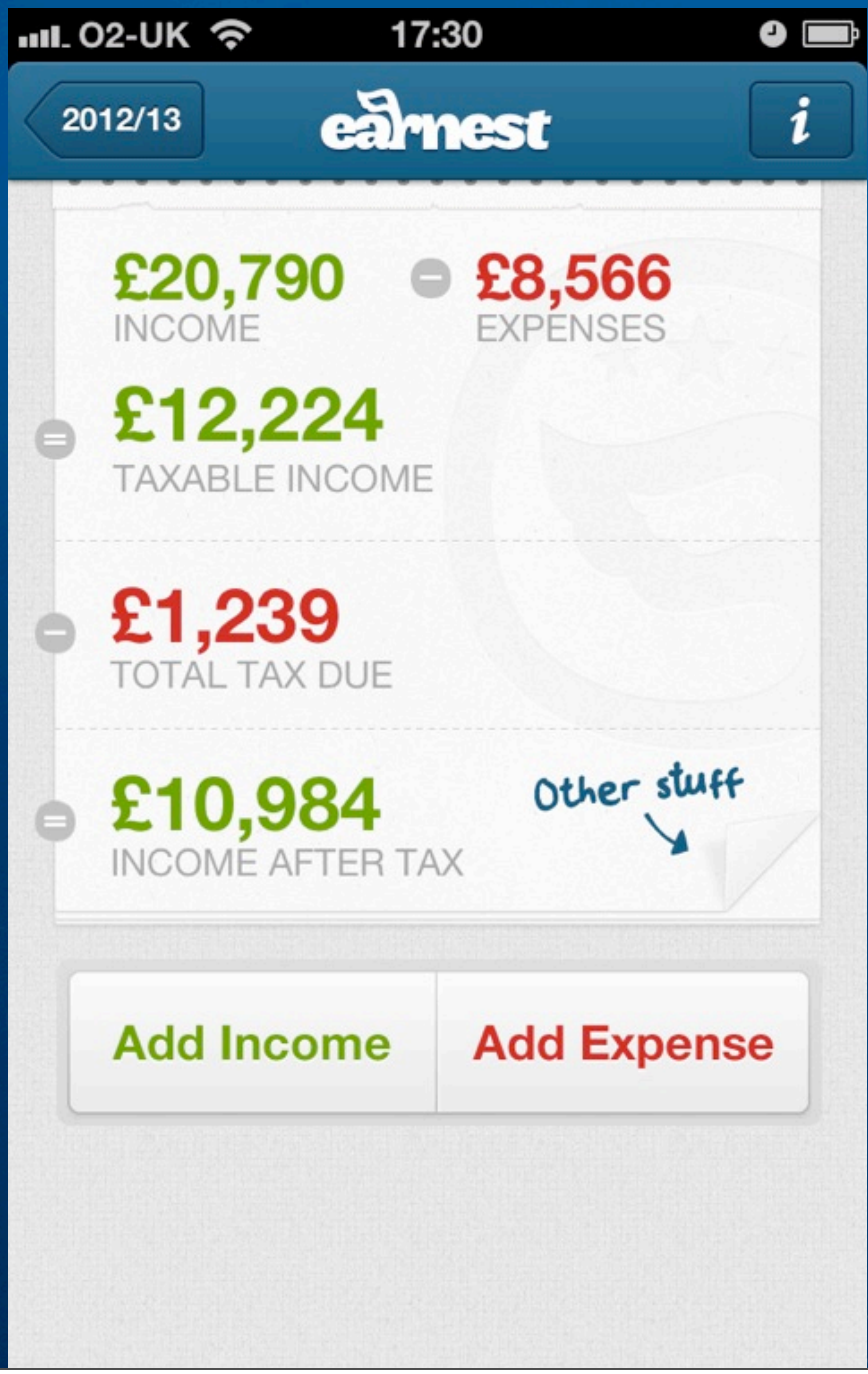
Building custom elements is easy

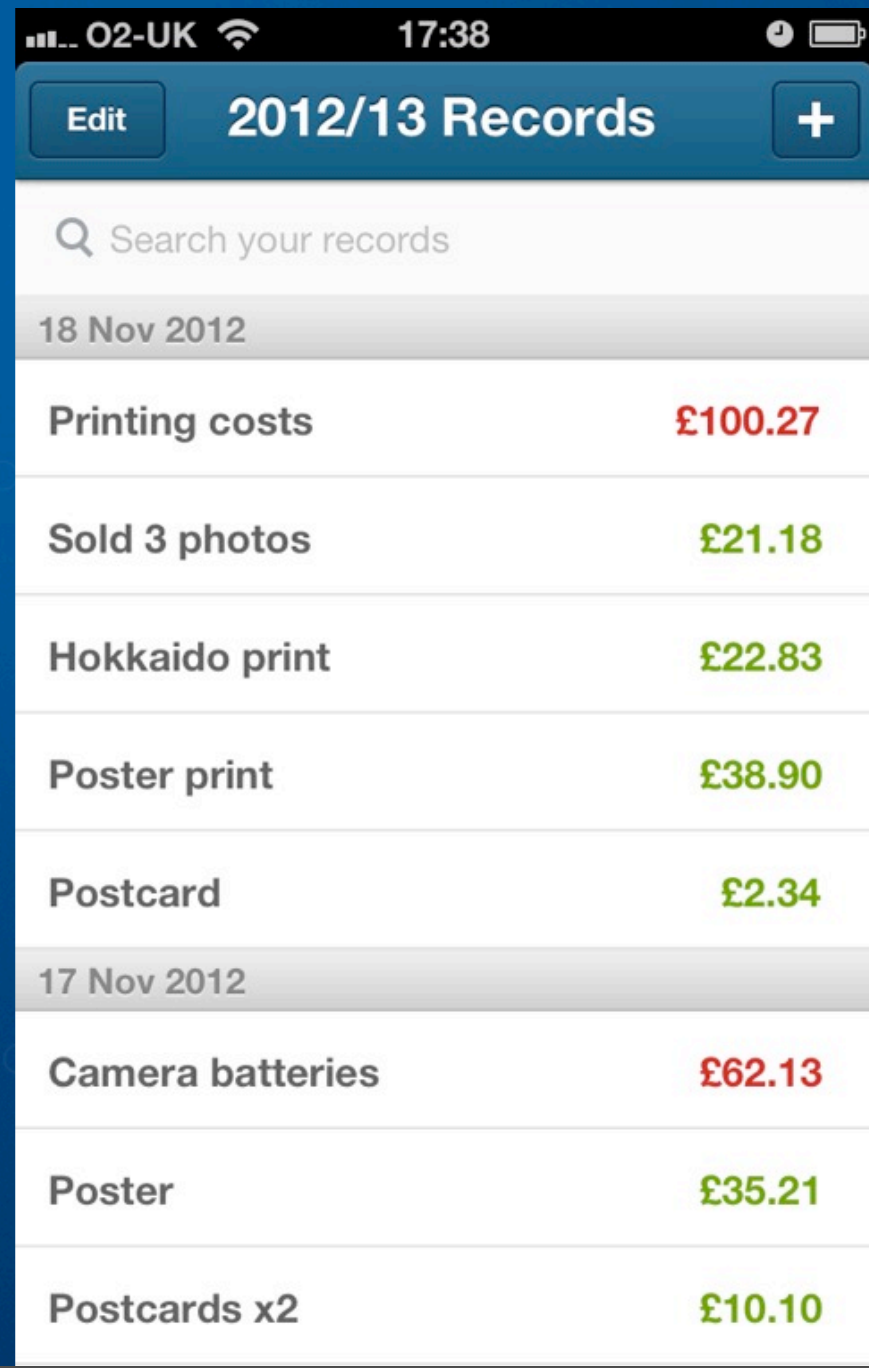


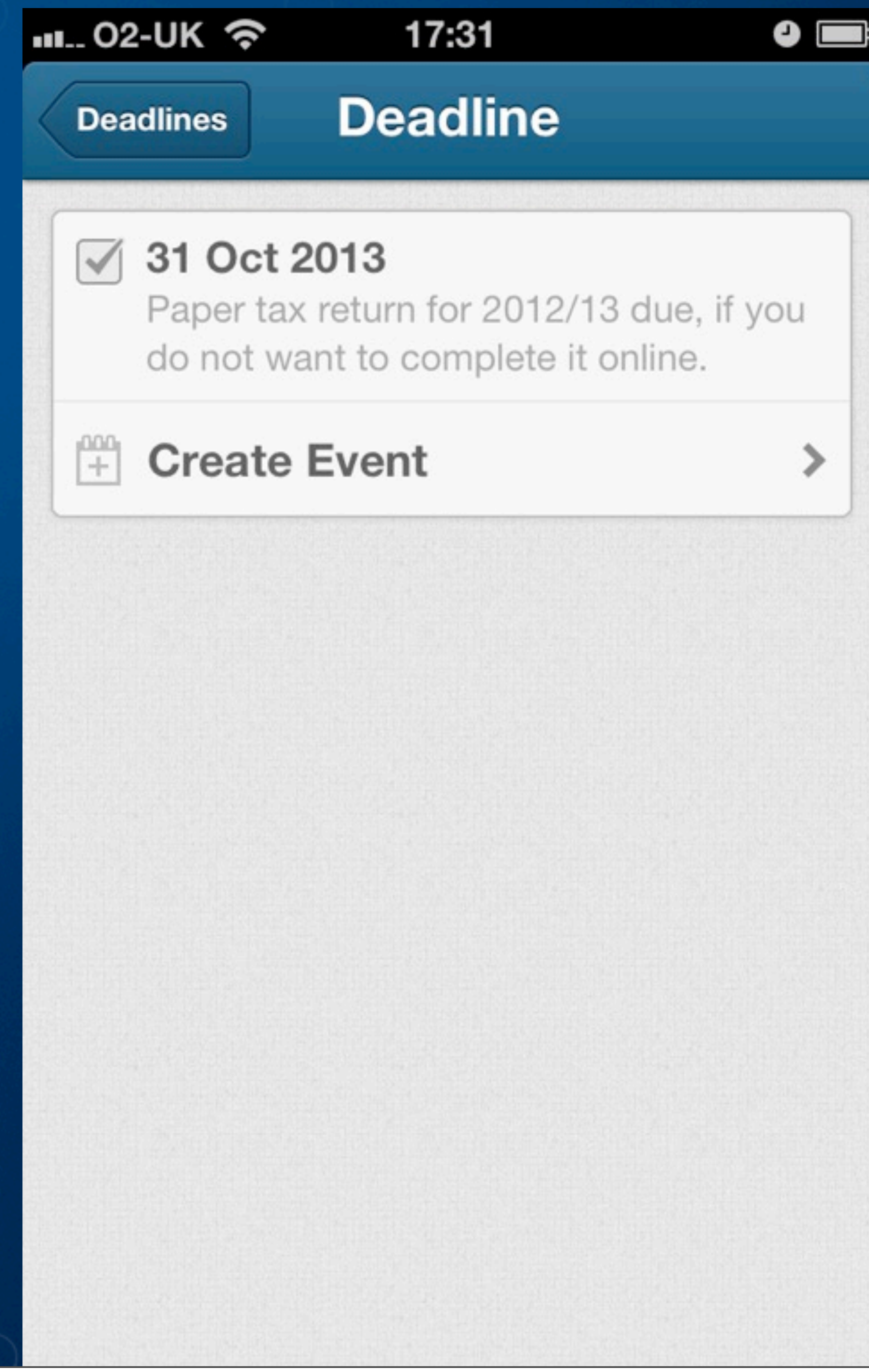
Building Custom Elements

- Customize an existing Element
- Use UIViewElement
  - Easy! Not as resource friendly
- Use a UITableViewCell descendant
  - Slightly harder. Total control.

Custom Elements







Deep Customization

- Changing the background image for all Grouped cells
- May require a change to the base MonoTouch.Dialog source
- How / where

