

## Lab 7 – Tide Prediction App: SQLite Database

CS235AM, Intermediate Mobile Application Development: Android

### Overview

This lab will give you practice using an SQLite database and the SQLite.NET ORM.

### Part 1: SQLite.Net Exercise

Do the SQLite.Net exercise using the Stock Price project. Take screen-shots of the Android app running on an emulator or device.

### Part 2, Group A: Data from tsv file, string time fields

Modify the Tide Prediction application from lab 4 so that users can:

- Pick a location, from a list of at least three locations, for tide predictions.
- Select a date and see at least one day's high and low tides starting at midnight on the selected date.
- The tide predictions will be shown on a second screen.

The annual tide predictions for each location will be pre-loaded into the application.

First Activity	Second Activity																																								
<div><div>Florence Newport Astoria</div><div>← Spinner</div><div>June 10, 2017 June 11, 2017 May 12, 2016</div><div>← Date Picker</div><div>Show Tides</div><div>← Button</div></div>	<div><p>ListView</p><table><tr><th>Date</th><th>Day</th><th>Time</th><th>Height</th><th>H/L</th></tr><tr><td>06/11</td><td>Sat</td><td>03:56 AM</td><td>7.02</td><td>H</td></tr><tr><td>06/11</td><td>Sat</td><td>10:52 AM</td><td>-0.73</td><td>L</td></tr><tr><td>06/11</td><td>Sat</td><td>05:39 PM</td><td>5.96</td><td>H</td></tr><tr><td>06/11</td><td>Sat</td><td>11:05 PM</td><td>2.72</td><td>L</td></tr><tr><td>06/12</td><td>Sun</td><td>04:53 AM</td><td>6.37</td><td>H</td></tr><tr><td>06/12</td><td>Sun</td><td>11:48 AM</td><td>-0.18</td><td>L</td></tr><tr><td>06/12</td><td>Sun</td><td>06:39 PM</td><td>5.85</td><td>H</td></tr></table><p>(The information shown above is required, but the layout and format are optional)</p></div>	Date	Day	Time	Height	H/L	06/11	Sat	03:56 AM	7.02	H	06/11	Sat	10:52 AM	-0.73	L	06/11	Sat	05:39 PM	5.96	H	06/11	Sat	11:05 PM	2.72	L	06/12	Sun	04:53 AM	6.37	H	06/12	Sun	11:48 AM	-0.18	L	06/12	Sun	06:39 PM	5.85	H
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### **Implementation**

Use an SQLite database file instead of a text file to provide tide information for the ListView in your app. Your app's database will have one table containing all the annual tide prediction information for all the tide stations.

Prepare an SQLite database file by writing a console app that will pre-load the SQLite database file with tide information that you have downloaded from [http://tidesandcurrents.noaa.gov/tide\\_predictions.html?gid=1409](http://tidesandcurrents.noaa.gov/tide_predictions.html?gid=1409) Put the database file in the assets folder for your project so that it will be deployed to the device with the app (as part of the apk).

The location and date-time selected in the first activity will be sent to the second activity in intent. In the second activity, the database will be queried (via SQLite-Net) to get the tide prediction data that will be displayed in the ListView

Your console program will:

- Preload a database file from annual tide prediction files formatted as tab separated values (downloaded from NOAA using the TXT button).
- Store each date and time in two or more separate fields in the database. Use strings and/or numbers, as you deem appropriate. Hint: Use the DateTime Structure to parse and reformat the date and time, [https://msdn.microsoft.com/en-us/library/system.datetime\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.datetime(v=vs.110).aspx).

Your Android app will:

- Display time in 12-hour format
- Display tide height in cm

## Submission

### *Beta Version*

Post the following to the Beta + Code Review Forum:

- 1) For part 1: A document containing screen-shots of the tutorial app with each screen-shot labeled. (Please use .docx or .pdf format.)
- 2) For part 2: A zip file containing your app's Visual Studio solution folder. (Make your solution smaller by deleting the *obj* and *bin* folders.)  
Or, optionally, a link to a repository containing your solution source code. (You can put the link on the same document with the screen-shots for part 1.)
- 3) A copy of your lab instructions (so the lab partner who reviews your work will know what the requirements were for your app).

### *Production Version*

1. Items 1 and 2 above, but revised as needed.
2. The code review of your work (the one done by your lab partner) with the second column ("Release") completed by you.