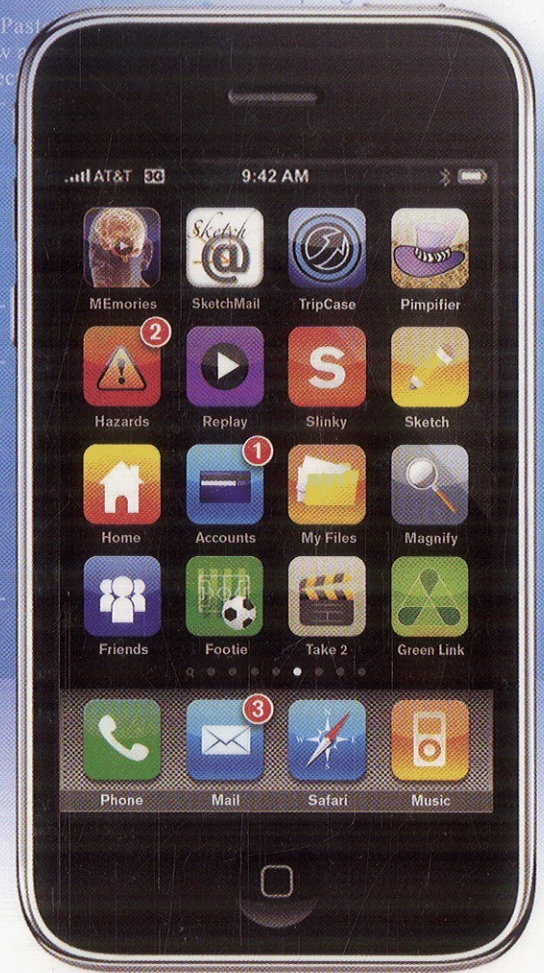


```
(void) paste:(id) sender {
    float xOffset = 0.0f;
    float yOffset = 0.0f;
    for (UIImage *image in [UIPasteboard generalPasteboard.images]) {
        UIImageView *imgView = [[UIImageView alloc] initWithImage:image];
        imgView.frame = CGRectMake(lastTouchRect.x, lastTouchRect.y,
                                   [image size].width, [image size].height);
        [self.view addSubview:imgView];
        xOffset += 15.0f;
        yOffset += 15.0f;
    }
}
```

Subject: New Game

Select Select All Paste

and like your feedback on the new game!
Julian's developing for the iPhone



Maher Ali

iPhone® SDK 3 Programming

Advanced Mobile Development for Apple iPhone® and iPod® touch

CONTENTS

Preface	xv
1 Getting Started	1
1.1 SDK and IDE Basics	1
1.1.1 Obtaining and installing the SDK	1
1.1.2 Creating a project	2
1.1.3 Familiarizing yourself with the IDE	3
1.1.4 Looking closely at the generated code	5
1.2 Creating Interfaces	6
1.2.1 Interface Builder	7
1.3 Using the Debugger	14
1.4 Getting More Information	15
1.5 Summary	16
Problems	17
2 Objective-C and Cocoa	19
2.1 Classes	20
2.1.1 Class declaration	20
2.1.2 How do I use other declarations?	21
2.1.3 Class definition	22
2.1.4 Method invocation and definition	22
2.1.5 Important types	23
2.1.6 Important Cocoa classes	24
2.2 Memory Management	24
2.2.1 Creating and deallocating objects	24
2.2.2 Preventing memory leaks	25
2.3 Protocols	27
2.3.1 Protocol conformance	28
2.4 Properties	29
2.4.1 Property declaration	29
2.4.2 Circular references	34
2.5 Categories	36
2.6 Posing	38