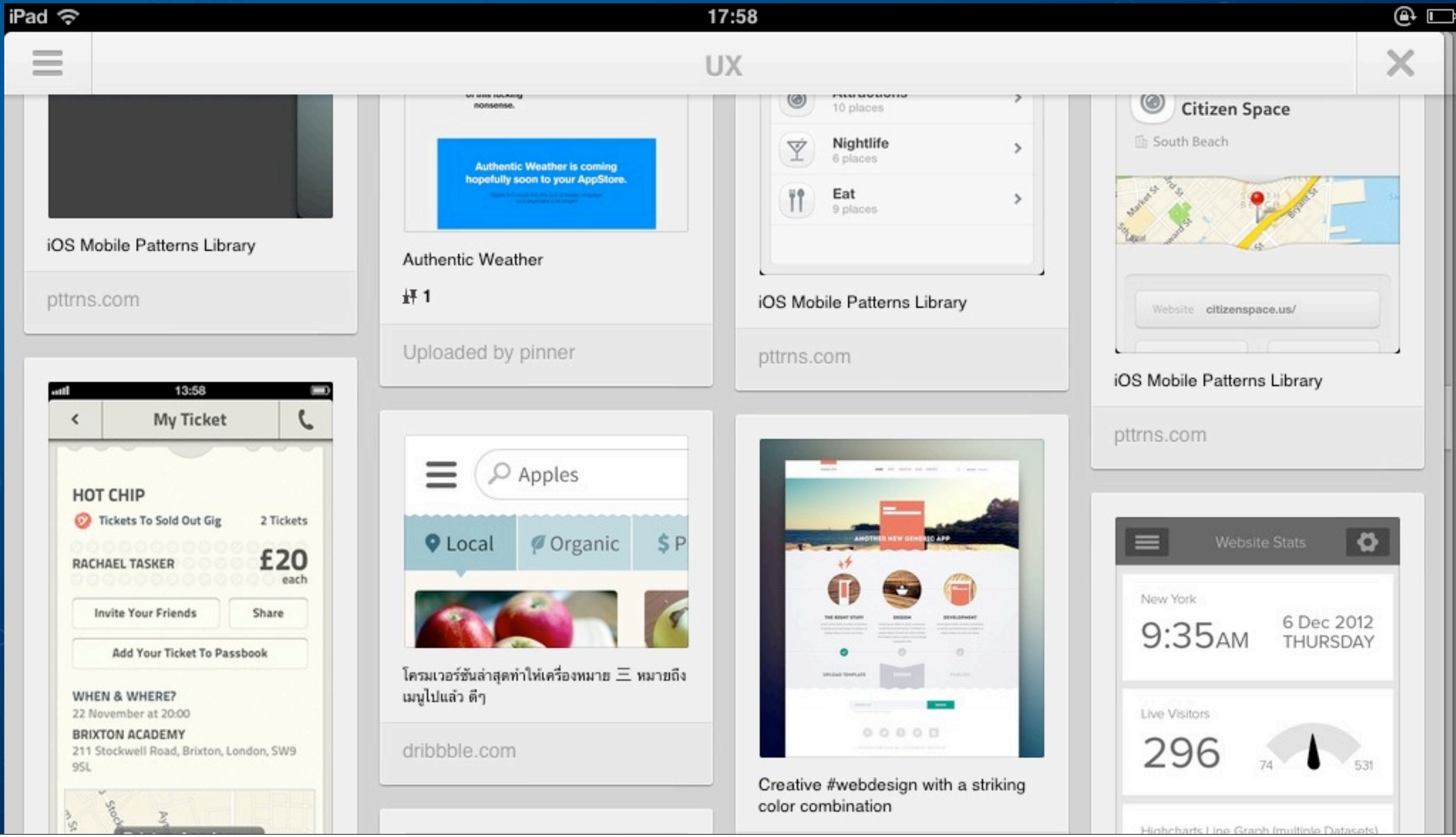
Maintaining your own version

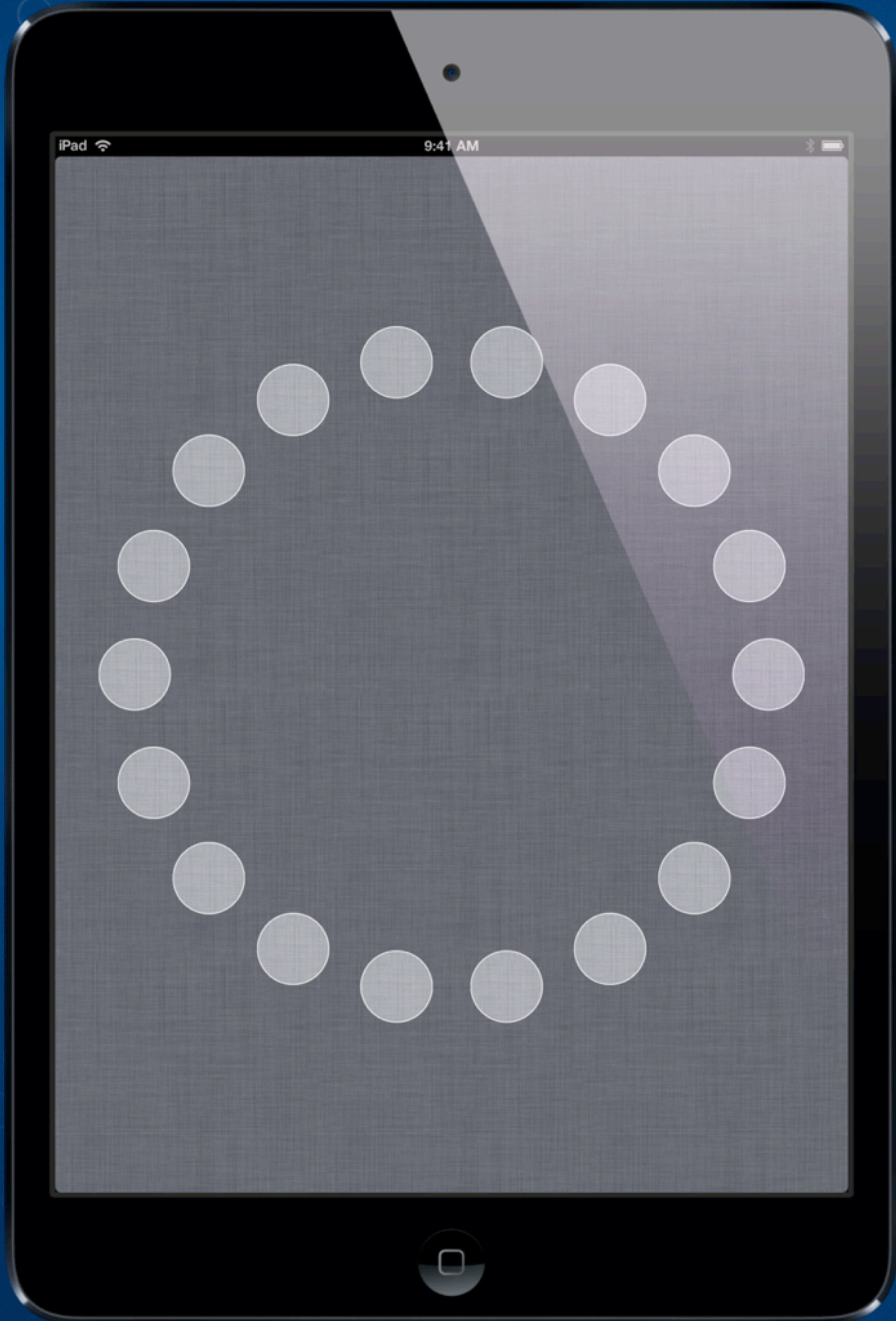
- Avoid it if you can (makes life a lot easier)
- Try to pull + merge as frequently as possible
- Absolutely get the code down and look at it - understand how the framework works

