



This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

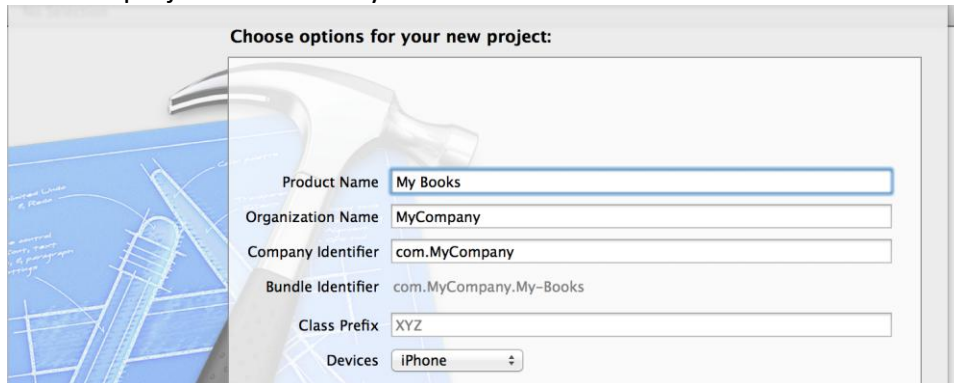
Authoring Organization: Collin College
Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands
Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)

Development was funded by the Department of Labor (DOL) Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grant No. TC-22525-11-60-A-48; The National Information Security, Geospatial Technologies Consortium (NISGTC) is an entity of Collin College of Texas, Bellevue College of Washington, Bunker Hill Community College of Massachusetts, Del Mar College of Texas, Moraine Valley Community College of Illinois, Rio Salado College of Arizona, and Salt Lake Community College of Utah.

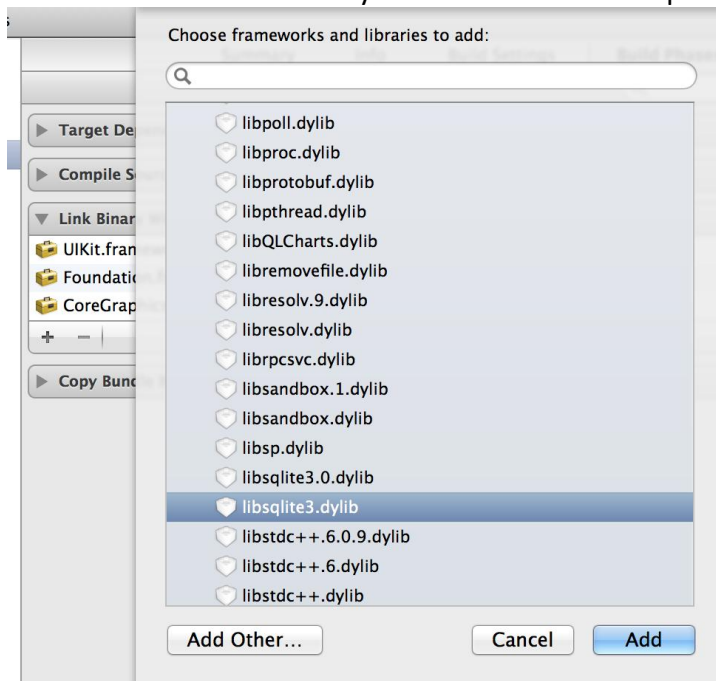
This workforce solution was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties or assurances of any kind, express or implied, with respect to such information, including any information on linked sites, and including, but not limited to accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability or ownership.

Practice Example—Data Handling—SQL Lite

1. Create a project. Name it My Books.



2. In Build Phases—Link Binary with libraries add libsqlite3.dylib.



3. Go to the viewController.h and import SQL #import <sqlite3.h>.

```
#import <UIKit/UIKit.h>
#import <sqlite3.h>

@interface ViewController : UIViewController

@end
```



