Name: Project completion report
Version: 1.0
Date: 15 July 2011
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Table of Contents

1. About

This document details the work done by University of Gloucestershire for First Cyber Security Limited towards the project titled "i-phone low level analysis" which is a prototype iPhone app.

First Cyber Security Limited has developed patent pending S.O.L.I.D. Authentication® technology which incorporates innovative processes for authenticating web sites, validating logo use, and proactively discovering, warning and protecting users from phishing sites, logo abuse, and counterfeit web sites. This technology currently runs on Microsoft Windows based operating systems, but the company would like to extend it to other platforms and mobile devices such as the iPhone.

The aim of this work is to exploring various approaches to implement the S.O.L.I.D. Authentication® technology on iPhones and demonstrating the technical feasibility of the recommended approach by developing a prototype iPhone app.

2. Objectives

1. Ability for the i-phone browser to send to an application shell information on what URL is being visited.

This objective has been achieved. The following information is being printed on the console.

BEFORE LOAD: This is the URL entered by the User in the browser URL bar
DOCUMENT LOADED: This is where the browser ended up.
IP Addresses
IFRAME SOURCE
IMAGE SOURCE

2. The ability to know when the browser is the foreground/active application.

Since we have created our own app with an inbuilt browser, so there is not need to know if the browser is .foreground/active application.

3. Ability to send information on links within a web page.

This objective has been achieved. The information on links within a webpage is being printed on console if the user clicks on the link.

4. Information on how to create indicators and display logos and move them on the screen.

This objective has been achieved. A horizontal text bar has been created in the bottom of the screen. This text bar is being used to display messages to the user. Although it is not possible to move this text bar on the screen but it can be used to display logos.

3. Deliverable

The deliverable of this project is an iPhone app that demonstrates the technical feasibility of implementing the S.O.L.I.D. Authentication® technology on iPhones. We have considered the following four approaches and decided to use the fourth approach which is to create our own browser app with a custom browser.

3.1 Approaches considered

Approach 1: Write a Background app to intercept all TCP traffic

This approach involves writing an app for that will run in background and intercept all TCP traffic on iPhone generated by Safari or other browser. The iPhone app store will not allow such an app and so we have decided against using this approach. We have posted some messages in the official apple developer forums and two other forums to confirm this. See the appendix for these messages.

Approach 2: Use javascript and frame/iframe

This approach involves forcing the user to browse the internet from within a webpage created by us and using Java script to collect and process the information entered by the user. The webpage will open the URL entered by the user within a frame/iframe. The main disadvantage of this approach is that javascript is not secure and so we have decided against using this approach. The other difficulty in this approach is in making sure that user always stays within the frame/iframe of our web page because otherwise we lose control over URL visited by the user.

Approach 3: Use a proxy server

This approach involves creating a proxy server and changing the setting of iPhone browser to always go through this proxy server. This approach is technically not feasible as it is not possible to change the proxy server settings of the iPhone browser. So we have decided against this approach.

Approach 4: Create an app with a custom browser

This approach involves creating an app with an inbuilt custom browser. We recommend that this approach should be used. This approach is technically feasible as we have created a prototype of such an app. This would be a secure approach as it uses Apple Cocoa framework which is implemented in Objective-C. It should be noted that according to the current iPhone policy, this app will be rated 17+ because it contains an embedded web browser.

3.2. iPhone App

This iPhone app consists of an inbuilt web browser with address bar, back and forward buttons and a horizontal text bar at the bottom of the screen to display messages to the user. The screenshot of the app have been shown in Figure 1 through Figure 4. The code of this app is provided in Appendix 4.3.

This app has two main features. Firstly it intercepts the URL entered by the user and prints the shell information about this URL on console. The shell information includes the Host, IP Addresses, IFRAME SOURCE and IMAGE SOURCE. Table 1 shows the data generated when user enters "www.o2.co.uk". Table 2 shows the data generated when user enters "www.o2.co.uk/shop" which is equivalent to user clicking the "Shop" link on home page "www.o2.co.uk". Table 3 shows the data generated when user enters "www.cnn.com".

Secondly it intercepts the URL within a web page that the user has clicked and prints this URL in the bottom horizontal text bar.

BEFORE LOAD www.o2.co.uk
DOCUMENT LOADED http://www.o2.co.uk/
IP Addresses 82.132.141.84
IFRAME SOURCE: http://view.atdmt.com/iaction/repo2s_o2home_1

Table 1: OUTPUT when user enters www.o2.co.uk

BEFORE LOAD www.o2.co.uk/shop
DOCUMENT LOADED http://shop.o2.co.uk/home
IP Addresses 2.18.178.128
IFRAME SOURCE: http://switch.atdmt.com/iaction/repo2s_warmlead1o2shop_4
IFRAME SOURCE: http://switch.atdmt.com/iaction/dnaoo2_shophomepage_1

Table 2: OUTPUT when user enters www.o2.co.uk/shop

BEFORE LOAD www.cnn.com
DOCUMENT LOADED http://edition.cnn.com/
IP Addresses 157.166.226.45

IP Addresses 157.166.226.46
IP Addresses 157.166.255.31
IP Addresses 157.166.255.32

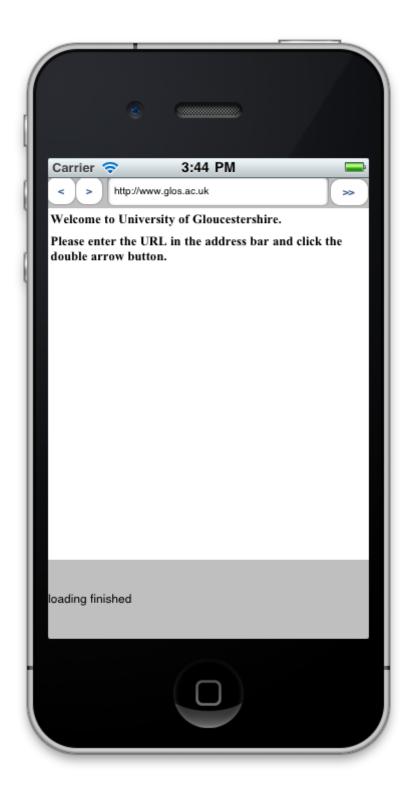Table 3: Output when user enters www.cnn.com
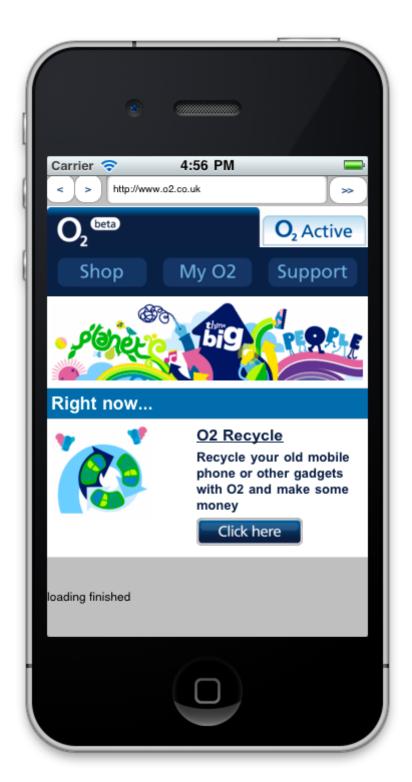

