```
1.  //
2.  //  Account.h
3.  //  ATM
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Simulates an ATM (that only accepts deposits).
10. //

12. #import <Foundation/Foundation.h>

14. @interface Account : NSObject {
15. }

17. @property (assign, nonatomic) unsigned long long balance;

19. @end
```

```
1.  //
2.  //  Account.m
3.  //  ATM
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Simulates an ATM (that only accepts deposits).
10. //
11.
12. #import "Account.h"
13.
14. @implementation Account
15.
16. @synthesize balance=_balance;
17.
18. - (id)init
19. {
20.     if (self = [super init]) {
21.         self.balance = 0;
22.     }
23.     return self;
24. }
25.
26. @end
```

```
1.  //
2.  //  AppDelegate.h
3.  //  ATM
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Simulates an ATM (that only accepts deposits).
10. //
11.
12. #import <UIKit/UIKit.h>
13.
14. @class ViewController;
15.
16. @interface AppDelegate : UIResponder <UIApplicationDelegate>
17.
18. @property (strong, nonatomic) ViewController *viewController;
19. @property (strong, nonatomic) UIWindow *window;
20.
21. @end
```

```objc
1.  //
2.  //  AppDelegate.m
3.  //  ATM
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Simulates an ATM (that only accepts deposits).
10. //
11.
12. #import "AppDelegate.h"
13.
14. #import "ViewController.h"
15.
16. @implementation AppDelegate
17.
18. @synthesize viewController = _viewController;
19. @synthesize window = _window;
20.
21. - (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
22. {
23.     self.window = [[UIWindow alloc] initWithFrame:[[UIScreen mainScreen] bounds]];
24.     self.viewController = [[ViewController alloc] initWithNibName:@"ViewController" bundle:nil];
25.     self.window.rootViewController = self.viewController;
26.     [self.window makeKeyAndVisible];
27.     return YES;
28. }
29.
30. @end
```

```objc
1.  //
2.  //  ViewController.h
3.  //  ATM
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Simulates an ATM (that only accepts deposits).
10. //
11.
12. #import <UIKit/UIKit.h>
13. #import "Account.h"
14.
15. @interface ViewController : UIViewController {
16. }
17.
18. @property (nonatomic, strong) Account *account;
19. @property (assign, nonatomic) unsigned long long amount;
20. @property (nonatomic, weak) IBOutlet UILabel *balanceLabel;
21. @property (nonatomic, weak) IBOutlet UILabel *depositLabel;
22.
23. - (IBAction)clear:(id)sender;
24. - (IBAction)deposit:(id)sender;
25. - (IBAction)digit:(id)sender;
26. - (void)show;
27.
28. @end
```

```objc
1.  //
2.  //  ViewController.m
3.  //  ATM
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Simulates an ATM (that only accepts deposits).
10. //

11.
12. #import "ViewController.h"
13.
14. @implementation ViewController
15.
16. @synthesize account=_account;
17. @synthesize amount=_amount;
18. @synthesize balanceLabel=_balanceLabel;
19. @synthesize depositLabel=_depositLabel;
20.
21. - (IBAction)clear:(id)sender
22. {
23.     // clear input
24.     self.amount = 0;
25.     [self show];
26. }
27.
28. - (IBAction)deposit:(id)sender
29. {
30.     // deposit amount
31.     self.account.balance += self.amount;
32.
33.     // clear input
34.     self.amount = 0;
35.     [self show];
36. }
37.
38. - (IBAction)digit:(id)sender
39. {
40.     // append digit to amount
41.     UIButton *b = (UIButton *)sender;
42.     self.amount = self.amount * 10 + b.tag;
43.     [self show];
44. }
45.
46. - (void)show
47. {
48.     // show balance
```

```
49.      self.balanceLabel.text = [NSString stringWithFormat:@"$%llu", self.account.balance];
50.