2.7	Exceptions and Errors	38
2.7.1	Exceptions	38
2.7.2	Errors	43
2.8	Key-value coding (KVC)	45
2.8.1	An example illustrating KVC	46
2.9	Multithreading	51
2.10	Notifications	55
2.11	The Objective-C Runtime	56
2.11.1	Required header files	57
2.11.2	The NSObject class	58
2.11.3	Objective-C methods	59
2.11.4	Examples	62
2.12	Summary	79
	Problems	79
3	Collections	83
3.1	Arrays	83
3.1.1	Immutable copy	86
3.1.2	Mutable copy	88
3.1.3	Deep copy	89
3.1.4	Sorting an array	93
3.2	Sets	96
3.2.1	Immutable sets	97
3.2.2	Mutable sets	99
3.2.3	Additional important methods	100
3.3	Dictionaries	101
3.3.1	Additional important methods	103
3.4	Summary	103
	Problems	104
4	Anatomy of an iPhone Application	105
4.1	Hello World Application	105
4.1.1	Create a main.m file	105
4.1.2	Create the application delegate class	106
4.1.3	Create the user interface subclasses	107
4.2	Building the Hello World Application	108
4.3	Summary	113
	Problems	113
5	The View	115
5.1	View Geometry	115
5.1.1	Useful geometric type definitions	115
5.1.2	The UIScreen class	117
5.1.3	The frame and center properties	118

5.1.4	The bounds property	119
5.2	The View Hierarchy	121
5.3	The Multitouch Interface	121
5.3.1	The UITouch class	122
5.3.2	The UIEvent class	123
5.3.3	The UIResponder class	123
5.3.4	Handling a swipe	128
5.3.5	More advanced gesture recognition	132
5.4	Animation	137
5.4.1	Using the UIView class animation support	137
5.4.2	Sliding view	141
5.4.3	Flip animation	142
5.4.4	Transition animation	142
5.5	Drawing	145
5.6	Summary	147
	Problems	147
6	Controls	149
6.1	The Foundation of all Controls	149
6.1.1	UIControl attributes	149
6.1.2	Target-action mechanism	150
6.2	The Text Field	153
6.2.1	Interacting with the keyboard	155
6.2.2	The delegate	158
6.2.3	Creating and working with a UITextField	159
6.3	Sliders	160
6.4	Switches	161
6.5	Buttons	163
6.6	Segmented Controls	164
6.7	Page Controls	167
6.8	Date Pickers	168
6.9	Summary	170
	Problems	170
7	View Controllers	171
7.1	The Simplest View Controller	171
7.1.1	The view controller	171
7.1.2	The view	173
7.1.3	The application delegate	174
7.1.4	Summary: creating a simple MVC application	175
7.2	Radio Interfaces	177
7.2.1	A detailed example	177
7.2.2	Some comments on tab bar controllers	182
7.3	Navigation Controllers	186

7.3.1	A detailed example	187
7.3.2	Customization	193
7.4	Modal View Controllers	197
7.4.1	A detailed example	197
7.5	Summary	203
	Problems	203
8	Special-Purpose Views	205
8.1	Picker View	205
8.1.1	The delegate	206
8.1.2	An example	207
8.2	Progress Views	211
8.2.1	An example	213
8.3	Scroll View	215
8.4	Text View	217
8.4.1	The delegate	218
8.4.2	An example	218
8.5	Alert View	221
8.6	Action Sheet	224
8.7	Web View	225
8.7.1	A simple web view application	226
8.7.2	Viewing local files	230
8.7.3	Evaluating JavaScript	235
8.7.4	The web view delegate	242
8.8	Summary	247
	Problems	247
9	Table View	249
9.1	Overview	249
9.2	The Simplest Table View Application	250
9.3	A Table View with both Images and Text	255
9.4	A Table View with Section Headers and Footers	257
9.5	A Table View with the Ability to Delete Rows	258
9.6	A Table View with the Ability to Insert Rows	265
9.7	Reordering Table Rows	270
9.8	Presenting Hierarchical Information	275
9.8.1	Detailed example	278
9.9	Grouped Table Views	285
9.10	Indexed Table Views	288
9.11	Dynamic Table Views	294
9.12	Whitening Text in Custom Cells	297
9.13	Summary	302
	Problems	303