Figure 1: Welcome screen

Figure 2: User enters http://www.o2.co.uk and clicks double arrow button

Figure 3: User clicks url within a webpage

Figure 4: URL clicked by user is printed at bottom bar

4. Appendix

4.1 Useful Links

Cocoa framework: http://developer.apple.com/technologies/mac/cocoa.html

Apple Developer Forum: https://devforums.apple.com/community/ios/devtools

iOS Developer Library
http://developer.apple.com/library/iOS/navigation/#

4.2 Messages posted in forums

Message 1 : iPhone app to intercept TCP traffic

Link:
https://devforums.apple.com/thread/108470

Message:

iPhone app to intercept TCP traffic
29-Jun-2011 03:26
Hi,

Subject: iPhone app to intercept TCP traffic

I would like to write an app for iPhone that will run in background and intercept all TCP traffic on iPhone generated by Safari browser.

Is it possible to write such an app? Any relevant links or articles would be much appreciated.

Anyone aware of similar app that runs on normal iPhone (not jailbreak)?

Thanks.
Ambi.

Response

Such an application will not make it to the app store.

You will need a jailbroken phone to do this, and there certainly is no official documentation on it, either.

Alex

Message 2 : iPhone app to intercept TCP traffic

Link

https://discussions.apple.com/thread/3148599

Message

29-Jun-2011 04:18

Hi,

I would like to write an app for iPhone that will run in background and intercept all TCP traffic on iPhone generated by Safari browser.

Is it possible to write such an app? Any relevant links or articles would be much appreciated.

Anyone aware of similar app that runs on normal iPhone (not jailbreak)?

Thanks.
Ambi.

Response

>intercept all TCP traffic on iPhone generated by Safari browser.

Your app does not have access outside of it's own sandbox....it's a privacy thing and a good one too.

Message 3 : iPhone app to intercept TCP traffic

Message 06-29-2011

Hi,

Subject: iPhone app to intercept TCP traffic

I would like to write an app for iPhone that will run in background and intercept all TCP traffic on iPhone generated by Safari browser.

Is it possible to write such an app? Any relevant links or articles would be much appreciated.

Anyone aware of similar app that runs on normal iPhone (not jailbreak)?

Thanks.

Ambi.

Response 1

no, can't be done with public api....

Response 2

depending on your exact needs you might be able to write/compile an HTTP proxy which runs on the iPhone and logs traffic, then configure the iPhone to access the net through your local proxy.

I'm not sure if you can accept sockets in a background app however.

Whatever the case there's probably no easy out!

Response 3

yes, can be done but can't go to appstore

4.3 Code

This section contains code for the following five files.

firstAppViewController.m : This is the main file for business logix.

firstAppViewController.h

firstAppAppDelegate.m

firstAppAppDelegate.h

firstAppViewController.xib: This is the main file for GUI.