51.      // show input
52.      self.depositLabel.text = [NSString stringWithFormat:@"$%llu", self.amount];
53. }
54.
55. - (BOOL)shouldAutorotateToInterfaceOrientation:(UIInterfaceOrientation)interfaceOrientation
56. {
57.      return (interfaceOrientation == UIInterfaceOrientationPortrait);
58. }
59.
60. - (void)viewDidLoad
61. {
62.      // create account
63.      self.account = [[Account alloc] init];
64.      [self show];
65. }
66.
67. @end
```

```objc
1.  //
2.  //  AppDelegate.h
3.  //  Nib1
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application implemented with a nib, plus IBAction and IBOutlet.
10. //

12. #import <UIKit/UIKit.h>

14. @class ViewController;

16. @interface AppDelegate : UIResponder <UIApplicationDelegate>

18. @property (strong, nonatomic) ViewController *viewController;
19. @property (strong, nonatomic) UIWindow *window;

21. @end
```

```objc
1.  //
2.  //  AppDelegate.m
3.  //  Nib1
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application implemented with a nib, plus IBAction and IBOutlet.
10. //
11.
12. #import "AppDelegate.h"
13. #import "ViewController.h"
14.
15. @implementation AppDelegate
16.
17. @synthesize viewController = _viewController;
18. @synthesize window = _window;
19.
20. - (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
21. {
22.     self.window = [[UIWindow alloc] initWithFrame:[[UIScreen mainScreen] bounds]];
23.     self.viewController = [[ViewController alloc] initWithNibName:@"ViewController" bundle:nil];
24.     self.window.rootViewController = self.viewController;
25.     [self.window makeKeyAndVisible];
26.     return YES;
27. }
28.
29. @end
```

```objc
1.  //
2.  //  ViewController.h
3.  //  Nib1
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application implemented with a nib, plus IBAction and IBOutlet.
10. //
11.
12. #import <UIKit/UIKit.h>
13.
14. @interface ViewController : UIViewController
15.
16. @property (nonatomic, weak) IBOutlet UITextField *textField;
17.
18. - (IBAction)go:(id)sender;
19.
20. @end
```

```objc
1.  //
2.  //  ViewController.m
3.  //  Nib1
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application implemented with a nib, plus IBAction and IBOutlet.
10. //
11.
12. #import "ViewController.h"
13.
14. @implementation ViewController
15.
16. @synthesize textField=_textField;
17.
18. - (IBAction)go:(id)sender
19. {
20.     // hide keyboard
21.     [self.textField resignFirstResponder];
22.
23.     // show alert
24.     NSString *s = [NSString stringWithFormat:@"Hello, %@", self.textField.text];
25.     UIAlertView *alert = [[UIAlertView alloc] initWithTitle:@"Hello"
26.                                                     message:s
27.                                                    delegate:nil
28.                                           cancelButtonTitle:@"Thanks!"
29.                                           otherButtonTitles:nil];
30.     [alert show];
31. }
32.
33. @end
```

```objc
1.  //
2.  //  AppDelegate.h
3.  //  Nib2
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application with a UIAlertViewDelegate.
10. //
11.
12. #import <UIKit/UIKit.h>
13.
14. @class ViewController;
15.
16. @interface AppDelegate : UIResponder <UIApplicationDelegate>
17.
18. @property (strong, nonatomic) ViewController *viewController;
19. @property (strong, nonatomic) UIWindow *window;
20.
21. @end
```

```
1.  //
2.  //  AppDelegate.m
3.  //  Nib2
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application with a UIAlertViewDelegate.
10. //
11.
12. #import "AppDelegate.h"
13. #import "ViewController.h"
14.
15. @implementation AppDelegate
16.
17. @synthesize viewController = _viewController;
18. @synthesize window = _window;
19.
20. - (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
21. {
22.     self.window = [[UIWindow alloc] initWithFrame:[[UIScreen mainScreen] bounds]];
23.     self.viewController = [[ViewController alloc] initWithNibName:@"ViewController" bundle:nil];
24.     self.window.rootViewController = self.viewController;
25.     [self.window makeKeyAndVisible];
26.     return YES;
27. }
28.