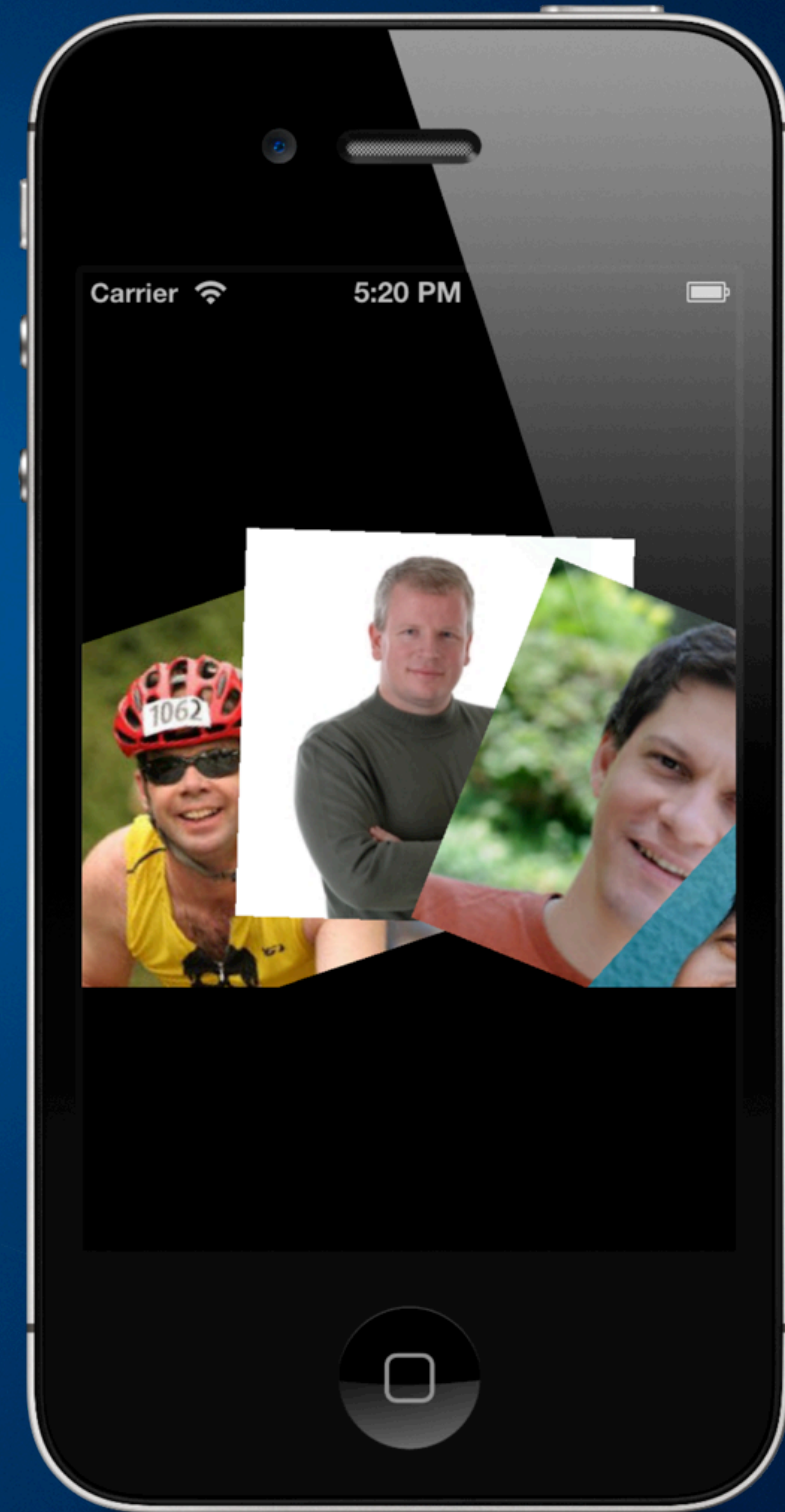
MonoTouch.Dialog

- You can build anything with it you can do with a UITableView
- Very quick to understand and use
- Very mature, still maintained, ships with Xamarin.iOS
- Full customization of any part of the table if you are prepared to mess with the source a little

UICollectionView




iPad
9:41 AM


Carrier
5:20 PM
1062

Android? Windows Phone?

- Both have native APIs which deal with lists
- MonoDroid.Dialog is on GitHub, but isn’t as mature as MT.D
- If you want to go cross platform, consider MvvmCross
  - Has a variant of MT.D; MD.D; WP.D & WinRT.D coming

Resources

- Code and sides:
  - https://github.com/nicwise/EvolveMonoTouchDialog
- MonoTouch.Dialog:
  - https://github.com/migueldeicaza/MonoTouch.Dialog

UICollectionView Resources

- http://docs.xamarin.com/guides/ios/user_interface/introduction_to_collection_views
- https://github.com/mpospese/CircleLayout
- https://github.com/slodge/RotatingCollectionView
- https://github.com/chiahsien/UICollectionViewWaterfallLayout
- https://github.com/schwa/Coverflow

Design Inspiration

- http://www.mobiledesignpatterngallery.com
- http://pttrns.com
- http://dribbble.com
- http://behance.com


Q&A

THANK YOU