firstAppViewController.m

```objc
// firstAppViewController.m
// firstApp
//
// Created by Ambikesh Jayal on 25/05/2011.
// ajayal@glos.ac.uk
// ambi1999@gmail.com
// Copyright 2011 University of Gloucestershire. All rights reserved.
//

#import "firstAppViewController.h"
@implementation firstAppViewController
@synthesize webView, addressBar, activityIndicator;

-(void) printTime{
        NSDate* date=[NSDate date];
        NSDateFormatter* formatter=[[[NSDateFormatter alloc] init] autorelease];
        [formatter setDateFormat:@"HH:MM:SS"];

        NSString* str=[formatter stringFromDate:date];

        valueOfURLByUser.text=str;

}


-(void) loadView {
        valueOfURLByUser.text=@"loading start ";
        [super loadView];
        valueOfURLByUser.text=@"loading finished ";
}

- (void)viewDidLoad {

   [super viewDidLoad];

        webView.delegate=self;


        /*
        NSString *urlAddress = @"http://www.o2.co.uk";
```

```objc
        NSURL *url = [NSURL URLWithString:urlAddress];
        NSURLRequest *requestObj = [NSURLRequest requestWithURL:url];

        [webView loadRequest:requestObj];
        [addressBar setText:urlAddress];
        */

        NSString *html = @"<html><head><title>Test html page></head><body><h1>
Welcome to University of Gloucestershire.</h1> <h1>Please enter the URL in the address
bar and click the double arrow button. </h1></body></html>";
        [webView loadHTMLString:html baseURL:[NSURL
URLWithString:@"http://www.glos.ac.uk"]];
        [addressBar setText:@"http://www.glos.ac.uk"];

}



-(void)getAllFramesSrcFromHTMLPageContent:(NSString *) strAllHTMLContent{


        NSError *error = NULL;

        NSRegularExpression *regex = [NSRegularExpression
regularExpressionWithPattern:@"<iframe[^>]*src=\"(.*?)\""

options:NSRegularExpressionCaseInsensitive

                                                error:&error];


        NSArray *matches = [regex matchesInString:strAllHTMLContent
                                                options:0
range:NSMakeRange(0, [strAllHTMLContent length])];

        NSString *myString = [NSString stringWithFormat:@"%d", [matches count]];

        int count=[matches count];

        if(count>0){

        //NSLog(@"Iframe count: %@",myString);
        //NSLog(@"\n*********** IFrame SOURCES START \n");
```

```objc
        for (NSTextCheckingResult *match in matches) {
            NSRange matchRange = [match range];
            NSString* s1=[strAllHTMLContent substringWithRange:matchRange];
            NSString *search = @"src=\"";
            NSString *s2 = [s1 substringFromIndex:NSMaxRange([s1
rangeOfString:search])];
            s2=[s2 stringByReplacingOccurrencesOfString:@"\"" withString:@""];
            NSLog (@"IFRAME SOURCE: %@", s2);


        }

        //[regex release];

        //NSLog(@"\n ************ IFrame SOURCES END\n ");
        }

}

-(void)getAllImageSrcFromHTMLPageContent:(NSString *) strAllHTMLContent{


        NSError *error = NULL;

        NSRegularExpression *regex = [NSRegularExpression
regularExpressionWithPattern:@"<img[^>]*src=\"(.*?)\""


options:NSRegularExpressionCaseInsensitive

                                                    error:&error];


        NSArray *matches = [regex matchesInString:strAllHTMLContent
                                                    options:0

range:NSMakeRange(0, [strAllHTMLContent length])];

        NSString *myString = [NSString stringWithFormat:@"%d", [matches count]];
        int count=[matches count];

        if(count>0){
        //NSLog(@"Image count: %@",myString);
        //NSLog(@"\n*********** Image SOURCES START \n ");
        for (NSTextCheckingResult *match in matches) {
```

```
                    NSRange matchRange = [match range];
                    //NSRange firstHalfRange = [match rangeAtIndex:1];
                    //NSRange secondHalfRange = [match rangeAtIndex:2];
                    //NSLog (@"%@", [strAllHTMLContent substringWithRange:matchRange]);

                    NSString* s1=[strAllHTMLContent substringWithRange:matchRange];

                    NSString *search = @"src=\"";
                    NSString *s2 = [s1 substringFromIndex:NSMaxRange([s1
rangeOfString:search])];
                    s2=[s2 stringByReplacingOccurrencesOfString:@"\"" withString:@""];
                    NSLog (@"IMAGE SOURCE: %@", s2);


            }

            //[regex release];

            //NSLog(@"\n************ Image SOURCES END  \n ");
            }

}



-(IBAction)gotoAddress:(id) sender {


        NSLog(@"\n\n DATA Generated by Department of Computing, University of
Gloucestershire \n\n");

        NSString* urlByUser=[addressBar text];
        NSString* formattedURLByUser=urlByUser;
        if(![urlByUser hasPrefix:@"http"]){
                formattedURLByUser=[NSString stringWithFormat:@"%@%@", @"http://",
urlByUser];
        }

        //NSURL *url = [NSURL URLWithString:[addressBar text]];
        NSURL *url = [NSURL URLWithString:formattedURLByUser];

        NSURLRequest *request = [NSURLRequest requestWithURL:url];

        //int validationCode=[self getValidationCodeFromCyberSecurity: request];
        //[self processAccordingToValidationCode:validationCode:request];
```

```objc
        //Load the request in the UIWebView.
        [webView loadRequest:request];
        [addressBar resignFirstResponder];

        // Create the request.
        //NSURLRequest *theRequest=[NSURLRequest requestWithURL:[NSURL
URLWithString:@"http://www.o2.co.uk"]
        //
cachePolicy:NSURLRequestUseProtocolCachePolicy
        //
timeoutInterval:60.0];

        //NSURLRequest *theRequest=[NSURLRequest requestWithURL:[NSURL
URLWithString:@"http://www.bbcnews.com/"]
        //
cachePolicy:NSURLRequestUseProtocolCachePolicy
        //
timeoutInterval:60.0];


        //NSURLRequest *theRequest=[NSURLRequest requestWithURL:[NSURL
URLWithString:@"http://www.angelfire.com/super/badwebs/"]
        //
cachePolicy:NSURLRequestUseProtocolCachePolicy
        //
timeoutInterval:60.0];
        NSURLRequest *theRequest=[NSURLRequest requestWithURL:url

cachePolicy:NSURLRequestUseProtocolCachePolicy

timeoutInterval:60.0];

        //NSHost *host=[NSHost hostWithName:@"www.cnn.com"];
        //NSHost *host=[NSHost hostWithName:@"www.o2.co.uk"];
        NSHost *host=[NSHost hostWithName:[url host]];
        NSArray *nsArrayIPAddresses =[host addresses];
        //NSLog(@"BEFORE LOAD %@", [url absoluteString]);
        NSLog(@"BEFORE LOAD %@", urlByUser);


        NSDictionary *nsDictionary=[theRequest allHTTPHeaderFields];
        NSArray *nsArray =[nsDictionary allValues];

        valueOfURLByUser.text=@"REQUEST url= {";
```

```objc
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString:
[[theRequest URL] absoluteString ]];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"}"];


        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"
host= {"];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString:
[[theRequest URL] host ]];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"}"];



        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"
Header Info ["];



        for (id value in nsArray){
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"{"];
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: value];
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"}"];
        }

        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"]"];

        // create the connection with the request
        // and start loading the data
        NSURLConnection *theConnection=[[NSURLConnection alloc]
initWithRequest:theRequest delegate:self];
        if (theConnection) {
                // Create the NSMutableData to hold the received data.
                // receivedData is an instance variable declared elsewhere.
                //receivedData = [[NSMutableData data] retain];
        } else {
                // Inform the user that the connection failed.
        }

        //valueOfURLByUser.text =[addressBar text];

        //NSLog(@"******* End of gotoAddress");



}
```

```objc
-(void) connection:(NSURLConnection *)connection
didReceiveResponse:(NSURLResponse *)response {

        // cast the response to NSHTTPURLResponse so we can look for 404 etc
        NSHTTPURLResponse *httpResponse = (NSHTTPURLResponse *)response;

        //valueOfURLByUser.text =[[httpResponse URL] absoluteString ];
        NSDictionary *nsDictionary=[httpResponse allHeaderFields];
        NSArray *nsArray =[nsDictionary allValues];


        //valueOfURLByUser.text=@"url= {";

        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"\n
RESPONSE url = {"];


        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString:
[[httpResponse URL] absoluteString ]];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"}"];