29. @end
```

```
 1.  //
 2.  //  ViewController.h
 3.  //  Nib2
 4.  //
 5.  //  David J. Malan
 6.  //  Harvard University
 7.  //  malan@harvard.edu
 8.  //
 9.  //  Demonstrates a Single View Application with a UIAlertViewDelegate.
10.  //
11.
12.  #import <UIKit/UIKit.h>
13.
14.  @interface ViewController : UIViewController <UIAlertViewDelegate>
15.
16.  @property (nonatomic, weak) IBOutlet UITextField *textField;
17.
18.  - (IBAction)go:(id)sender;
19.
20.  @end
```

```
1.  //
2.  //  ViewController.m
3.  //  Nib2
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application with a UIAlertViewDelegate.
10. //
11.
12. #import "ViewController.h"
13.
14. @implementation ViewController
15.
16. @synthesize textField=_textField;
17.
18. - (void)alertView:(UIAlertView *)alertView didDismissWithButtonIndex:(NSInteger)buttonIndex
19. {
20.     // clear text field
21.     self.textField.text = nil;
22. }
23.
24. - (IBAction)go:(id)sender
25. {
26.     // hide keyboard
27.     [self.textField resignFirstResponder];
28.
29.     // show alert
30.     NSString *s = [NSString stringWithFormat:@"Hello, %@", self.textField.text];
31.     UIAlertView *alert = [[UIAlertView alloc] initWithTitle:@"Hello"
32.                                                     message:s
33.                                                    delegate:self
34.                                           cancelButtonTitle:@"Thanks!"
35.                                           otherButtonTitles:nil];
36.     [alert show];
37. }
38.
39. @end
```

```
1.  //
2.  //  AppDelegate.h
3.  //  SingleView
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application.
10. //
11.
12. #import <UIKit/UIKit.h>
13.
14. @class ViewController;
15.
16. @interface AppDelegate : UIResponder <UIApplicationDelegate>
17.
18. @property (strong, nonatomic) ViewController *viewController;
19. @property (strong, nonatomic) UIWindow *window;
20.
21. @end
```

```objc
1.  //
2.  //  AppDelegate.m
3.  //  SingleView
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application.
10. //

12. #import "AppDelegate.h"
13. #import "ViewController.h"

15. @implementation AppDelegate

17. @synthesize viewController = _viewController;
18. @synthesize window = _window;

20. - (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
21. {
22.     self.window = [[UIWindow alloc] initWithFrame:[[UIScreen mainScreen] bounds]];
23.     self.viewController = [[ViewController alloc] initWithNibName:@"ViewController" bundle:nil];
24.     self.window.rootViewController = self.viewController;
25.     [self.window makeKeyAndVisible];
26.     return YES;
27. }

29. @end
```

```
1.  //
2.  //  ViewController.h
3.  //  SingleView
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application.
10. //
11.
12. #import <UIKit/UIKit.h>
13.
14. @interface ViewController : UIViewController
15. @end
```

```
1.  //
2.  //  ViewController.m
3.  //  SingleView
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Single View Application.
10. //
11.
12. #import "ViewController.h"
13.
14. @implementation ViewController
15.
16. - (BOOL)shouldAutorotateToInterfaceOrientation:(UIInterfaceOrientation)interfaceOrientation
17. {
18.     return (interfaceOrientation != UIInterfaceOrientationPortraitUpsideDown);
19. }
20.
21. @end
```

```objc
1.  //
2.  //  AppDelegate.h
3.  //  Utility
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Utility Application.