10 File Management	305
10.1 The Home Directory	305
10.2 Enumerating a Directory	306
10.3 Creating and Deleting a Directory	308
10.4 Creating Files	309
10.5 Retrieving and Changing Attributes	312
10.5.1 Retrieving attributes	314
10.5.2 Changing attributes	315
10.6 Working with Resources and Low-level File Access	317
10.7 Summary	320
Problems	321
11 Working with Databases	323
11.1 Basic Database Operations	323
11.1.1 Opening, creating, and closing databases	325
11.1.2 Table operations	325
11.2 Processing Row Results	327
11.3 Prepared Statements	330
11.3.1 Preparation	330
11.3.2 Execution	331
11.3.3 Finalization	331
11.3.4 Putting it together	331
11.4 User-defined Functions	333
11.5 Storing BLOBs	337
11.6 Retrieving BLOBs	341
11.7 Summary	343
Problems	343
12 XML Processing	345
12.1 XML and RSS	345
12.1.1 XML	345
12.1.2 RSS	347
12.1.3 Configuring the XCode project	350
12.2 Document Object Model (DOM)	351
12.3 Simple API for XML (SAX)	358
12.4 An RSS Reader Application	367
12.5 Putting It Together	369
12.6 Summary	371
Problems	371
13 Location Awareness	373
13.1 The Core Location Framework	373
13.1.1 The CLLocation class	375
13.2 A Simple Location-aware Application	377

13.3	Google Maps API	380
13.3.1	A geocoding application	380
13.4	A Tracking Application with Maps	386
13.5	Working with ZIP Codes	392
13.6	Working with the Map Kit API	394
13.6.1	The MKMapView class	395
13.6.2	The MKCoordinateRegion structure	395
13.6.3	The MKAnnotation protocol	396
13.6.4	The MKAnnotationView class	397
13.6.5	The MKUserLocation class	399
13.6.6	The MKPinAnnotationView class	401
13.7	Summary	401
	Problems	402
14	Working with Devices	403
14.1	Working with the Accelerometer	403
14.1.1	Basic accelerometer values	403
14.1.2	Example	405
14.2	Working with Audio	408
14.2.1	Playing short audio files	408
14.2.2	Recording audio files	410
14.2.3	Playing audio files	412
14.2.4	Using the media picker controller	412
14.2.5	Searching the iPod library	415
14.3	Playing Video	418
14.3.1	<i>Using the MPMoviePlayerController class</i>	418
14.4	Accessing Device Information	419
14.5	Taking and Selecting Pictures	420
14.5.1	Overall approach	420
14.5.2	Detailed example	421
14.6	Monitoring Device Battery	424
14.6.1	Battery level	424
14.6.2	Battery state	424
14.6.3	Battery state and level notifications	424
14.6.4	Putting it together	425
14.7	Accessing the Proximity Sensor	426
14.7.1	Enabling proximity monitoring	427
14.7.2	Subscribing to proximity change notification	427
14.7.3	Retrieving the proximity state	427
14.8	Summary	428
	Problems	428
15	Internationalization	429
15.1	String Localization	430

15.2	Date Formatting	435
15.2.1	Custom formats	437
15.3	Number Formatting	438
15.4	Sorted List of Countries	441
15.5	Summary	441
	Problems	441
16	Custom UI Components	443
16.1	Text Field Alert View	443
16.2	Table Alert View	447
16.3	Progress Alert View	452
16.4	Summary	456
	Problems	456
17	Advanced Networking	459
17.1	Determining Network Connectivity	459
17.1.1	Determining network connectivity via EDGE or GPRS	460
17.1.2	Determining network connectivity in general	461
17.1.3	Determining network connectivity via WiFi	461
17.2	Uploading Multimedia Content	462
17.3	Computing MD5 Hash Value	465
17.4	Multithreaded Downloads	467
17.4.1	The application	467
17.5	Push Notification	474
17.5.1	Configuring push notification on the server	474
17.5.2	Configuring the client	481
17.5.3	Coding the client	484
17.5.4	Coding the server	487
17.6	Sending Email	487
17.6.1	Using the mail composition view controller	488
17.7	Summary	490
	Problems	491
18	Working with the Address Book Database	493
18.1	Introduction	493
18.2	Property Types	494
18.3	Accessing Single-Value Properties	494
18.3.1	Retrieving single-value properties	495
18.3.2	Setting single-value properties	496
18.4	Accessing Multi-Value Properties	496
18.4.1	Retrieving multi-value properties	496
18.4.2	Setting multi-value properties	499
18.5	Person and Group Records	500
18.6	Address Book	501