        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"
host= {"];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString:
[[httpResponse URL] host ]];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"}"];

        NSLog(@"DOCUMENT LOADED %@", [[httpResponse URL] absoluteString ]);
        NSHost *host=[NSHost hostWithName:[[httpResponse URL] host ]];
        NSArray *nsArrayIPAddresses =[host addresses];

        for (id ipValue in nsArrayIPAddresses){
                NSLog(@"IP Addresses %@",ipValue);
        }


        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"
Header Info ["];


        for (id value in nsArray){
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"{"];
        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString:
value];
```

```objc
            valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"}"];
        }

        valueOfURLByUser.text=[valueOfURLByUser.text stringByAppendingString: @"]"];


        if ([httpResponse statusCode] >= 400) {
                // do error handling here
                NSLog(@"remote url returned error %d %@",[httpResponse
statusCode],[NSHTTPURLResponse localizedStringForStatusCode:[httpResponse
statusCode]]);
        } else {
                // start recieving data
        }


        //NSLog(@"******** End of didReceiveResponse");

}

- (void)connection:(NSURLConnection *)connection didReceiveData:(NSData *)theData{

        //[self getAllFrameSrc: [[NSString alloc] initWithData:theData
encoding:NSUTF8StringEncoding]];
        //[self getAllImageSrc: [[NSString alloc] initWithData:theData
encoding:NSUTF8StringEncoding]];

   //NSLog(@"Ambi String sent from server %@",[[NSString alloc] initWithData:theData
encoding:NSUTF8StringEncoding]);

        NSString *str = [[NSString alloc] initWithData:theData
encoding:NSUTF8StringEncoding];
        //NSLog(@"Before: %@", str);
        //str=[str lowercaseString];
        NSString *str1=[str lowercaseString];
        [self getAllFramesSrcFromHTMLPageContent: str1];
        //[self getAllImageSrcFromHTMLPageContent: str1];

        [str release];

}

-(IBAction) goBack:(id)sender {
        [webView goBack];
```

```
}

-(IBAction) goForward:(id)sender {
        //valueOfURLByUser.text= addressBar.text;
        [webView goForward];
        //valueOfURLByUser.text=webView.request.URL.absoluteString;
}




int buttonIndexClickedByUser=-9999;

-(int) getValidationCodeFromCyberSecurity: (NSURLRequest*)request{
        [self printTime];
        //[self showConfirmAlert];
        NSURL *URL = [request URL];
        int cyberSecurityValidationCode=-9;

        //code by ambi

        NSString *urlUserWantsToGo=[URL absoluteString];
        NSString *allowedURL1 = @"bbc";
        NSString *allowedURL2 = @"glos";

        NSString *badURL1 = @"rediff";
        NSString *badURL2 = @"dellfake";

        if (([urlUserWantsToGo rangeOfString:allowedURL1].location != NSNotFound) ||
([urlUserWantsToGo rangeOfString:allowedURL2].location != NSNotFound)   )
        {
                cyberSecurityValidationCode= 0;

        }else if (([urlUserWantsToGo rangeOfString:badURL1].location != NSNotFound) ||
([urlUserWantsToGo rangeOfString:badURL2].location != NSNotFound)   )
        {
                cyberSecurityValidationCode= 1;

        }else {
                //not sure about the url
                cyberSecurityValidationCode= 2;

        }
        return cyberSecurityValidationCode;
}
```

```objc
-(void)loadURLAndUpdateAddressBar: (NSURLRequest*)request{
        NSURL *URL = [request URL];
        [addressBar setText:[URL absoluteString]];
        [webView loadRequest:request];
        [addressBar resignFirstResponder];


}

- (void) processAccordingToValidationCode: (int) cyberSecurityValidationCode:
(NSURLRequest*)request{
        NSURL *URL = [request URL];
        valueOfURLByUser.text=[@"URL user wants to go: " stringByAppendingString:
[URL absoluteString]];
        if(cyberSecurityValidationCode==0){
                [self loadURLAndUpdateAddressBar:request];
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"\n URL is GOOD"];

        }else if(cyberSecurityValidationCode==1){
                NSString *message=@"URL is BAD. Do you still want to proceed Yes or
No?";
                [self showCyberSecurityAlert: message];

                if(buttonIndexClickedByUser==0){
                        //yes, proceed
                        [self loadURLAndUpdateAddressBar:request];
                        valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"\n URL is BAD \n BUT USER WANTS TO PROCEED"];

                }else{
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"\n URL is BAD \n USER DOES NOT WANT TO
PROCEED"];
                }
        }else if(cyberSecurityValidationCode==2){
                NSString *message=@"URL is NOT AUTHENTICATED . Do you still want
to proceed Yes or No?";
                [self showCyberSecurityAlert: message];
                if(buttonIndexClickedByUser==0){
                        //yes, proceed
                        [webView loadRequest:request];
                        [self loadURLAndUpdateAddressBar:request];
                        valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"\n URL is NOT AUTHENTICATED \n USER WANTS TO
PROCEED"];
```

```objc
            }else{
                valueOfURLByUser.text=[valueOfURLByUser.text
stringByAppendingString: @"\n URL is NOT AUTHENTICATED \n USER DOES NOT
WANT TO PROCEED"];
            }

        }else{
            //do nothing
        }


}
- (void)showCyberSecurityAlert: (NSString* ) message
{

        //buttonIndexClickedByUser=-9999;
        UIAlertView *alert = [[UIAlertView alloc] init];
        [alert setTitle:@"First CyberSecurity Alert"];
        //[alert setMessage:@"URL is INVALID. Do you still want to proceed Yes or No?"];
        [alert setMessage:message];
        [alert setDelegate:self];
        [alert addButtonWithTitle:@"Yes"];
        [alert addButtonWithTitle:@"No"];
        [alert show];
        [alert release];
        //valueOfURLByUser.text= [alert delegate];


}




- (void)alertView:(UIAlertView *)alertView clickedButtonAtIndex:(NSInteger)buttonIndex
{
        buttonIndexClickedByUser=buttonIndex;


}




//by ambi
- (BOOL)webView:(UIWebView*)webView
shouldStartLoadWithRequest:(NSURLRequest*)request
navigationType:(UIWebViewNavigationType)navigationType {


        //valueOfURLByUser.text=@"1111";
```

```objc
//CAPTURE USER LINK-CLICK.
if (navigationType == UIWebViewNavigationTypeLinkClicked) {
        int validationCode=[self getValidationCodeFromCyberSecurity: request];
        [self processAccordingToValidationCode:validationCode:request];

        //[self printTime];
        //valueOfURLByUser.text=@"1111";
        //NSURL *url = [NSURL URLWithString:[addressBar text]];
        //NSURLRequest *requestObj = [NSURLRequest requestWithURL:url];

        //Load the request in the UIWebView.
        //NSURL *URL = [request URL];
        //[addressBar setText:[URL absoluteString]];
        //[webView loadRequest:request];
        //[addressBar resignFirstResponder];
        return NO;
        //7196
/*
        valueOfURLByUser.text=@"1111";
        [self gotoAddress:nil];
        return NO;

        NSURL *URL = [request URL];

        //[self cyberSecurityValidation: request];

        //code by ambi
        valueOfURLByUser.text=[URL absoluteString];

        if ([[URL scheme] isEqualToString:@"http"]) {
                [addressBar setText:[URL absoluteString]];

                //code by ambi
                valueOfURLByUser.text=[URL absoluteString];

                [self gotoAddress:nil];
        }
*/
        }

    return YES;
```

```objc
}


- (void)webViewDidStartLoad:(UIWebView *)webView {

        //[self printTime];
        [activityIndicator startAnimating];
        //valueOfURLByUser.text=@"1111";
}

- (void)webViewDidFinishLoad:(UIWebView *)webView {
        [activityIndicator stopAnimating];
        //[self printTime];
        //valueOfURLByUser.text=@"2222";
}


/*
 // Implement viewDidLoad to do additional setup after loading the view, typically from a
nib.
 - (void)viewDidLoad {
 [super viewDidLoad];
 }
 */



/*
 // Override to allow orientations other than the default portrait orientation.
 -
(BOOL)shouldAutorotateToInterfaceOrientation:(UIInterfaceOrientation)interfaceOrientatio
n {
 // Return YES for supported orientations
 return (interfaceOrientation == UIInterfaceOrientationPortrait);
 }
 */



- (void)didReceiveMemoryWarning {
   [super didReceiveMemoryWarning]; // Releases the view if it doesn't have a superview
   // Release anything that's not essential, such as cached data


}
```

```
- (void)dealloc {

        [super dealloc];

}

@end
```