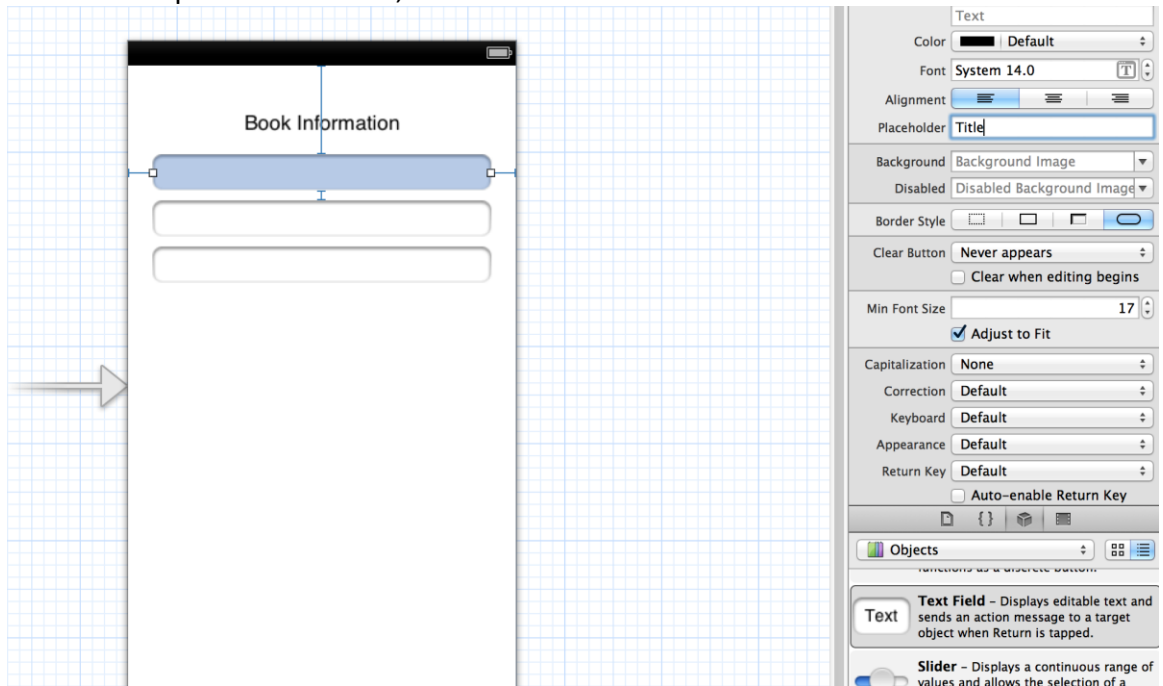
This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

Authoring Organization: Collin College

Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands

Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)

4. Select the mainstoryboard and build the interface. You are going to need 3 different textfields, 2 buttons and 2 labels. At the top of the view, add a label and enter the text 'Book Information'.
5. Add 3 text fields. First text field has in placeholder 'Title' and outlet titleLabel. Second textfield has placeholder 'Primary Author' with outlet authorLabel. Third textfield has placeholder ISBN, with the outlet isbnLabel.



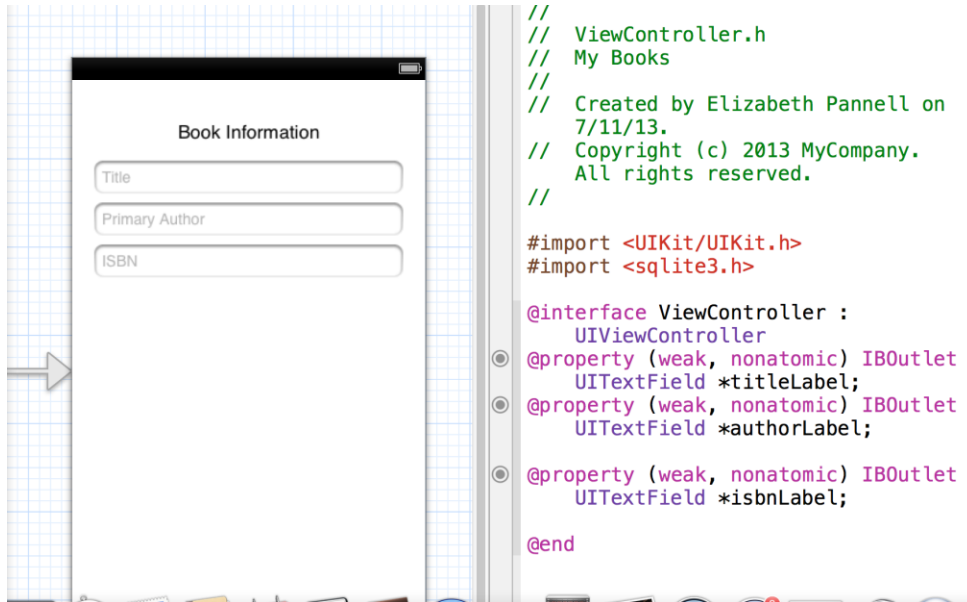
This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

Authoring Organization: Collin College

Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands

Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)

6. Add a label with the outlet statusLabel.
7. Add an action to the Save button named saveButton.
8. Add an action to the Search button named searchButton.