18.7	Multithreading and Identifiers	503
18.8	Person Photo Retriever Application	503
18.9	Using the <code>ABUnknownPersonViewController</code> Class	505
18.10	Using the <code>ABPeoplePickerNavigationController</code> Class	507
18.11	Using the <code>ABPersonViewController</code> Class	509
18.12	Using the <code>ABNewPersonViewController</code> Class	510
18.13	Summary	512
	Problems	513
19	Core Data	515
19.1	Core Data Application Components	515
19.2	Key Players	516
19.2.1	Entity	516
19.2.2	Managed object model	516
19.2.3	Persistent store coordinator	517
19.2.4	Managed object context	517
19.2.5	Managed object	517
19.2.6	Summary	518
19.3	Using the Modeling Tool	521
19.4	Create, Read, Update and Delete (CRUD)	527
19.4.1	Create	527
19.4.2	Delete	527
19.4.3	Read and update	527
19.5	Working with Relationships	530
19.6	A Search Application	531
19.6.1	The <code>UISearchDisplayController</code> class	531
19.6.2	Main pieces	533
19.7	Summary	538
	Problems	538
20	Undo Management	539
20.1	Understanding Undo Management	539
20.1.1	Basic idea	539
20.1.2	Creating an undo manager	540
20.1.3	Registering an undo operation	540
20.1.4	Hooking into the undo management mechanism	541
20.1.5	Enabling shake to edit behavior	542
20.2	Detailed Example	543
20.2.1	The view controller class	543
20.2.2	First responder status	543
20.2.3	Editing mode and the <code>NSUndoManager</code> instance	544
20.2.4	Registering undo actions	544
20.3	Wrapping Up	546

20.4 Summary	546
Problems	546
21 Copy and Paste	547
21.1 Pasteboards	547
21.1.1 System pasteboards	547
21.1.2 <i>Creating pasteboards</i>	547
21.1.3 Properties of a pasteboard	548
21.2 Pasteboard Items	548
21.2.1 Pasteboard items	549
21.2.2 Manipulating pasteboard items	549
21.3 The Editing Menu	551
21.3.1 The standard editing actions	551
21.3.2 The UINavigationController class	551
21.3.3 The role of the view controller	552
21.4 Putting it Together	553
21.4.1 The image view	553
21.4.2 The view controller	554
21.5 Summary	558
Problems	559
Appendices	561
A Saving and Restoring App State	563
B Invoking External Applications	567
C App Store Distribution	569
D Using XCode	571
D.1 XCode Shortcuts	571
D.2 Creating Custom Templates	571
D.2.1 Changing template macro definitions	573
D.3 Build-Based Configurations	574
D.4 Using Frameworks	577
E Unit Testing	581
E.1 Adding a Unit Test Target	581
E.2 Adapting to Foundation	582
E.3 The Model	584
E.4 Writing Unit Tests for the Employee Class	586
E.4.1 The setUp and tearDown methods	587
E.4.2 Testing for equality	588
E.4.3 Testing for nullity	588

E.5	Adding a Build Dependency	589
E.6	Running the Tests	589
F	Working with Interface Builder	591
F.1	National Debt Clock Application	591
F.1.1	Creating the project	591
F.1.2	Creating the view controller class	591
F.1.3	The application delegate class	594
F.1.4	Building the UI	595
F.2	Toolbar Application	609
F.2.1	Writing code	609
F.2.2	Building the UI	611
F.2.3	Putting it together	617
	References and Bibliography	619
	Index	621