firstAppViewController.h

```
//
//  firstAppViewController.h
//  firstApp
//
//  Created by Ambikesh Jayal on 25/05/2011.
//  ajayal@glos.ac.uk
//  ambi1999@gmail.com
//  Copyright 2011 University of Gloucestershire. All rights reserved.
//
#import <UIKit/UIKit.h>

@interface firstAppViewController : UIViewController<UIWebViewDelegate,
UIAlertViewDelegate> {

        IBOutlet UIWebView *webView;
        IBOutlet UITextField *addressBar;
        IBOutlet UIActivityIndicatorView *activityIndicator;
        IBOutlet UILabel *myaddresslable;
        IBOutlet UILabel *valueOfURLByUser;
}

@property(nonatomic,retain) UIWebView *webView;
@property(nonatomic,retain) UITextField *addressBar;
@property(nonatomic,retain) UIActivityIndicatorView *activityIndicator;

-(IBAction) gotoAddress:(id)sender;
-(IBAction) goBack:(id)sender;
-(IBAction) goForward:(id)sender;
-(void) printTime;

-(NSArray*)getAllFrameSrc:(NSString *) htmlPageSource;
```

```
-(NSArray*)getAllImageSrc:(NSString *) htmlPageSource;


@end
```

firstAppAppDelegate.m

```
//
//  firstAppAppDelegate.m
//  firstApp
//
//  Created by Ambikesh Jayal on 25/05/2011.
//  ajayal@glos.ac.uk
//  ambi1999@gmail.com
//  Copyright 2011 University of Gloucestershire. All rights reserved.
//

#import "firstAppAppDelegate.h"
#import "firstAppViewController.h"

@implementation firstAppAppDelegate

@synthesize window;
@synthesize viewController;


#pragma mark -
#pragma mark Application lifecycle

- (BOOL)application:(UIApplication *)application
didFinishLaunchingWithOptions:(NSDictionary *)launchOptions {

    // Override point for customization after application launch.

        // Set the view controller as the window's root view controller and display.
    self.window.rootViewController = self.viewController;
        //[self.window addSubView:viewController.view];
    [self.window makeKeyAndVisible];

    return YES;
}
```

```objc
- (void)applicationWillResignActive:(UIApplication *)application {
    /*
    Sent when the application is about to move from active to inactive state. This can occur
for certain types of temporary interruptions (such as an incoming phone call or SMS
message) or when the user quits the application and it begins the transition to the
background state.
    Use this method to pause ongoing tasks, disable timers, and throttle down OpenGL ES
frame rates. Games should use this method to pause the game.
    */
}


- (void)applicationDidEnterBackground:(UIApplication *)application {
    /*
    Use this method to release shared resources, save user data, invalidate timers, and
store enough application state information to restore your application to its current state in
case it is terminated later.
    If your application supports background execution, called instead of
applicationWillTerminate: when the user quits.
    */
}


- (void)applicationWillEnterForeground:(UIApplication *)application {
    /*
    Called as part of  transition from the background to the inactive state: here you can
undo many of the changes made on entering the background.
    */
}


- (void)applicationDidBecomeActive:(UIApplication *)application {
    /*
    Restart any tasks that were paused (or not yet started) while the application was
inactive. If the application was previously in the background, optionally refresh the user
interface.
    */
}


- (void)applicationWillTerminate:(UIApplication *)application {
    /*
    Called when the application is about to terminate.
```

```
    See also applicationDidEnterBackground:.
    */
}


#pragma mark -
#pragma mark Memory management

- (void)applicationDidReceiveMemoryWarning:(UIApplication *)application {
    /*
    Free up as much memory as possible by purging cached data objects that can be
recreated (or reloaded from disk) later.
    */
}



- (void)dealloc {
    [viewController release];
    [window release];
    [super dealloc];
}

@end
```

firstAppAppDelegate.h

```
//
//  firstAppAppDelegate.h
//  firstApp
//
//  Created by Ambikesh Jayal on 25/05/2011.
//  ajayal@glos.ac.uk
//  ambi1999@gmail.com
//  Copyright 2011 University of Gloucestershire. All rights reserved.
//

#import <UIKit/UIKit.h>

@class firstAppViewController;

@interface firstAppAppDelegate : NSObject <UIApplicationDelegate> {
```

```
    UIWindow *window;
    firstAppViewController *viewController;


}

@property (nonatomic, retain) IBOutlet UIWindow *window;
@property (nonatomic, retain) IBOutlet firstAppViewController *viewController;

@end
```