9. In viewController.h, add:

```
@property (strong, nonatomic) NSString *dataPath;  

@property (nonatomic) sqlite3 *bookData;
```

```
#import <UIKit/UIKit.h>  

#import <sqlite3.h>  

@interface ViewController :  

    UIViewController  

    @property (weak, nonatomic) IBOutlet  

    UITextField *titleLabel;  

    @property (weak, nonatomic) IBOutlet  

    UITextField *authorLabel;  

    @property (weak, nonatomic) IBOutlet  

    UITextField *isbnLabel;  

    @property (weak, nonatomic) IBOutlet  

    UILabel *statusLabel;  

    - (IBAction)saveButton:(id)sender;  

    - (IBAction)searchButton:(id)sender;  

    @property (strong, nonatomic)  

    NSString *dataPath;  

    @property (nonatomic) sqlite3 *  

    bookData;
```



This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

Authoring Organization: Collin College

Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands

Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)



This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

Authoring Organization: Collin College

Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands

Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)

10. In viewController.m, in viewDidLoad add the following code:

```
- (void)viewDidLoad
{
    [super viewDidLoad];
    // Do any additional setup after loading the view, typically from a nib
    NSString *docsDir;
    NSArray *dirPaths;

    // Get the documents directory
    dirPaths = NSSearchPathForDirectoriesInDomains(
                                                NSDocumentDirectory,
                                                NSUserDomainMask, YES);

    docsDir = dirPaths[0];

    // Build the path to the database file
    _dataPath = [[NSString alloc]
                 initWithString: [docsDir stringByAppendingPathComponent:
                                 @"books.db"]];

    NSFileManager *filemgr = [NSFileManager defaultManager];

    if ([filemgr fileExistsAtPath: _dataPath] == NO)
    {
        const char *dbpath = [_dataPath UTF8String];

        if (sqlite3_open(dbpath, &_bookData) == SQLITE_OK)
        {
            char *errMsg;
            const char *sql_stmt =
                "CREATE TABLE IF NOT EXISTS BOOKS (ID INTEGER PRIMARY KEY
                AUTOINCREMENT, TITLE TEXT, AUTHOR TEXT, ISBN TEXT)";

            if (sqlite3_exec(_bookData, sql_stmt, NULL, NULL, &errMsg) !=
                SQLITE_OK)
            {
                _statusLabel.text = @"Failed to create table";
            }
            sqlite3_close(_bookData);
        } else {
            _statusLabel.text = @"Failed to open/create database";
        }
    }
}
```



This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

Authoring Organization: Collin College

Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands

Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)

11. Go to saveButton method and add the following code:

```
- (IBAction)saveButton:(id)sender {
    sqlite3_stmt *statement;
    const char *dbpath = [_dataPath UTF8String];

    if (sqlite3_open(dbpath, &_bookData) == SQLITE_OK)
    {
        NSString *insertSQL = [NSString stringWithFormat:
            @"INSERT INTO BOOKS (title, author, isbn)
            VALUES ("%@\"", "%@", "%@", \"",
            self.titleLabel.text, self.authorLabel.text,
            self.isbnLabel.text)];

        const char *insert_stmt = [insertSQL UTF8String];
        sqlite3_prepare_v2(_bookData, insert_stmt,
            -1, &statement, NULL);
        if (sqlite3_step(statement) == SQLITE_DONE)
        {
            self.statusLabel.text = @"Book added";
            self.titleLabel.text = @"";
            self.authorLabel.text = @"";
            self.isbnLabel.text = @"";
        } else {
            self.statusLabel.text = @"Failed to add contact";
        }
        sqlite3_finalize(statement);
        sqlite3_close(_bookData);
    }
}
```



This work by the National Information Security and Geospatial Technologies Consortium (NISGTC), and except where otherwise noted, is licensed under the [Creative Commons Attribution 3.0 Unported License](https://creativecommons.org/licenses/by/3.0/).

Authoring Organization: Collin College

Written by: Original Author, Elizabeth Pannell; Edited Version, Susan Sands

Copyright: © National Information Security, Geospatial Technologies Consortium (NISGTC)

12. Go to searchButton method and add the following code:

```
}
- (IBAction)searchButton:(id)sender {
    const char *dbpath = [_dataPath UTF8String];
    sqlite3_stmt *statement;

    if (sqlite3_open(dbpath, &_bookData) == SQLITE_OK)
    {
        NSString *querySQL = [NSString stringWithFormat:
            @"SELECT author, isbn FROM books WHERE title=
            \"%@\\"",
            _titleLabel.text];

        const char *query_stmt = [querySQL UTF8String];

        if (sqlite3_prepare_v2(_bookData,
            query_stmt, -1, &statement, NULL) == SQLITE_OK
        )
        {
            if (sqlite3_step(statement) == SQLITE_ROW)
            {
                NSString *authorField = [[NSString alloc]
                    initWithUTF8String:
                    (const char *) sqlite3_column_text(
                        statement, 0)];

                /*NSString *authorField=[[NSString alloc]initWithUTF8String:
                    (const char *)sqlite3_column_text(statement, 1)];*/
                _authorLabel.text = authorField;

                NSString *isbnField = [[NSString alloc]
                    initWithUTF8String:(const char *)
                    sqlite3_column_text(statement, 1)];
                _isbnLabel.text = isbnField;
                _statusLabel.text = @"Match found";
            } else {
                _statusLabel.text = @"Match not found";
                _authorLabel.text = @"";
                _isbnLabel.text = @"";
            }
            sqlite3_finalize(statement);
        }
        sqlite3_close(_bookData);
    }
}
```

13. Run and test.