10. //

12. #import <UIKit/UIKit.h>

14. @class MainViewController;

16. @interface AppDelegate : UIResponder <UIApplicationDelegate>

18. @property (strong, nonatomic) MainViewController *mainViewController;
19. @property (strong, nonatomic) UIWindow *window;

21. @end
```

```objectivec
1.  //
2.  //  AppDelegate.m
3.  //  Utility
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Utility Application.
10. //
11.
12. #import "AppDelegate.h"
13. #import "MainViewController.h"
14.
15. @implementation AppDelegate
16.
17. @synthesize mainViewController = _mainViewController;
18. @synthesize window = _window;
19.
20. - (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
21. {
22.     self.window = [[UIWindow alloc] initWithFrame:[[UIScreen mainScreen] bounds]];
23.     self.mainViewController = [[MainViewController alloc] initWithNibName:@"MainViewController" bundle:nil];
24.     self.window.rootViewController = self.mainViewController;
25.     [self.window makeKeyAndVisible];
26.     return YES;
27. }
28.
29. @end
```

```objectivec
1.  //
2.  //  FlipsideViewController.h
3.  //  Utility
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Utility Application.
10. //
11.
12. #import <UIKit/UIKit.h>
13.
14. @class FlipsideViewController;
15.
16. @protocol FlipsideViewControllerDelegate
17. - (void)flipsideViewControllerDidFinish:(FlipsideViewController *)controller;
18. @end
19.
20. @interface FlipsideViewController : UIViewController
21.
22. @property (weak, nonatomic) id <FlipsideViewControllerDelegate> delegate;
23.
24. - (IBAction)done:(id)sender;
25.
26. @end
```

```objc
1.  //
2.  //  FlipsideViewController.m
3.  //  Utility
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Utility Application.
10. //
11.
12. #import "FlipsideViewController.h"
13.
14. @implementation FlipsideViewController
15.
16. @synthesize delegate = _delegate;
17.
18. - (BOOL)shouldAutorotateToInterfaceOrientation:(UIInterfaceOrientation)interfaceOrientation
19. {
20.     return (interfaceOrientation != UIInterfaceOrientationPortraitUpsideDown);
21. }
22.
23. #pragma mark - Actions
24.
25. - (IBAction)done:(id)sender
26. {
27.     [self.delegate flipsideViewControllerDidFinish:self];
28. }
29.
30. @end
```

```
1.  //
2.  //  MainViewController.h
3.  //  Utility
4.  //
5.  //  David J. Malan
6.  //  Harvard University
7.  //  malan@harvard.edu
8.  //
9.  //  Demonstrates a Utility Application.
10. //
11.
12. #import "FlipsideViewController.h"
13.
14. @interface MainViewController : UIViewController <FlipsideViewControllerDelegate>
15.
16. - (IBAction)showInfo:(id)sender;
17.
18. @end
```

```objc
1.   //
2.   //  MainViewController.m
3.   //  Utility
4.   //
5.   //  David J. Malan
6.   //  Harvard University
7.   //  malan@harvard.edu
8.   //
9.   //  Demonstrates a Utility Application.
10.  //
11.
12.  #import "MainViewController.h"
13.
14.  @implementation MainViewController
15.
16.  - (BOOL)shouldAutorotateToInterfaceOrientation:(UIInterfaceOrientation)interfaceOrientation
17.  {
18.      return (interfaceOrientation != UIInterfaceOrientationPortraitUpsideDown);
19.  }
20.
21.  #pragma mark - Flipside View
22.
23.  - (void)flipsideViewControllerDidFinish:(FlipsideViewController *)controller
24.  {
25.      [self dismissModalViewControllerAnimated:YES];
26.  }
27.
28.  - (IBAction)showInfo:(id)sender
29.  {
30.      FlipsideViewController *controller = [[FlipsideViewController alloc] initWithNibName:@"FlipsideViewController" bundle:nil];
31.      controller.delegate = self;
32.      controller.modalTransitionStyle = UIModalTransitionStyleFlipHorizontal;
33.      [self presentModalViewController:controller animated:YES];
34.  }
35.
36.  @end
```