firstAppViewController.xib

```xml
<?xml version="1.0" encoding="UTF-8"?>
<archive type="com.apple.InterfaceBuilder3.CocoaTouch.XIB" version="7.10">
        <data>
                <int key="IBDocument.SystemTarget">1056</int>
                <string key="IBDocument.SystemVersion">10J869</string>
                <string key="IBDocument.InterfaceBuilderVersion">851</string>
                <string key="IBDocument.AppKitVersion">1038.35</string>
                <string key="IBDocument.HIToolboxVersion">461.00</string>
                <object class="NSMutableDictionary" key="IBDocument.PluginVersions">
                        <string
key="NS.key.0">com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                        <string key="NS.object.0">141</string>
                </object>
                <object class="NSMutableArray" key="IBDocument.EditedObjectIDs">
                        <bool key="EncodedWithXMLCoder">YES</bool>
                        <integer value="6"/>
                </object>
                <object class="NSArray" key="IBDocument.PluginDependencies">
                        <bool key="EncodedWithXMLCoder">YES</bool>
                        <string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                </object>
                <object class="NSMutableDictionary" key="IBDocument.Metadata">
                        <bool key="EncodedWithXMLCoder">YES</bool>
                        <object class="NSArray" key="dict.sortedKeys" id="0">
                                <bool key="EncodedWithXMLCoder">YES</bool>
                        </object>
                        <object class="NSMutableArray" key="dict.values">
                                <bool key="EncodedWithXMLCoder">YES</bool>
                        </object>
```

```xml
            </object>
            <object class="NSMutableArray" key="IBDocument.RootObjects"
id="1000">
                <bool key="EncodedWithXMLCoder">YES</bool>
                <object class="IBProxyObject" id="372490531">
                    <string
key="IBProxiedObjectIdentifier">IBFilesOwner</string>
                    <string
key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                </object>
                <object class="IBProxyObject" id="843779117">
                    <string
key="IBProxiedObjectIdentifier">IBFirstResponder</string>
                    <string
key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                </object>
                <object class="IBUIView" id="774585933">
                    <reference key="NSNextResponder"/>
                    <int key="NSvFlags">274</int>
                    <object class="NSMutableArray" key="NSSubviews">
                        <bool key="EncodedWithXMLCoder">YES</bool>
                        <object class="IBUIWebView" id="263013782">
                            <reference key="NSNextResponder"
ref="774585933"/>
                            <int key="NSvFlags">274</int>
                            <string key="NSFrame">{{0, 30}, {320,
351}}</string>
                            <reference key="NSSuperview"
ref="774585933"/>
                            <object class="NSColor"
key="IBUIBackgroundColor">
                                <int key="NSColorSpace">1</int>
                                <bytes
key="NSRGB">MSAxIDEAA</bytes>
                            </object>
                            <int key="IBUIContentMode">4</int>
                            <bool
key="IBUIMultipleTouchEnabled">YES</bool>
                            <string
key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                            <bool
key="IBUIScalesPageToFit">YES</bool>
                            <int key="IBUIDataDetectorTypes">1</int>
                            <bool
key="IBUIDetectsPhoneNumbers">YES</bool>
```

```xml
                    </object>
                    <object class="IBUIButton" id="964909738">
                        <reference key="NSNextResponder"
ref="774585933"/>
                        <int key="NSvFlags">292</int>
                        <string key="NSFrame">{{-2, -2}, {30,
29}}</string>
                        <reference key="NSSuperview"
ref="774585933"/>
                        <bool key="IBUIOpaque">NO</bool>
                        <object
class="IBUIAccessibilityConfiguration" key="IBUIAccessibilityConfiguration">
                            <integer value="5"
key="IBUIAccessibilityTraits"/>
                        </object>
                        <string
key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                        <int
key="IBUIContentHorizontalAlignment">0</int>
                        <int
key="IBUIContentVerticalAlignment">0</int>
                        <object class="NSFont" key="IBUIFont"
id="646309731">
                            <string
key="NSName">Helvetica-Bold</string>
                            <double key="NSSize">10</double>
                            <int key="NSfFlags">16</int>
                        </object>
                        <int key="IBUIButtonType">1</int>
                        <string key="IBUINormalTitle">&lt;</string>
                        <object class="NSColor"
key="IBUIHighlightedTitleColor" id="201440552">
                            <int key="NSColorSpace">3</int>
                            <bytes key="NSWhite">MQA</bytes>
                        </object>
                        <object class="NSColor"
key="IBUINormalTitleColor">
                            <int key="NSColorSpace">1</int>
                            <bytes
key="NSRGB">MC4xOTYwNzg0MzQ2IDAuMzA5ODAzOTMyOSAwLjUyMTU2ODY1NgA
</bytes>
                        </object>
                        <object class="NSColor"
key="IBUINormalTitleShadowColor" id="229994396">
                            <int key="NSColorSpace">3</int>
```

                                                            <bytes key="NSWhite">MC41AA</bytes>
                                                        </object>
                                                    </object>
                                                    <object class="IBUIButton" id="414693114">
                                                        <reference key="NSNextResponder" ref="774585933"/>
                                                        <int key="NSvFlags">292</int>
                                                        <string key="NSFrame">{{27, -2}, {28, 29}}</string>
                                                        <reference key="NSSuperview" ref="774585933"/>
                                                        <bool key="IBUIOpaque">NO</bool>
                                                        <string key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                                                        <int key="IBUIContentHorizontalAlignment">0</int>
                                                        <int key="IBUIContentVerticalAlignment">0</int>
                                                        <reference key="IBUIFont" ref="646309731"/>
                                                        <int key="IBUIButtonType">1</int>
                                                        <string key="IBUINormalTitle">></string>
                                                        <reference key="IBUIHighlightedTitleColor" ref="201440552"/>
                                                        <object class="NSColor" key="IBUINormalTitleColor">
                                                            <int key="NSColorSpace">1</int>
                                                            <bytes key="NSRGB">MC4xOTYwNzg0MzQ2IDAuMzA5ODAzOTMyOSAwLjUyMTU2ODY1NgA</bytes>
                                                        </object>
                                                        <reference key="IBUINormalTitleShadowColor" ref="229994396"/>
                                                    </object>
                                                    <object class="IBUITextField" id="215964141">
                                                        <reference key="NSNextResponder" ref="774585933"/>
                                                        <int key="NSvFlags">292</int>
                                                        <string key="NSFrame">{{59, -3}, {221, 31}}</string>
                                                        <reference key="NSSuperview" ref="774585933"/>
                                                        <bool key="IBUIOpaque">NO</bool>
                                                        <bool key="IBUIClipsSubviews">YES</bool>

```xml
<string key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
<int key="IBUIContentVerticalAlignment">0</int>
<string key="IBUIText"/>
<int key="IBUIBorderStyle">3</int>
<object class="NSColor" key="IBUITextColor">
    <int key="NSColorSpace">3</int>
    <bytes key="NSWhite">MAA</bytes>
    <object class="NSColorSpace" key="NSCustomColorSpace" id="505753881">
        <int key="NSID">2</int>
    </object>
</object>
<object class="NSFont" key="IBUIFont">
    <string key="NSName">Helvetica</string>
    <double key="NSSize">10</double>
    <int key="NSfFlags">16</int>
</object>
<bool key="IBUIAdjustsFontSizeToFit">YES</bool>
<float key="IBUIMinimumFontSize">17</float>
<object class="IBUITextInputTraits" key="IBUITextInputTraits">
    <string key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
</object>
</object>
<object class="IBUILabel" id="300530103">
    <reference key="NSNextResponder" ref="774585933"/>
    <int key="NSvFlags">292</int>
    <string key="NSFrame">{{0, 379}, {320, 81}}</string>
    <reference key="NSSuperview" ref="774585933"/>
    <bool key="IBUIOpaque">NO</bool>
    <bool key="IBUIClipsSubviews">YES</bool>
    <int key="IBUIContentMode">7</int>
    <bool key="IBUIUserInteractionEnabled">NO</bool>
    <object
```

class="IBUIAccessibilityConfiguration" key="IBUIAccessibilityConfiguration">
                                        <integer value="0"
key="IBUIAccessibilityTraits"/>
                                </object>
                                <string
key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                                <string key="IBUIText">Label</string>
                                <object class="NSFont" key="IBUIFont">
                                        <string
key="NSName">Helvetica</string>
                                        <double key="NSSize">12</double>
                                        <int key="NSfFlags">16</int>
                                </object>
                                <object class="NSColor"
key="IBUITextColor">
                                        <int key="NSColorSpace">1</int>
                                        <bytes
key="NSRGB">MCAwIDAAAA</bytes>
                                </object>
                                <reference key="IBUIHighlightedColor"
ref="201440552"/>
                                <int key="IBUIBaselineAdjustment">1</int>
                                <float
key="IBUIMinimumFontSize">10</float>
                                <int key="IBUINumberOfLines">5</int>
                                <int key="IBUILineBreakMode">1</int>
                        </object>
                        <object class="IBUIButton" id="937651243">
                                <reference key="NSNextResponder"
ref="774585933"/>
                                <int key="NSvFlags">292</int>
                                <string key="NSFrame">{{281, 0}, {39,
28}}</string>
                                <reference key="NSSuperview"
ref="774585933"/>
                                <bool key="IBUIOpaque">NO</bool>
                                <string
key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                                <int
key="IBUIContentHorizontalAlignment">0</int>
                                <int
key="IBUIContentVerticalAlignment">0</int>
                                <reference key="IBUIFont"
ref="646309731"/>
                                <int key="IBUIButtonType">1</int>

```xml
                                        <string key="IBUINormalTitle">&gt;&gt;</string>
                                        <reference key="IBUIHighlightedTitleColor" ref="201440552"/>
                                        <object class="NSColor" key="IBUINormalTitleColor">
                                            <int key="NSColorSpace">1</int>
                                            <bytes key="NSRGB">MC4xOTYwNzg0MzQ2IDAuMzA5ODAzOTMyOSAwLjUyMTU2ODY1NgA</bytes>
                                        </object>
                                        <reference key="IBUINormalTitleShadowColor" ref="229994396"/>
                                    </object>
                                </object>
                                <string key="NSFrameSize">{320, 460}</string>
                                <reference key="NSSuperview"/>
                                <object class="NSColor" key="IBUIBackgroundColor">
                                    <int key="NSColorSpace">3</int>
                                    <bytes key="NSWhite">MC43NQA</bytes>
                                    <reference key="NSCustomColorSpace" ref="505753881"/>
                                </object>
                                <bool key="IBUIClearsContextBeforeDrawing">NO</bool>
                                <object class="IBUISimulatedStatusBarMetrics" key="IBUISimulatedStatusBarMetrics"/>
                                <string key="targetRuntimeIdentifier">IBCocoaTouchFramework</string>
                            </object>
                        </object>
                        <object class="IBObjectContainer" key="IBDocument.Objects">
                            <object class="NSMutableArray" key="connectionRecords">
                                <bool key="EncodedWithXMLCoder">YES</bool>
                                <object class="IBConnectionRecord">
                                    <object class="IBCocoaTouchOutletConnection" key="connection">
                                        <string key="label">view</string>
                                        <reference key="source" ref="372490531"/>
                                        <reference key="destination" ref="774585933"/>
                                    </object>
                                    <int key="connectionID">7</int>
                                </object>
                                <object class="IBConnectionRecord">
                                    <object class="IBCocoaTouchOutletConnection"
```

key="connection">
                                        <string key="label">webView</string>
                                        <reference key="source" ref="372490531"/>
                                        <reference key="destination"
ref="263013782"/>
                                </object>
                                <int key="connectionID">12</int>
                        </object>
                        <object class="IBConnectionRecord">
                                <object class="IBCocoaTouchEventConnection"
key="connection">
                                        <string key="label">goBack:</string>
                                        <reference key="source" ref="964909738"/>
                                        <reference key="destination"
ref="372490531"/>
                                        <int key="IBEventType">1</int>
                                </object>
                                <int key="connectionID">17</int>
                        </object>
                        <object class="IBConnectionRecord">
                                <object class="IBCocoaTouchEventConnection"
key="connection">
                                        <string key="label">goForward:</string>
                                        <reference key="source" ref="414693114"/>
                                        <reference key="destination"
ref="372490531"/>
                                        <int key="IBEventType">1</int>
                                </object>
                                <int key="connectionID">18</int>
                        </object>
                        <object class="IBConnectionRecord">
                                <object class="IBCocoaTouchOutletConnection"
key="connection">
                                        <string key="label">addressBar</string>
                                        <reference key="source" ref="372490531"/>
                                        <reference key="destination"
ref="215964141"/>
                                </object>
                                <int key="connectionID">22</int>
                        </object>
                        <object class="IBConnectionRecord">
                                <object class="IBCocoaTouchOutletConnection"
key="connection">
                                        <string
key="label">valueOfURLByUser</string>

```xml
                                                <reference key="source" ref="372490531"/>
                                                <reference key="destination"
ref="300530103"/>
                                        </object>
                                        <int key="connectionID">26</int>
                                </object>
                                <object class="IBConnectionRecord">
                                        <object class="IBCocoaTouchEventConnection"
key="connection">
                                                <string key="label">gotoAddress:</string>
                                                <reference key="source" ref="937651243"/>
                                                <reference key="destination"
ref="372490531"/>
                                                <int key="IBEventType">1</int>
                                        </object>
                                        <int key="connectionID">29</int>
                                </object>
                                <object class="IBConnectionRecord">
                                        <object class="IBCocoaTouchOutletConnection"
key="connection">
                                                <string key="label">delegate</string>
                                                <reference key="source" ref="263013782"/>
                                                <reference key="destination"
ref="774585933"/>
                                        </object>
                                        <int key="connectionID">32</int>
                                </object>
                        </object>
                        <object class="IBMutableOrderedSet" key="objectRecords">
                                <object class="NSArray" key="orderedObjects">
                                        <bool key="EncodedWithXMLCoder">YES</bool>
                                        <object class="IBObjectRecord">
                                                <int key="objectID">0</int>
                                                <reference key="object" ref="0"/>
                                                <reference key="children" ref="1000"/>
                                                <nil key="parent"/>
                                        </object>
                                        <object class="IBObjectRecord">
                                                <int key="objectID">-1</int>
                                                <reference key="object" ref="372490531"/>
                                                <reference key="parent" ref="0"/>
                                                <string key="objectName">File's
Owner</string>
                                        </object>
                                        <object class="IBObjectRecord">
```

```xml
                                        <int key="objectID">-2</int>
                                        <reference key="object" ref="843779117"/>
                                        <reference key="parent" ref="0"/>
                            </object>
                            <object class="IBObjectRecord">
                                        <int key="objectID">6</int>
                                        <reference key="object" ref="774585933"/>
                                        <object class="NSMutableArray"
key="children">
                                                    <bool
key="EncodedWithXMLCoder">YES</bool>
                                                    <reference ref="964909738"/>
                                                    <reference ref="414693114"/>
                                                    <reference ref="215964141"/>
                                                    <reference ref="937651243"/>
                                                    <reference ref="263013782"/>
                                                    <reference ref="300530103"/>
                                        </object>
                                        <reference key="parent" ref="0"/>
                            </object>
                            <object class="IBObjectRecord">
                                        <int key="objectID">11</int>
                                        <reference key="object" ref="263013782"/>
                                        <reference key="parent" ref="774585933"/>
                            </object>
                            <object class="IBObjectRecord">
                                        <int key="objectID">15</int>
                                        <reference key="object" ref="964909738"/>
                                        <reference key="parent" ref="774585933"/>
                            </object>
                            <object class="IBObjectRecord">
                                        <int key="objectID">16</int>
                                        <reference key="object" ref="414693114"/>
                                        <reference key="parent" ref="774585933"/>
                            </object>
                            <object class="IBObjectRecord">
                                        <int key="objectID">21</int>
                                        <reference key="object" ref="215964141"/>
                                        <reference key="parent" ref="774585933"/>
                            </object>
                            <object class="IBObjectRecord">
                                        <int key="objectID">25</int>
                                        <reference key="object" ref="300530103"/>
                                        <reference key="parent" ref="774585933"/>
                            </object>
```

```xml
            <object class="IBObjectRecord">
                    <int key="objectID">27</int>
                    <reference key="object" ref="937651243"/>
                    <reference key="parent" ref="774585933"/>
            </object>
        </object>
    </object>
    <object class="NSMutableDictionary" key="flattenedProperties">
            <bool key="EncodedWithXMLCoder">YES</bool>
            <object class="NSArray" key="dict.sortedKeys">
                    <bool key="EncodedWithXMLCoder">YES</bool>
                    <string>-1.CustomClassName</string>
                    <string>-2.CustomClassName</string>
                    <string>11.IBPluginDependency</string>
                    <string>11.IBPropertyAccessControl</string>

<string>11.IBViewBoundsToFrameTransform</string>
                    <string>15.IBPluginDependency</string>

<string>15.IBViewBoundsToFrameTransform</string>
                    <string>16.IBPluginDependency</string>

<string>16.IBViewBoundsToFrameTransform</string>
                    <string>21.IBPluginDependency</string>

<string>21.IBViewBoundsToFrameTransform</string>
                    <string>25.IBPluginDependency</string>

<string>25.IBViewBoundsToFrameTransform</string>
                    <string>27.IBPluginDependency</string>

<string>27.IBViewBoundsToFrameTransform</string>
                    <string>6.IBEditorWindowLastContentRect</string>
                    <string>6.IBPluginDependency</string>
            </object>
            <object class="NSMutableArray" key="dict.values">
                    <bool key="EncodedWithXMLCoder">YES</bool>
                    <string>firstAppViewController</string>
                    <string>UIResponder</string>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                    <integer value="3"/>
                    <object class="NSAffineTransform">
                            <bytes
key="NSTransformStruct">P4AAAL+AAAAAAAAAw7wAAA</bytes>
```

```xml
                                        </object>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                                        <object class="NSAffineTransform">
                                                <bytes
key="NSTransformStruct">P4AAAL+AAAAAAAAwjwAAA</bytes>
                                        </object>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                                        <object class="NSAffineTransform">
                                                <bytes
key="NSTransformStruct">P4AAAL+AAABCEAAAwdgAAA</bytes>
                                        </object>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                                        <object class="NSAffineTransform">
                                                <bytes
key="NSTransformStruct">P4AAAL+AAABCbAAAwngAAA</bytes>
                                        </object>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                                        <object class="NSAffineTransform">
                                                <bytes
key="NSTransformStruct">P4AAAL+AAAAAAAAw+UAAA</bytes>
                                        </object>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                                        <object class="NSAffineTransform">
                                                <bytes
key="NSTransformStruct">P4AAAL+AAABDgoAAwdAAAA</bytes>
                                        </object>
                                        <string>{{494, 174}, {320, 480}}</string>

<string>com.apple.InterfaceBuilder.IBCocoaTouchPlugin</string>
                                </object>
                        </object>
                        <object class="NSMutableDictionary" key="unlocalizedProperties">
                                <bool key="EncodedWithXMLCoder">YES</bool>
                                <reference key="dict.sortedKeys" ref="0"/>
                                <object class="NSMutableArray" key="dict.values">
                                        <bool key="EncodedWithXMLCoder">YES</bool>
                                </object>
                        </object>
                        <nil key="activeLocalization"/>
                        <object class="NSMutableDictionary" key="localizations">
```

```xml
                        <bool key="EncodedWithXMLCoder">YES</bool>
                        <reference key="dict.sortedKeys" ref="0"/>
                        <object class="NSMutableArray" key="dict.values">
                                <bool key="EncodedWithXMLCoder">YES</bool>
                        </object>
                </object>
                <nil key="sourceID"/>
                <int key="maxID">32</int>
        </object>
        <object class="IBClassDescriber" key="IBDocument.Classes">
                <object class="NSMutableArray"
key="referencedPartialClassDescriptions">
                        <bool key="EncodedWithXMLCoder">YES</bool>
                        <object class="IBPartialClassDescription">
                                <string
key="className">firstAppViewController</string>
                                <string
key="superclassName">UIViewController</string>
                                <object class="NSMutableDictionary" key="actions">
                                        <bool
key="EncodedWithXMLCoder">YES</bool>
                                        <object class="NSArray"
key="dict.sortedKeys">
                                                <bool
key="EncodedWithXMLCoder">YES</bool>
                                                <string>goBack:</string>
                                                <string>goForward:</string>
                                                <string>gotoAddress:</string>
                                        </object>
                                        <object class="NSMutableArray"
key="dict.values">
                                                <bool
key="EncodedWithXMLCoder">YES</bool>
                                                <string>id</string>
                                                <string>id</string>
                                                <string>id</string>
                                        </object>
                                </object>
                                <object class="NSMutableDictionary"
key="actionInfosByName">
                                        <bool
key="EncodedWithXMLCoder">YES</bool>
                                        <object class="NSArray"
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